The University of Edinburgh

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Technological Innovations in Voluntary Organisations:

Towards a Sociology of Relaxed Infrastructures

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The University of Edinburgh

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Abstract

This thesis is motivated by the need to explore the relationships between technology and volunteerism. Despite the fact that information and communication technologies (ICTs) proliferate within voluntary organisations and have an obvious effect on volunteering practice, the literature on the relationships between such technologies and voluntary contexts is scant. This is particularly in terms of its insights with regard to the actual processes of production and consumption of these technologies within the sector.

This interdisciplinary research project was carried out to answer a central research problem: how do information technologies interrelate with human activities in voluntary settings? In throwing light on this problem, an ethnographic case-oriented study was conducted in a Scottish community-based sports organisation over the course of two years. This research has utilised insights from the Sociology of Technology, Information Systems Research and Organisational Sociology to find out how human actors’ interactions with technology play out in the context of volunteer-involving organisations, and to conceptualise the complexity of the unfolding of technology in relation to the specific characteristics of volunteering activities.

To unpack the core research question, three types of sociotechnical interactions were identified as the most relevant: these were ‘service’, ‘identity’ and ‘ecological’. My analysis of the empirical data suggests that there are different domains within which these critical interactions are assembled. In my research, three different domains (drifting, conditioning and imbricating) have thematically emerged when sociotechnical interactions were being mapped out in (a) shadowing a technology project, (b) analysing technological non-use and (c) rethinking organisational persistence in the selected observed case.

This thesis argues for an ‘infrastructural’ approach when studying technology so as to extend our understanding about technology-initiated improvement projects in the sector. This research argues that accomplishing volunteer work requires complicated mixture of sociomaterial assemblages, including ICTs, which are embedded in the everyday life of volunteers, paid staff and their community. Furthermore, this study discusses that existing analytical infrastructural approaches developed in relation to artefact-oriented, large-scale sociotechnical networks need some modification to be satisfyingly applied in low-tech, mundane settings such as volunteer work in amateur sports.
Acknowledgement

I have never thought that writing an acknowledgement can be as hard as writing a conclusion for the whole doctoral thesis; not only because of the few lines that I have to thank all involved people but also to find appropriate words and fitting collocations to express my deepest feelings. Let me try my best, so, THANK YOU:

Neil Pollock, for your wisdom and patience in a not-so-smooth process of my learning, researching and doctoral becoming. Neil! Your enduring supervision has successfully helped me to create my own academic self; to learn to find my own way. Thank you.

Stephen Harwood, for your never-ending support and always-available access, when a doctoral student is anxious, disappointed or needs some quick help. Stephen! Your kind words, in your twilight room with the mediating music on, has served as a relaxation to my studies. Thank you.

Friends, staff and faculty at the Business School; Mehdi, Gordon, Hajar, Farjam, Sara, Jose, Veselina, Najmeh, Li, Mahmoud, George, Marian, Valeri, Khalil, Duncan and all other fellows! Our discussions, chats and laughs have all been and will always be part of the best memories in my doctoral life.

The people at the ISSTI and the Edinburgh Social Informatics Cluster, in particular, Robin Williams and Mark Hartswood; my engagement and participation in these two venues have expanded my professional horizons and provided me with some fresh critical ideas.

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And at the end, I would like to dedicate this dissertation to two significant characters whose biographies, philosophies and moralities have been influencing and reshaping my entire lifespan, including this some years of the doctoral journey: Nasir al-Din al-Tusi (1201-1274) and Muhammad Husayn Tabataba’i (1903-1981).
Declaration

In accordance with the University of Edinburgh regulations, I hereby declare that:

1. This thesis has been composed solely by myself;
2. This thesis is entirely my own work; and
3. This thesis has not been submitted in part or whole for any other degree or personal qualification

May 2016

Ali Eshraghi

Note on publication

Part of the empirical data and theoretical arguments has been published in:

# Table of Content

Abstract........................................................................................................................................ ii
Declarations .................................................................................................................................... iv
Table of Content .......................................................................................................................... v
List of Tables ................................................................................................................................... x
List of Figures ................................................................................................................................... xi
List of Abbreviations .................................................................................................................... xii
Preface ............................................................................................................................................. xiii

1. Introduction: ‘Technology and Volunteerism’ in Action ......................................................... 1
   Background to the Thesis: Volunteer Work, Technology and ‘the Context’ .......................... 1
   An Overview of the Research Design .................................................................................... 9
   Roadmap for the Thesis ........................................................................................................ 10

2. From Existing Studies to a Sociological Conceptual Lens ..................................................... 13
   Aim and Structure .................................................................................................................. 13
   Reviewing Volunteerism Studies ....................................................................................... 13
   Terminological Challenge: A Case-Oriented Solution .................................................... 14
   Volunteerism in the UK and Sport .................................................................................... 15
   Domains of Voluntary Action .......................................................................................... 17
   Expressive vs. Instrumental ............................................................................................ 17
   Members Benefits vs. Public Benefits ............................................................................ 18
   Demand-Side vs. Supply-Side ....................................................................................... 20
   Volunteering: Work outside Employment ....................................................................... 21
   What is Work? A Sociological Thinking .......................................................................... 22
   Volunteer-led Sports Organisations ................................................................................ 24
   Volunteering as Social Activity: A Meso-Structural Examination .................................. 25
   Dual Role of Community ................................................................................................... 26
   Changing Ethos of Amateurism ....................................................................................... 27
   Examining ICT Research in Voluntary Contexts ............................................................ 28
   ICTs ‘for’ VSOs: Enhancing the Sector ......................................................................... 28
   ICTs ’and’ VSOs: Charting the Studies ......................................................................... 29
   IT as Consequential ......................................................................................................... 31
   VSO as Research Context ............................................................................................... 34
   Communities as Design Sites ......................................................................................... 36
   Summary and the Conceptual Framework ........................................................................ 40
   Janet Face of Technology .................................................................................................. 40
   Technology inside Multidimensional Assemblage ........................................................... 43
   Conceptualising Technology? An STS-inspired Framework .............................................. 44
   Science and Technology Studies ...................................................................................... 45
3. Composing a Quasi-Ethnographic Research ......................................................... 46

AIM AND STRUCTURE ................................................................................. 46
FOREWORD ............................................................................................... 47
Phenomenon of Interest: Volunteering and Technology ............................................. 48
Research Setting: Embracing Scottish Swimming as the Empirical Land ...................... 48
THE CHOICE OF METHODOLOGICAL DESIGN ................................................. 51
Research Philosophy: Joining Anti-Positivism and Anti-Essentialism ......................... 52
Research Strategy: Evolving Abductive Method ....................................................... 54
Research Method: Performing Ethnographic Study ................................................... 56
ON MY FIELDWORK: STUDYING FROM INSIDE ................................................. 59
Being an Involved Researcher: An Emergent Multilevel Field .................................... 59
How to do Ethnography? Missed Interactions Included ............................................. 60
Sources and Makeup of the Empirical Materials ....................................................... 62
ON MY HEADWORK: ‘IT COULD BE OTHERWISE!’ .............................................. 66
Creating a Theoretical Cocktail ........................................................................... 68
Data Analysis: Between the Field and the Desk ......................................................... 69
Scrutinised Themes and Utilised Concepts in this Study ............................................. 71
ON MY TEXTWORK: ‘THE TEXT IS A LABORATORY’ ........................................ 72
Producing a Text that Convinces ........................................................................... 72
Verification and Generalisation Contextualised ......................................................... 74
Structure and Style of the Thesis ........................................................................... 75
EPILOGUE ..................................................................................................... 78
Being a Good Researcher: Performance and Ethics .................................................... 78
Quasi-Ethnographic Endeavour as Methodological Stance ....................................... 80

4. Technology Project as Helical Drifting: Shadowing an IT-based Change Project in a Small Club ......................................................... 82

INTRODUCTION ......................................................................................... 82
ADJUSTIVE MODEL OF IT-ENABLED CHANGE MANAGEMENT IN THE VOLUNTARY SECTOR ................................................................................................................................. 84
Technical Assistance as Working Solution ................................................................ 86
Contextual Conditions Influence IT Development and Use ......................................... 88
Summary and Further Analysis of the Existing Knowledge ........................................ 89
DRIFT PHENOMENON: RECONSTRUCTING CIBORRA’S GENERAL MODEL ................................. 92
The Content of Drift: An Encounter that Matters ..................................................... 94
Non-Human as Affordance-Possessing Agent ............................................................ 95
Human as Role-Playing Agent .................................................................................. 95
The Dynamics of Drift: Inertia, Implantation and Impromptu .................................... 96
Implantation: The Sheer Complexity of the ‘New’ Technological Innovation .......... 96
Inertia: The Power of the Installed ‘Base’ ................................................................. 96
Impromptu: An Infinite Variety of Coping and Care ‘Tactics’ .................................... 97
A QUICK NOTE ON THE METHOD .................................................................. 97
The Case of IT Replacement in a Swimming Club ..................................................... 97
Fieldwork and Narration ......................................................................................... 98
EMPIRICAL STORY: MAIN SYSTEM REPLACEMENT PROJECT IN WATER125 ............ 98
The Birth of an IT Project Idea: TeamUnify Procurement ....................................... 99
Unplanned Meeting ............................................................................................... 99
5. Technological Non-Use Can Be Still Activity! Examining Sociotechnical Conditioning in Low-Tech Mundane Settings ................................................................. 122

INTRODUCTION .................................................................................................................. 122

NON-USE AS EMERGING RESEARCH PROGRAMME: CONCEPTS AND CHALLENGES ...... 124

Existing Theoretical Candidates to Conceptualise Non-Use .............................................. 125

Non-Users as Relevant Social Group ............................................................................... 126

Non-Users as Managed by Scripts and Scripters ............................................................... 127

Sociotechnical Conditioning: A Social Worlds Perspective ............................................. 129

From Negotiating to Ordering ......................................................................................... 130

Conditioning: Changes in Lines of Sociotechnical Activity ........................................... 132

Sociotechnical Condition in Non-Use Practice ............................................................... 133

A QUICK NOTE ON THE METHOD ................................................................................. 135

NON-USE STORIES IN A VOLUNTARY-BASED SWIMMING SYSTEM .......................... 136

The Formation of Technology in Voluntary-based Swimming ....................................... 136

Adopting Non-Local Software Packages: American Hy-Tek in Scotland ..................... 137

Configuring Clubs with the Standard System: Everyday Life of Hy-Tek ....................... 141

Re-Creating the Organisational Paths: Doodle vs. eMail ............................................ 146

DISCUSSION: THE SOCIOTECHNICAL CONDITIONING OF NON-USE ...................... 149

Conceptual Conditions ...................................................................................................... 151

Technological Conditions ............................................................................................... 152

INTRODUCTION ........................................................................................................... 156

ORGANISATIONAL STUDIES OF VOLUNTEER WORK: PERSISTENCE .......... 159
  Community and Organisational Sociology ................................................................. 159
  Organisational Persistence .......................................................................................... 160
  Relational and Dynamic Approaches to Volunteer Work ........................................ 161
  Commitment-Expertise Dilemma ................................................................................ 161

A PRAGMATIC AND INFRASTRUCTURAL PERSPECTIVE ON VOLUNTEERISM ....... 162
  Foundations of Trajectory Framework ........................................................................ 163
  Mutual Tuning of Sociomaterial Trajectories ............................................................ 164
  Constitutive Volunteering and Infrastructural Trajectories ....................................... 166

A QUICK NOTE ON THE METHOD ............................................................................. 167
  Syntagmatic Line ........................................................................................................ 167
  Strategic and Multi-Sited Ethnography ....................................................................... 168

EMPIRICAL STORIES .................................................................................................... 169
  Reading Three Selected Master Narratives ................................................................ 169
  Eras of the SASA Development ................................................................................. 170
    Manual Handling and Limited Localised Meets: (~1884-1990) ......................... 170
    Joint Organising and Constructing a Homegrown Platform: (~1998-Now) ......... 176
  Pieces of the Existing SASA ...................................................................................... 180
    Meet Management .................................................................................................... 181
    Club Administration ................................................................................................. 183
    Officials Development .............................................................................................. 186
    Archive Creation ....................................................................................................... 189
    Swimming Professionalisation .................................................................................. 192

INFRASTRUCTURAL TRAJECTORIES AT SASA: VOLUNTEERING-IN-THE-MAKING .... 194
  Core Trajectories at SASA ......................................................................................... 195
    Commitment Trajectories ......................................................................................... 196
    Professional Trajectories ......................................................................................... 197
    Material Trajectories ................................................................................................ 198
    The Imbricated Timed Trajectories ......................................................................... 199

INSIGHTS FOR THE VOLUNTEERISM RESEARCH ...................................................... 200
  Artefacts at the Centre ............................................................................................... 200
  Unique Affordance of IT ............................................................................................. 201
  From Volunteer Activities to Volunteer Infrastructure ............................................. 201

CONCLUSION ............................................................................................................... 203

7. Volunteering Meets Infrastructuralism: Towards a Sociology of ‘Relaxed’ Infrastructures

AIM AND STRUCTURE .................................................................................................. 206

INTRODUCTION .......................................................................................................... 207

METHODOLOGICAL TEMPLATE: ‘RELEVANT’ INTERACTIONS? ......................... 208
Technological Innovations in Voluntary Organisations

Appendix 1: Quick Market Analysis (Swimming Software Vendors) ........................................... 267
Appendix 2: Examples of Initiatives Providing IT Supports for Voluntary Organisations
.................................................................................................................................................. 269
Appendix 3: Background to Water125 ......................................................................................... 271
Appendix 4: The Organisation of Volunteer Work in Swimming Sport ...................................... 275
List of Tables

Table 2-1: ICT ‘and’ Voluntary Sector Organisations: Fields and Themes
   ..................................................................................31
Table 3-1: An Extract from a Conference Paper Summarising My Methodological Thoughts
   ..................................................................................50
Table 3-2: Interview and Observations at Water 125
   ..................................................................................64
Table 3-3: Interviews and Observations at Scottish Swimming
   ..................................................................................65
Table 3-4: Supporting Empirical Materials beyond Scotland
   ..................................................................................66
Table 3-5: Scrutinised Theme and Utilised Concept in Each Empirical Scenario
   ..................................................................................72
Table 4-1: Existing vs. Proposed View on ICT-based Change in VSOs
   ..................................................................................119
Table 5-1: Existing Conceptual Lens to Understand Non-Users
   ..................................................................................129
Table 6-1: Core Activities in Different Sites of SASA
   ..................................................................................181
Table 6-2: Two Layers of Volunteer Infrastructure
   ..................................................................................202
Table 6-3: Characteristic of Volunteer Infrastructure
   ..................................................................................203
Table 7-1: Key Interaction Categories in the Observed Case
   ..................................................................................213
Table 7-2: IT-related Time-Skills Dynamics in a Small Club
   ..................................................................................217
List of Figures

Figure 3-1: The System of Swimming in Scotland ........................................51
Figure 3-2: The author in the Field: An Example of his Field-Working ..........59
Figure 3-3: An Attempt to Make the Interview ‘Ethnographic’ .........................62
Figure 3-4: Example of Notes in Farsi: Setup of a Competition Control Room ..63
Figure 3-5: Organising Online Empirical Materials in Evernote Application ....63
Figure 3-6: The author at the Academic Events: An Example of Headworking .68
Figure 3-7: The author at the Desk: From Notes to Thoughts and My Textworking 70
Figure 3-8: The Permission to Take Photos as Competition Happens ............80
Figure 4-1: External Assistance and Contextual Conditions in VSO IT Projects ....90
Figure 4-2 Snapshot Taken from TeamUnify’s Website ................................101
Figure 4-3 Nelson’s Assessment of TeamUnify Option ..................................109
Figure 5-1: Helical Drifting in the Observed Case ........................................116
Figure 5-2: SASA National Squad Programme: Top (2012-2013), Bottom (2006) 140
Figure 5-3: The Original Functionality of Hy-Tek .....................................142
Figure 5-4: Flora and Hamish are Sorting-out and Entering Information on Hy-Tek 143
Figure 5-5: The Actual Use of Hy-Tek ......................................................144
Figure 5-6: Non-Use Conditions in Mundane Sociotechnical Settings ............150
Figure 6-1: Paper-based Competition Cards (Boys and Girls) .......................172
Figure 6-2: Printable Competition Cards ..................................................175
Figure 6-3: Accessed 27 Nov 2014 ..........................................................180
Figure 6-4: A Sample of Backup Button (Model OIT3 by Swiss Timing) ........188
Figure 6-5: Archiving Office (Photos taken at Jan 2014) ...............................191
Figure 6-6: The Imbrication in Sociotechnical Trajectories ..........................196
Figure 6-7: Decorating a Houseroom as an ‘Office’ .....................................197
Figure 6-8: Artefacts at the Centre of Volunteerism ....................................201
Figure 7-1: SASA at Glance .......................................................................214
Figure 7-2: Dynamics of SASA Community-based Sociotechnical Assemblages 221
Figure 7-3: Relaxed Infrastructures: Between Irreversibility and Leniency ......231
List of Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANT</td>
<td>Actor Network Theory</td>
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<tr>
<td>ASA</td>
<td>Amateur Swimming Association</td>
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<tr>
<td>CI</td>
<td>Community Informatics</td>
</tr>
<tr>
<td>CMS</td>
<td>Content Management System</td>
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<tr>
<td>CSCW</td>
<td>Computer Supported Cooperative Work</td>
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<td>EC</td>
<td>Electronic Commerce</td>
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<td>ERP</td>
<td>Enterprise Resource Planning</td>
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<tr>
<td>HCI</td>
<td>Human Computer Interaction</td>
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<td>ICT</td>
<td>Information and Communication Technology</td>
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<td>ICT4D</td>
<td>Information and Communication Technology for Development</td>
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<tr>
<td>IS</td>
<td>Information System</td>
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<tr>
<td>IT</td>
<td>Information Technology</td>
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<tr>
<td>NTEN</td>
<td>Nonprofit Technology Enterprise Network</td>
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<tr>
<td>OD</td>
<td>Organisational Development</td>
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<tr>
<td>RGS</td>
<td>Relevant Social Group</td>
</tr>
<tr>
<td>SASA</td>
<td>Scottish Amateur Swimming Association</td>
</tr>
<tr>
<td>SCOT</td>
<td>Social Construction of Technology</td>
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<tr>
<td>STO</td>
<td>Senior Technical Official</td>
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<td>STS</td>
<td>Science and Technology Studies</td>
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<td>VSO</td>
<td>Voluntary Sector Organisation</td>
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Preface

“I like relaxed sets. I like to feel that I can make a mistake without feeling like I’m costing somebody money. I like a sense of freedom. I like it when people are open and are willing to let you do your work”.

Richard Jenkins, Actor
1. Introduction: ‘Technology and Volunteerism’ in Action

Background to the Thesis: Volunteer Work, Technology and ‘the Context’

Scholars and practitioners recognise the significance of volunteerism for civil society development. Nongovernmental and noncommercial organisations rely on the efforts and time of volunteers in pursuing societal values. However, recent socioeconomic changes, such as increasing needs and calls for efficiency and accountability, challenge the ways in which volunteers’ inputs are utilised as well as the working mechanisms of voluntary sector organisations (VSOs). Information Technology (IT) is seen as a major player in dealing with such challenges, and this has contributed to the emergence of ‘Community Informatics’ (CI) as a research field (c.f. Gurstein 2007). The function of technological innovation is acknowledged as having created a mediated or virtual civil society, that increases the efficiency of existing organisations, and redefines their position in a changing economy (Burt and Taylor 2003; Huysman and Wulf 2005; Bach and Stark 2009; Carroll and Rosson 2013). The civil society context has a narrow position in studies of technology, organisation, and work, however, there are attempts that justify this particular context as a relevant, distinct setting for studying the design and use of technology (Walker and Dearden 2005; Zhang et al. 2010).

Despite the importance and impacts of technology as a strategic tool for civil society and volunteerism, our understanding still remains limited about how and to what extent contextual specifications of volunteering work are reconstructed through the design and use of technology. In recent years, there has been a growing interest by volunteerism scholars to rethink long-standing, practical and theoretical challenges of the sector by paying special attention to the organisational grounds of volunteering (Hustinx et al. 2010; Wilson 2012; Harris 2014). That is, in my view, a move from mere individual or institutional accounts volunteering to work domain of volunteering (i.e. volunteer work) in which the organisation and dynamics of voluntary actions are inspected beyond the individual, societal, and policy-initiated agendas around ‘volunteering’.

Given this, since technology is claimed to bring organising capacity to human action (Kallinikos 2003), researching the ways in which contextual (organisational) conditions are reconstructed takes even greater importance. In this thesis, therefore, my hope is to convince my reader that the practice and theory of volunteerism gains valuable, novel
insights by focusing on what exactly happens at the intersection of volunteering’s everyday practices and technology. Moreover, the emphasis on volunteer ‘work’ and technological practice can establish a basis for increased intellectual exchange between volunteerism research streams and critical studies of technology, work, and organising, with particular attention the recent interest in reintroducing ‘work’ in such studies (Barley and Kunda 2001).

A great deal of discussion surrounds the unique contribution of volunteerism for socioeconomic development. At its core is the insight is that volunteerism is the means through which citizens are able to shape democratic communities, generate social capital, tackle social problems, and hence increase the quality of collective life (Putnam 2001; Ganesh and McAllum 2009; Rochester et al. 2010). There are different arenas within which volunteering impacts civil society, such as the arts, the environment, healthcare, religion, social services, and sports. The latter in particular has received much attention because of the large-scale numbers of volunteers involved and their different forms of immersion (Cuskelly et al. 2006). For example, research revealed that in the United Kingdom alone, 5.1% of the population of England formally volunteers in sport, where there are 8.1 million sport club members and 106,423 sport clubs (Nichols et al. 2005). A similar study in Scotland showed that the existence of 13,723 active volunteers in sports clubs where more than half of these clubs (56%) have developed policies for managing their volunteer workforce (Reid Howie and Associates 2006). In Canada, the sports and recreation sector comprises 21% of the whole nonprofit and voluntary sector, which is the highest percentage of any sector (NSNVO, 2004). To realise the widespread influence of volunteerism in sports, another observable sign can be found in almost every single sports-related website: a particular section is devoted to the issue of volunteering. As well, different governments have commissioned reports identifying the size and dynamics of their community-based sports.

Despite its growing significance, the future of volunteerism is a matter of concern (c.f. Ganesh and McAllum 2011), and volunteerism in the sports sector is no exception to this (Burgham and Downward 2005; Nichols et al. 2005). The existence, functions, and role of voluntary-based organisations have been challenged by recent changes within

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1 ‘National Survey of Nonprofit and Voluntary Organizations’ accessed at 03/05/2016 from http://www.vsi-isbc.org/eng/knowledge/nsnvo.cfm
institutional orders and political paradigms (Courtney 2002; Te’eni and Young 2003). This perceived concern has led scholars to suggest that the sector is ‘at a crossroads’ (Salamon 1999; Anheier and Kendall 2012), that it acts ‘as [a] chameleon’ (Brandsen et al. 2005) and comprises a set of ‘contradictory enterprises’ (Sanders 2012).

The exact position of technology relative to the above-mentioned concerns seems rather problematic. On one hand, there are uncertainties about the net advantages of technology since its advances and its deployment necessitate new skills sets and additional resources, which are inherently scarce in the sector (c.f. Venter and Sung 2009). However, in line with attempts to manage the challenges of contemporary volunteerism, a large number of scholars with diverse backgrounds, and practitioners alike emphasise that the communicative, innovative, and transformative capacities of technology can be utilised to foster volunteerism and, in turn, civil society. The key vision is that the impact of developing technological innovations for the sector is beneficial to both strategic and routine activities (Boyle et al. 1993; Burt and Taylor 2003; Hackler and Saxton 2007).

To benefit from the positive contributions of technology, VSOs need first to adopt and accept technological solutions. This has led to studies of technology adoption and organisational integration (MacKay et al. 2004; McInerney 2007; Nugroho 2011). Several dimensions have been identified with impediments to adoption as technologies have been used to address some of the practical and immediate issues of the sector. For instance, the fact that there are limited resources available creates delays in the adoption and implementation of costly, low-priority projects such as technological projects (i.e., the financial dimension). There are strategic doubts about the need for technology (as somewhat of a luxury administrative tool) when the very foundation of the sector is to serve and support societal values (i.e., socio-psychological dimension). Moreover, the fact that the expertise, skills and learning needed to implement and use technologies are unevenly available if available at all (i.e. knowledge dimension). Within the IS literature, in particular, there are ample models examining technological adoption based on these dimensions (c.f. Zhang et al. 2010).

Another set of studies were conducted to discover the impacts and consequences of technological projects in the context of volunteerism, successful or otherwise (Boeder 2002; Saidel and Cour 2003; Carroll and Rosson 2013). The point of departure for them
was to seek connections between changes, at various levels, and technology in this sector. The goals in such studies were to understand the exploitation of technologies in relation to the core values of the organisations and hence the processes of technology appropriation (Burt and Taylor 2001a). When impacts are identified, a common ‘next step’ in this line of research is to attempt to bridge the existing use of technologies with its potential further uses. These studies aim to tackle those issues that promote VSOs’ further successful exploitation of technological innovations (Hackler and Saxton 2007). To provide practical advice, these studies are further motivated to concentrate on a ‘leaders and laggards configuration’ of the sector’s engagement with technologies (Burt and Taylor 2013, p.207).

Studies of both technology adoption and technological impact, supported by quantitatively-generated data, portray a broad image of technology’s status in voluntary settings. Specifications of the sector, such as financial constraints and value-driven strategies, are included in their analysis. Two immediate results are, firstly, a confirmation that context matters, which is a well-documented theme in technology-related studies (Avgerou 2001; Barrett et al. 2006; Mcfarland and Hamilton 2006), and secondly, that this context deserves a unique place in technology studies because of its IT-relevant and distinctive characteristics (Walker and Dearden 2005). Yet, for these research the notion of context is still understood as fixed, simply involving structural conditions that ‘take place in the largest sense’ (Strauss 1978b, p.98). That is, the focus is on those context-specific conditions that are essentially formed by historical, legal, political, cultural, and ideological systems in which VSOs operate. Hence context is predominantly utilised only to enrich the researcher’s analytical explanations.

One critical problem of this conceptual reduction of the notion of context is that we fail to capture those elements, practices, and relationships that have proximate influence on social interactions and human actor agency (Strauss et al. 1963). In other words, this perspective on context offers limited understanding about technology and ‘context-in-the-making,’ for example, the in-depth, situated analysis of how context is reshaped. Analytically, the space between contextual conditions and their local and temporal translations has been made invisible. Because of such oversight, the coevolution of technology and volunteerism have also been overlooked and the possibility of multiple and unanticipated effects of technological projects on organisational activities was not
thought to be important. On the basis of these limitations, we may need to rethink the value and practical applicability of the technology-related practical advice that is based on this conception of the voluntary context.

These assumptions represent the initial points of criticism that will be examined in more detail in this thesis. As in mainstream studies of technology and volunteerism, the notion of context is central in this doctoral research. To be specific about the notion of context, it is worth recalling an important argument made by early ethnomethodologically based works about the need to distinguish between ‘context of action’ and ‘context in action’. In the former, the role of context is ‘as an explanatory resource available exclusively to the analyst,’ while in the latter, context is conceptualised ‘as an emergent property of interaction available to its participants’ (Woolgar and Lezaun 2013, p.324), including engaged researchers. Since this doctoral project is concerned with ‘context-in-the-making’, it takes on the ‘context in action’ approach. Hence, an analytical shift from studying changes in contextual components to changes in contextual relations is required. When technology is involved in the analysis, such shifting means that the role of technology should be reconsidered in regard to its capacities to reshape and find its place in such changing relations.

Moreover, there is an analytical curiosity that forms the second point in this thesis. In recent years, we have witnessed a still increasing interest within sociological and organisational theory to critically engage with the notion of work as a set of concrete activities (Star and Strauss 1999; Barley and Kunda 2001; Watson 2009). Involving technology or other material objects in these theories, the above-mentioned interest has given rise to the evolving field of infrastructural studies in which ‘work’ is conceptualised from the point of sociomaterial objects that enable the accomplishment of work (Bowker and Star 2000; Edwards et al. 2009). This novel theorisation of infrastructure enables us to understand how patterns of action and work practice are inscribed and stabilised in sociotechnical networks, including contemporary organisations (Hanseth and Monteiro 1997). This is the point at which the analytical curiosity emerges: given the recent reconsideration of volunteering as a form of work, what is the position of volunteer work in existing infrastructural studies? The incentive to examine this curiosity is heightened by

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2 These issues are discussed at length in chapter 2.
the paradoxical nature of volunteer work as a type of work ‘formed as an impossible compromise between interactional and organizational logic’ (La Cour and Hojlund 2008, p.41). This research aims also to understand the position of this paradoxicality in the interaction and enactment of those socio-material objects enabling volunteer work.

In sum, the absence of technology studies in the volunteerism context, the problematisation of the preliminary assumptions in conceptualising ‘context’ in the existing studies of volunteerism and technology, a curiosity to re-examine the new infrastructural approach in the domain of volunteering, and the researcher’s personal commitment to develop volunteerism together form the background of this doctoral research.

Research Questions: Technology and Context-in-the-making

To generate improved and more accurate practical technological advice for civil society and voluntary organisations, we need to develop theoretical frameworks that can better explain what people do with technology in the volunteerism context. With this in mind, this doctoral research project is based on a central research problem:

- How do information technologies interrelate with human activities in volunteer-involving organisations?

In seeking insights into this problem, as discussed earlier, particular attention is paid to context-in-the-making, and the need for critical engagement with ‘technology and volunteerism contexts’ as co-constructed and co-evolving engagement. To arrive at this, methodological insights and theoretical concepts from Science and Technology Studies (STS), Information Systems Research (IS Research) and Organisational Sociology are utilised to elaborate the study’s central problem, that is, to throw light on the ways through which relevant understandings can be generated, and to enrich the theorisation of the findings.

The very contribution of these sociological approaches to technology, organisation, and work for this research is that they generate and increase sensibilities about studying phenomena as they happen and in situ. Moreover, within such intellectual communities, there is increased attention to the importance of the less-visible as it influences behaviour, as well importance given to following symmetrical approaches to conceptualise empirical
realities. Based on these insights, the examination of the existing relevant literature, and more importantly, a researcher’s empirical engagement with the field, the following research questions are specifically identified in relation to the thrust of the core research problem in this thesis; that is, the changing relationships between technology and human activities in the voluntary context.

The ways in which technological projects are developed and implemented and to what extent they are successful are widely-recognised challenges within voluntary organisations. Two major perspectives in this regard can be characterised. On one hand, there are scholars whose main objective is to enhance technological adoption and its associated organisational change development process by identifying and managing the barriers that make such projects lengthy, disruptive, and ineffective (e.g. Hackler and Saxton 2007; Kase et al. 2010). On the other hand, there are also lines of research that seek to understand the qualities of target organisations and their readiness to support and accept technological innovations (Burt and Taylor 2003; Zorn et al. 2011).

While these two perspective have different points of reference, what they share is an emphasis on the issue of ‘adjustment’: how to match technology with the organisation. One implication of this idea is that the desired match is achieved through the mechanisms of control and planning. However, whilst scholars seem know quite a lot about those plans that succeed and where control is achieved, we know less about the reverse situation.

So, the first research theme in this doctoral project is developed to identify the moment in which such planning and control drifts, that is, does not proceed in the desired manner. This leads to a deeper, situated investigation of the process of making IT-enabled change in voluntary settings. Hence, the following question informs the first research theme in this project:

- How does the adjustive model of IT-enabled organisational change in voluntary settings come down to in real time, in the local situation?

The other relevant problem which affects the central research problem is the issue of resistance in adopting and using technological innovations in voluntary contexts. There are plenty of discussions, relevant policies, and practical programmes that have taken

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3 More discussion is provided in chapter 2 and chapter 3.
place or have been developed to provide such organisations with advanced technological solutions. Given this and in the spirit of the research’s symmetrical foundation, the second theme of this project was developed to shift the scope of research beyond the use and adoption of technology to explore technological non-use in voluntary settings. Empirically, the relevance of this theme can be understood by the bulk of reports about low adoption of technology and its relative absence in voluntary organisational structures.

In recent years, we have witnessed, an emerging interest in studying non-use and non-users in different intellectual communities (Cushman and McLean 2008; c.f. Satchell and Dourish 2009). At present, within critical technology-oriented studies, the emerging argument is that the well-established terminologies of resistance, rejection, or about the ‘have nots’, seem to be problematic or inadequate to explain the dynamics of technological use and non-use, in particular when the broader structural and organisational context is brought into the picture. Accordingly, this research takes these theoretical terminologies as starting points to study technology non-use. The theoretical interest in pursuing this research theme is formed by a scepticism of whether such resistance terminologies can be utilised in the context of low-tech collaborative work. Hence, the second research question is:

- To what extent can the phenomenon of technology non-use in a volunteerism context be explained within the established terminologies of non-use?

The two above-mentioned research questions are motivated by an interest in the context of human activities in volunteerism: context-in-the-making from the technological use and non-use point of view. However, to better elaborate the central research problem, what remains as an important topic to consider is this reshaping of context (and technologies) from an organisational point of view.

The symmetrical approach demands researchers to shift their lenses and ask the same questions from different points of view. In such spirit, this research now needs to move away from ‘technology and its context’ and ask about ‘context and its technology’. That is, the organisational use of technology and volunteer work. This requires a particular focus on the longer effects of technologies on the structure and dynamics of volunteer work.

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4 For the fuller discussion on the idea of symmetrical approach see (Callon 1991; Williams and Edge 1996; Hine 2007).
work. As mentioned above, there are developing studies reconceptualising volunteering using an organisational and work point of view.

In this regard, both empirically and analytically, the organisational sustainability of volunteerism is one of the challenging questions (Seibel 1996; c.f. Weerawardena et al. 2010) given the paradoxical nature of volunteering. That is, such work is neither fully ‘spontaneous and informal’ nor completely ‘organised and formal’ (Wilson and Musick 1997; la Cour and Hojlund 2008). Hence, the last theme in this doctoral project is devoted to understanding how, over the course of time, such inconsistency is managed and what role technology plays in the development, reconfiguration, and coordination of different ‘organisational-like’ processes. So, the interrelated research questions central to this discussion of organisational use of technology and volunteering are:

- How are various sociotechnical processes coordinated in a voluntary association’s evolution?
- What work and which tools and practices can contribute to its organisational persistence?

An Overview of the Research Design

Given these objectives, this research project might be seen as a twofold intersectional study. Empirically, it concentrates on and explores the intersections between technology and volunteerism. Analytically, it aims to theorise what happens at the intersection between situated, local interactions and organisational, planned influences. Also, we know that the practices of volunteering and its organisational effects are complex phenomena (Hustinx et al. 2010). It is has already been extensively argued that traditional, positivist methods of investigation, because of their deterministic essence, are not able to capture how sociotechnical practices are enacted and shaped (Czarniawska 2004a; Neyland 2008; Woolgar and Lezaun 2013). When knowledge about the enactment process of such practices is absent, we will not be able to further understand how sociotechnical interactions play out in the reshaping context of volunteerism, which this research is motivated by.

As a result, this research project takes on an interpretive, constructive approach to study how technologies and context are co-constructed in VSOs. To utilise such approaches, a close engagement with and participation in the observed world and active interpretation of the studied world are required (Walsham 2006; Neyland 2008). In committing to
interpretive and constructivist principles, researchers can adopt different methods, such as ethnography (Locke 2001; Wyatt and Balmer 2007). The strength of ethnographic practice is that it attends to how humans make their lives in all its complexity and mundanity, and both these aspects are at the heart of this doctoral study. Moreover, ethnographic study allows us to understand how realities are produced, focusing on the relations among practices, objects, and beliefs (Law 2004).

To reformulate the argument presented above, this research seeks to study contextual relations rather than its components. Moreover, particular attention is given to the vital position of material and technological objects. Accordingly, the practice of ethnographic engagement is utilised to approach hybridities and sociomaterial assemblages in the particular context of volunteerism (c.f. Latour 1992; Woolgar and Neyland 2013).

Despite the advantages of ethnographic practice, the traditional versions of this method are criticised for their limitation in studying social phenomena that overflow and extend beyond a single site (Marcus 1995). The result of this functional constraint is that our understanding about sociotechnical phenomena are limited and partial; that is, the extended, spatial settings and biographical timeframes that contribute to the shaping of the observed sociotechnical world are overlooked, and thus accounts are only partial accounts as other influencing factors are not allowed to emerge (Pollock and Williams 2009). In such spirit, the developing research design in this doctoral project is ethnography and is not ethnography at the same time. It has made use of many strengths of traditional ethnography but has not been absolutely committed to its principles and practices. Hence, it is better labelled as a quasi-ethnographic endeavour⁵ which involves different modes of fieldwork, headwork, and textwork (Van Maanen 2011).

Roadmap for the Thesis

Since it is an interdisciplinary doctoral study, I provide an outline of the relevant literature on volunteerism and technology produced in different intellectual communities. This includes areas such as Computer Supported Collaboration Work (CSCW), Information

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⁵ See (Hine 2007) for a discussion in this regard and consider (STAR 1999; Pader 2006) for the similar idea of ‘ethnographic sensibilities’. Star ‘brought an ethnographic sensibility to the data collection and analysis: an idea that people make meanings based on their circumstances, and that these meanings would be inscribed into their judgments’ (ibid, p. 383). To read a critical examination about the application of quasi-ethnographic approaches see (Forsythe 1999).
Systems Research and Volunteerism Research. At the end of this review chapter, I argue that there is a need for a sociological conceptual framework. This is then followed by a methodological chapter narrating the pathway through which this doctoral project is conducted and managed. The three chapters that follow will then each focus on a particular empirical theme and their findings will be analysed in relation to the specific literature and adopted conceptual frameworks. The empirical chapters are arranged so that the focus gradually shifts from more local, situated affairs to more long-term, biographical relations. In the final concluding chapter, the thesis will bring all these thematic studies together.

Following this introductory chapter, in chapter 2, a brief review of relevant concepts, terminologies, and studies is offered, including reviews of analytical tools for studying the relationship between technology and people in the context of volunteerism. This chapter involves two key sections. In the first, the aim is to examine the relevant literature on volunteering and volunteerism (especially in the context of sports and UK) and identify key issues relevant to this particular research project as well as to conceptualise the notion of work as sets of accomplished tasks. The second section reviews and examines information technology studies conducted in relation to the voluntary and nonprofit sector. Finally, based on a critique of the existing studies, the need for more critical studies of technological affairs is discussed. In particular, this chapter introduces and discusses how Science and Technology Studies can assist and inform the emerging field of Community Informatics.

Utilising the acknowledged importance of a sociological and critical framework for this study, chapter 3 deals with the epistemological and methodological stance of this research. This chapter reviews the philosophical foundations, practical issues, and evolution of this doctoral research. This narrative also presents a discussion of how anti-essentialist and anti-positivist thinking influenced the research endeavours. The chapter will also show ways in which new knowledge about the relationship between technology and volunteerism through an ethnographic case-oriented study is generated in this study. In general, the whole aim of the chapter is to share with readers how the researcher has positioned his academic self, the processes of the research, and its end-product in the course of this project.
The fourth chapter is developed to offer a deeper, situated understanding about the process through which IT-enabled change is navigated and managed in voluntary settings. In so doing, it starts with a critical review of some of the influential relevant literature. Then, this chapter introduces the notion of drifting and reconstructs Ciborra’s general model as documented in critical IS studies. Employing this concept and by narrating the story of developing an IT-specific innovation in a voluntary organisation, this chapter conceptualises how a technology project grows in such settings. This provide an alternative perspective for studying and deploying technological projects in voluntary settings. Conceptually, the main contribution of this chapter is to show how Ciborra’s artefact-oriented model can be applied at the level of a technological project.

In chapter 5, I begin with a historical review of the emergence of technological non-use studies as an important research theme (c.f. Wyatt 2003). Discussing the limitations of the existing theory for understanding non-use phenomena in low-tech sociotechnical settings, I draw on the concept of ‘conditioning’ (Maines 1982). This chapter argues that technology non-use in such settings can be better understood in terms of mediating and conditioning processes through which (sociotechnical) actions are conducted and the relevant orders are enacted.

Chapter 6 is motivated by gaps in the theories of volunteering. That is, the actual position of technologies and other artefacts are either overlooked or simplified in their argumentation, in particular when it comes to the sector’s organisational persistence. Highlighting the important consequences of such an oversight, this chapter utilises an infrastructuralist reading of the sociological concept of ‘trajectories’ (Strauss et al. 1997; Timmermans 1998), to offer a better positioning of material objects, including IT and work processes in the dynamic, messy, and loosely-coupled context of volunteer work, and how organisational stability is achieved with respect to these trajectories.

The conclusion seeks to bring all of the findings and discussions in the previous chapters together to show how they are related and to develop the overall argument. This is conducted by bringing together the two research streams of infrastructuralism and volunteerism research. This final chapter informs the emerging field of Community Informatics, both from a practical and theoretical point of view.
2. From Existing Studies to a Sociological Conceptual Lens

Aim and Structure

This thesis aims to critically study the relationship between technology and people in the specific context of volunteering. Hence, this chapter is designed to briefly review relevant concepts, pertinent terminologies and studies that would be useful in researching such relationship. This chapter has two key sections. The first section attempts to provide an image of the notion of volunteering and volunteer ‘work’ as well as important challenges relevant to the particular research area of volunteerism and volunteer-led organisations such as the nature of volunteer work. In particular, this first section highlights the specifications of volunteer-led organisation as one less-researched from of volunteer-involving organisations. In the second section, a strategic examination is presented to review information and communication technology studies conducted in relation to the voluntary and nonprofit sector. Finally, I provide some critiques about existing studies and how a better understanding might be produced with more critical studies of technological affairs. In particular, I introduce and discuss the potential benefits of Science and Technology Studies and how this might enhance the emerging field of Community Informatics.

Reviewing Volunteerism Studies

To better understand and conceptualise the phenomenon of volunteering, this chapter reviews its historical context and underlines its definitional challenges. Seeking a case-oriented solution to the terminological debate, first, some of the key types of voluntary action are then reviewed, and secondly, volunteering is conceptualised as a social activity by which a kind of ‘work’ is performed. This conceptualisation, in turn, will result in a better understanding of the current knowledge about volunteering and also provide us with an opportunity to find out where and how this particular research fits within existing theories. In doing so, a brief discussion on the trajectory of volunteerism in the UK and the specific context of sports management seems useful. To unpack how volunteering is accomplished, different domains of voluntary action are examined. Following this, in line with the general approach of this thesis, a sociological account of the volunteering phenomenon and some of the relevant organisational aspects are considered.
Terminological Challenge: A Case-Oriented Solution

It has been widely discussed that the definition of volunteering, voluntary organisations and a volunteer is a complicated task that has already generated varied results which each definition should be understood in relation to its own historical and political context (Smith 2006; Musick and Wilson 2007; Frumin 2009; Hustinx et al. 2010; Rochester et al. 2010). To discern sources of this complicatedness, we might need to consider the fact that those who become involved in the act of volunteering come from an enormously diverse group and such activities are performed in a widely diverse contexts (Bussell and Forbes 2002; Frumin 2009). Also, one other reason can be seen in relation to the changing dynamics of dominant research interests among volunteerism scholars, for example, recent studies, have shifted the focus from reasons and intentions behind volunteering to the actual results and final products of doing volunteering work (Wilson 2000). While there has been much boundary work around the term of volunteering and nonprofit work, the central enquiry still seems to the identification and recognition of the voluntary-originated activities and the organisational mechanism that support their accomplishment. The long-standing definitional challenge over the notion of volunteering involves two interrelated questions. First, one might ask what issue at stake in such definitional battles is, and second, how we could resolve this challenge.

Perhaps one possible answer to the first question, especially for policy-oriented scholars, is that definitional clarity generates methodological clarity and in turn enables researchers and policymakers to design and conduct comparative and measurement studies on volunteering and voluntary organisations (Wilson and Musick 1997; Dekker and van den Broek 1998; Wilson 2012). Specifically, surveys need operationalised constructs and hence clarifying the definitions could possibly shape the nature of questionnaires and boundaries of the study. In other words, to enhance the comparability and transferability of results of volunteerism research, we need to create classification systems to be used in the identification of major facets of volunteering and hence to form “a volunteer profile that is distinctive enough to warrant generalizations” (Cnaan and Amrofell 1994, p.349). While such classifications and measures are useful in surveying and mapping the geography of volunteer work and volunteers, they may not be very helpful in explaining the micro-level and contextual constitution of volunteer activities. Hence, in the following, a closer look at the frameworks associated with the actual performance of volunteering is presented.
As for the question of the solution, this research adopts a practical, case-oriented approach to select relevant concepts from the existing literature and to enhance our understanding of the nature of volunteering domain. In seeking a working definition of volunteering and volunteer-led organisation, this research narrows its conceptual examination to the specific context of the researched case, i.e. community-based sports clubs in the UK. Hence, a brief review of the volunteerism trajectory in the UK and the dynamics of volunteerism in sport are offered.

Volunteerism in the UK and Sport

According to Nichols et al. (2005), organised sport, independent of government, originally developed in the UK in the late nineteenth century through voluntary-based sports clubs which were represented by larger national governing bodies (NGBs). The names of NGBs founded within that specific period reflect a strong and explicit spirit of amateurism (Nichols et al. 2014), for instance, Amateur Swimming Association in the UK. The formation and establishment of these NGBs can be seen as “the first codification of modern sport” as well as the representational capacity of the clubs-based organised sport enabled exercising a kind of “bottom-up form civic activism” (Nichols et al. 2014, p.338). When sport is understood as a site for civic engagement, it can also be suggested that it serves as an important arena of “social inclusion or community revitalization” (Jarvie 2003, p.142).

There has been an increasing attention towards the role of volunteers in sport. This is fundamental because of the unique place of these individuals in the development and transformation of sport in the UK. As mentioned above, the provision of sport and other physical recreational activities in the community, beyond school-based and limited professional clubs programmes, has been predominantly shaped as independent from government and it has become the responsibility of "unpaid dedicated, enthusiastic yet unpaid amateurs" who share a common objective (GHK 2010a, p.2). The position and importance of sports clubs to the community are dependent to the extent by which they are proximate and interweaved to their local and grassroots support base (Jarvie 2003).

To understand volunteering in UK-based organised sport, it might be useful to review the general context on which these activities have been developed and carried out. While there has been some attempt among UK-oriented voluntary sector studies to conclude and
finalise the terminological debate on the notion of ‘voluntary agency’, ‘voluntary organisation’, and ‘volunteer’ itself, there is no agreed terminology. However, there is a fairly agreement that common understanding about these terms is that this particular sector comprises the “area organised activity which is in neither the commercial, for-profit sector, nor the public, governmental sector” in which all other forms of unorganised activates (e.g. related to family or friends) are excluded (Harris 1990, p.126). This sector, like other its counterparts, has a developmental trajectory. According to Kendall and Knapp (1993, p.1), “[t]he history of the formal voluntary sector in the UK is one of gradual secularization and formalization of voluntary action, and of changing roles in relation to the State”. The nineteen century represents the highest profile of this specific sector in which different philanthropic and mutual aid organisations came into existence. The need for coordination among different voluntary-based organisations was realised in the 20th century within which several aspects of formal voluntary action were being organised around the establishment of the local and national bodies (Kendall and Knapp 1993). A major driver for such expansion and development was the idea that the role of volunteering and voluntary organisations is beyond simply a service-provision and their social outcomes such as civic engagement by young people are considerably significant (GHK 2010b). This economic and social importance has resulted in the different policies and actions by the government to reposition voluntary action in the UK. As the result, as summarised in (GHK 2010b, p.3), “building on a long history of voluntary action within the UK, it is noted many of the government’s policies have influenced, encouraged and enabled volunteering. In turn, it is noted volunteering has had a positive impact on a wide range of government policies and agendas, and throughout society”. Although the UK voluntary sector has been shaped to maintain high degree of independence and to build self-autonomy, the role of governmental (e.g. The Office of the Third Sector) and other nongovernmental (e.g. the Commission for the Compact) actors should not be attenuate as they also reshaped the institutional, legal and economic foundation on which the sector has been co-evolved (GHK 2010b).

One significant result of such interactions between this sector and its surrounding environment suggests that there is a growing professionalisation of the voluntary sector which is mainly initiated by the amplified ‘service contracting’. This structural change is better understood in relation to the fact there is an increased involvement of the labours
in ‘professional occupations’ to shift into the sector although they may leave the sector as other opportunities arise out; this means a high turnover of the involved people in the sector (Rutherford 2012). The impact of this change and its associated consequences gain an additional dimension in the particular context of UK voluntary sports sector. As indicated by Nichols et al. (2005), there is a growing pressure on the sports-related volunteers ‘to professionalise’ the ways in which their service are offered as the result of both direct and indirect competition. As for the direct and immediate competition, new facilities provided by the local governments and some commercial ‘pay and play’ solutions provide sports service-users with more choices and this means a pressure on traditional voluntary-based service providers. Moreover, they are forced to compete for time, money, and enthusiasm as the result of institutional and cultural changes in the whole UK leisure market (Nichols et al. 2005; GHK 2010a).

Domains of Voluntary Action

There are an extremely varied activities and organisations that people may volunteer for. To develop a conceptual arrangement that could be utilised the classification of these activities (Reed and Selbee 2002), one useful strategy is to consider diverse arenas of voluntary action. This leads to improved sensitivity about the range and multiplicity of volunteering activities. The main idea is to advance our understanding from the notion of volunteering and volunteer-involving organisation through different domains within which some form of voluntary actions are carried out (Hankinson and Rochester 2005; Rochester et al. 2010). This doctoral research seeks to study and ultimately conceptualise how the human activities and technological objects are interwoven in the context of volunteer-led organisations and the work is performed by volunteers and others. Hence, to establish a basis for this conceptualisation, in the following section, an overview of the most influential domains of voluntary actions is presented.

Expressive vs. Instrumental

What is the core function of a voluntary organisation for its members? This question has shaped one of the earliest typologies of voluntary action. Two distinct forms of organisation are recognised in terms of their core organisational functionality. The distinction between expressive and instrumental functionality is introduced by Gordon and Babchuk (1959). While the ultimate outcome of the expressive organisations is “to
flourish activities for members as an end in itself”, the core function of instrumental organisations is to act as a kind of social influence entities that form or maintain “some normative condition or change” (p. 25). Though oversimplified (Gordon and Babchuk 1959), this classification allows researchers and practitioners to realise and justify the roots on which different strategies and policies are adopted by the apparently similar voluntary-based groups. Also, to examine the diverse range of voluntary organisation, the expressive organisations can be alternatively labelled as ‘pure’ voluntary organisations in a sense that the satisfaction of their own people is central and primary to their organisational functionality (Wilderom and Miner 1991).

One immediate challenge of the expressive-or-instrumental classification is the fact that in the real world we see many voluntary organisations fulfil both functions and there is an observable overlap between these two categories. To repair the problem of this dichotomy, the category of instrumental-expressive is therefore suggested in which these organisations provide fellowship for their members while at the same time they seek at least one special objective (Gordon and Babchuk 1959). Some decades later, Frumkin (2009) argues that we need to understand these expressive and instrumental aspects of voluntary and nonprofit action as complimentary or as space within which potential tensions can be generated. As he discusses, best results are then gained when the ‘moral energy’ of the involved volunteers (and others) is ‘harnessed’ to generate improved service provision programmes. This idea is based on the rationale that more concrete instrumental outcomes will be achieved when ‘beliefs and values’ are also involved in the actions of people (Frumkin 2009). Moreover, this line of argumentation might help us to understand why voluntary and nonprofit activities are taken by some volunteers that much ‘seriously’ (Stebbins 1996).

Members Benefits vs. Public Benefits

It has been reviewed that there is no single definition and inclusive conceptualisation about the notions associated with the voluntary and nonprofit actions. The concept of ‘voluntary organisation’ is not an exception. Nevertheless, as discussed by David Horton Smith in several works (Smith 1991, c.f. 1993, 2006, 2015a), the bottom line on which almost all formal and informal voluntary-based groups are shaped is the common ideas of being unpaid (i.e. nonprofit-ness), involving some degree of altruistic actions and voluntary spirits (i.e. voluntary-ness), and strengthening a sense of community (Smith
However, as discussed by Smith, one key distinction has been ignored by many volunteerism authors in the nonprofit and voluntary sector literature. That is, an extremely important difference which stems from the principal aim driving and governing ‘public benefits’ and ‘member benefits’ voluntary groups. While public benefit voluntary organisations are established to serve public, member benefit organisations are formed to respond and benefit their own members. Overlooking this difference, most voluntary sector authors have been studied and are only engaged with public benefit voluntary groups at the expense of excluding member benefit voluntary organisations (Smith 1993). This extensive and unwarranted ignorance of ‘membership sector’ is perhaps because of its trivial characters which make such member-serving organisational entities absent in most analyses and studies (Smith 1991).

Smith’s empirical findings show that the general thrust of these organisations “is toward the greater volume of activity and internal dependence”. This means more frequent meetings and more participants per meeting as well as the larger number of engaged people in other relevant activities (Smith 1993, p.65). While the distinction between member and public benefit groups can help to understand and study the associated organisational characters between these two types, there are other organisational attributes that can (relatively) equally work for their very different missions such as managerial tools (Smith 1993), and perhaps technological solutions. In short, there is enough organisational similarities and sameness between these two which we may still maintain them under the umbrella of voluntary organisations.

This important distinction between member-serving and public-serving voluntary-based organisations has been further developed. On such basis, Smith argues that we should not confuse and misuse two different notions of voluntary association and voluntary agencies (Smith 2015a, 2015b). That is, voluntary organisations are divided into two organisationally distinct subtypes: associational and non-associational ones. Although members maintain the ultimate power in voluntary associations and top leaders are elected by them, in voluntary, non-associational agencies a board of directors claim the ultimate power. In terms of human resources, while associational voluntary organisations are principally staffed with volunteers (who are also members), voluntary agencies have no members and they are performed by a combination of paid and volunteer staff.
Relying on this critical distinction, we could conceptualise member benefits associational subtype as ‘volunteer-led voluntary organisations’ in which there is no established reliance on paid staff when accomplishing the work and hence the organisation is essentially run and performed by volunteers. This governance model, however, holds its own challenges such as balancing between the benefits of their members and the community within which they operate as well as the limited extension by which staff (who are volunteers) can be managed (c.f. Harris 1998). It worth noting that the service provided and delivered by most of such volunteer-led organisations, i.e. member benefit associations, is a kind of secondary service provision. That is, the public and societal benefits of these voluntary-based groups are distributed to their members who are at the same time the members of the public (Smith 1993). Thus, the larger number of members, or ‘high associability’ as coined by (Gordon and Babchuk 1959), could generate more public-style benefits and services and hence reshape their structure and everyday functionality.

**Demand-Side vs. Supply-Side**

The real position and function of the voluntary and nonprofit sector in the society has gone through different arguments. There is an emerging idea that we need to reconsider the driving forces by which this sector are shaped and maintained. One critical and important distinction, demand-side versus supply-side, has been suggested by Frumkin (2009) to advance our explanation about the existence of the sector.

First, in the first and dominant view, the sector is primarily driven by an existing demand outside the sector. The demand-side perspective sees the sector in its own wider social context within which it operates. The source of demand, mainly unmet social needs, for the sector is in the society that pulls the sector and facilitates its formation and functionality. From a descriptive lens, the demand-side viewpoint enables researchers to understand different patterns of formation and development of the sector: when there is a failure to provide a given service by the government or the market, one voluntary and nonprofit voluntary action will emerge. In fact, the key role of this particular sector is to fill the gap generated by the existing societal actors. The normative reading of the demand-side perspective highlights the social and political responsibilities of the sector and how this sector should empower people to make the society an equal place.
The second perspective, i.e. supply-side, is more ‘controversial’ in a sense that brings into question the idea that the sector is essentially reactive and hence it challenges the ways through the sector should be managed. This view begs on the idea that the existence of the sector and the organisational mechanism of many voluntary actions are “far more complex than a simple response to a gap in government service or the failure of the market to meet a particular demand” (Frumkin 2009, p.21). The network of ideas, resources and commitment collectively form a basis on which fresh and creative voluntary actions are generated and distributed. Taking a descriptive lens, this new perspective stresses the entrepreneurial agency of the sector. People are at the core voluntary actions and when their ideas, money and commitments are combined and crafted together, new types of voluntary action is produced. Hence, this view calls for more consideration of different categories of involved people such as social entrepreneurs, donors and volunteers. From a normative point of view, this perspective shifts the moral position and responsibilities among different actors in the society. Given the rationale of this view, the voluntary and nonprofit sector should not primarily be evaluated based on the quality and level of services provided for filling the so-called gaps. Instead, it needs to consider and be responsive to the stratification of the key involved people who are at the heart of the voluntary action. This secures the persistence of a healthy sector.

Volunteering: Work outside Employment

Since the general endeavour of this doctoral research is to understand the relationship between technology and people in the context of volunteer-led organisations, a critical examination of the very nature of volunteering is an essential initial step. The need for this consideration is supported by an emerging interest in the exploration of the internal organisational working of the sector. In a review paper, Harris (1990) reminds us that there is still a desperate lack of understanding about the actual work processes and performance in the (UK) voluntary sector. He argues that volunteerism scholarships need to move to study and examine the unexplored corners of the field such as work-related issues and hence provides new insights about the nature of work and the internal, organisational dynamics in this particular context.

More discussion and elaboration in this regard are provided in chapter 6.
In the following, the notion of work is firstly reviewed from a sociological point of view. This has been carried out in the line with the core theoretical orientation of the thesis (as will be elaborated in the methodology chapter) as well as to establish a practice-oriented domain in which activities performed by volunteers can be conceptualised as social activities through which a given order (e.g. an associational voluntary organisation) is sustained. In short, the exact aim of this section is to understand the notion of ‘volunteer work’ through the sociological conceptualisation of volunteering as a kind of work which holds potential distinctive qualities, in particular in the context of volunteer-led sports organisations. This hence enables the researchers in seeking how technology and people come together in the context of volunteer-led organisations.

*What is Work? A Sociological Thinking*

Online Oxford English Dictionary\(^7\) defines the verb form of work as “to act, do, function and operate”. While the notion of work and the act of working are not limited to the scope of employment, over the decades, there is an extreme collocation between ‘working’ and formal employment relationships. However, our understanding about the functioning and complexity of our societies remains limited and perhaps flawed if we do not study an extended notion of work; the sociological imagination seems to be a helpful strategy to address this historical oversight (Halford and Strangleman 2009; Watson 2012). That is, returning to the origins of work and considering the social settings within which mundane forms of human work are organised and collective outcomes are accomplished. This shift is also reflected within academic circles that there is “a reluctance to analyze nonfactory-like workplaces such as medical centers, charities or *sports clubs* in the same way that industrial undertakings tended to be analysed” (Watson 2015, p.657 emphasis added).

Watson (2012) discusses that voluntary work, informal or formal one, is a mode of work which happens neither in the home (i.e. domestic work) nor in the workplace (i.e. employment). There are pressures from a kin or community when informal voluntary works, such as visiting a sick relative or cleaning the street up after a flood, are conducted. However, formal voluntary work is performed in the absence of such obligations. Also, these works are carried out under the umbrella of a voluntary-based organisation. There is an emerging interest to examine and study volunteering activities, i.e. such formal

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voluntary work. This is because of they have an extended element of voluntary-ness as well as this kind of works and their practical outcomes for the civil society are understood as significant as to the work being performed in the private and public sector. Furthermore, the practical benefit and theoretical utility of taking formal voluntary work seriously are revealed in relation to the value of the “holistic perspective on a person’s working life rather than simply focusing on their employment or their domestic labour” (Taylor 2005, p.135). This lifelong work-trajectory view stresses the inclusion of diverse forms of capital, beyond economic one, when working practices are reshaped. Thus, this perspective can produce invaluable insights and textured account about different work-related choices and practices. For instance, volunteerism scholars should also be sensitive to the extended domains such as the individual’s other occupations or alternative working practices.

Thus, thinking about work sociologically will arrive us at the point by which the notion of work is not merely reflected in formal and occupational settings. Instead, we are encouraged to see the complexity and diversity of work and work-related activities, even the very mundane activities, in their broader social context and cultural arrangements (Watson 2012). Strauss (1985) argues that novel insights will be obtained when ‘work’ is reconceptualised as sets of tasks carried out by different actors over the course of time. To achieve a specific, time-allocated result, a collection of sequential and simultaneous tasks should be performed; while there are an initial design and a given plot for completing each task, over the course of achieving a specific objective, some tasks will be alerted; hence ‘work’ involves a combination of planned and on-demand tasks (Becker 1982; Strauss 1985). The explanation of work, in its new conceptualisation, seems a difficult but rewarding tasks. "Work that is done disappears into the doneness" and to understand and explain such doneness we should concentrate on ways through which different everyday practices and their relations are crafted and sustained. This doctoral thesis seeks to understand the relationship between technology and volunteerism, and this will be examined by sociologically-inspired looking at the everyday work of relevant human actors on the ground8. In fact, as will be elaborated in the following chapters, the relationship between technology and volunteerism will be considered as the result of a

8 An extensive and diverse literature on such critical practice-oriented examination are discussed and utilised throughout the thesis, however, some exemplary references are (Orlikowski 2000; Czarniawska 2004a; Suchman 2007; Nicolini 2009; Star and Bowker 2010; Schmidt 2011)
given social order which is itself reshaped and maintained through performing sets of
tasks (i.e. work); this idea puts work at the centre of examination and analysis in this
doctoral research.

**Volunteer-led Sports Organisations**

In most Western societies, including UK, voluntary-based sports organisations and the
volunteers who sustain them play a vital role in sport systems; this role can be further
elaborated in relation to their agency of creating a foundation for formally organised
participation in a wide range of physical and recreational activities (Cuskelly *et al.* 2006).
The ever-growing reputation and cruciality of voluntary-based sport resulted in a major
adjustment in the International Classification of Nonprofit Organizations in 1996. This
was to detach sports organisations from the combined group of ‘sports and other
recreational activities’ and to introduce a new group for sports organisations under the
major group of ‘Culture and Recreation’. This adjustment has been supported with the
empirical data suggesting that nonprofit sports are large enough to be divided from other
social clubs or recreational events (Salamon and Anheier 1996). In terms of terminological
issues, while diverse labels are developed to describe these organisations, such as “amateur
sport organizations, community sport organizations or community amateur sport clubs”,
they can effectively be defined as “nonprofit organizations formally constituted to provide
members with opportunities to participate in organized sport and physical activities within
particular team or individual sports. [Voluntary Sports Organisations] are separate from
the state, independently governed and operated by volunteer management committees or
boards and do not return profits to their members” (Cuskelly *et al.* 2006, p.17). Utilising
the discussions presented earlier in this chapter, in particular, the various domains of
voluntary action and the special qualities of member-serving, instrumental-expressive
voluntary organisations, we might secure a better understanding if the term volunteer-led
sports organisations are applied.

With the aim of producing an account of the actual performance of volunteer-led sports
organisations, especially with reference to technology, and by following the idea of
sociological thinking about work and volunteering, in the next three sections, a useful
conceptualisation of volunteer work in nonprofit sports, the dual role of community in
the accomplishment of these activities and the changing actualities of amateurism ethos
in the sector are reviewed.
Volunteering as Social Activity: A Meso-Structural Examination

There have been a long-standing, scholarly-motivated endeavours to grasp the nature of volunteering which are resulted in diverse perspectives and explanations (c.f. Zimmeck 2000; Hustinx et al. 2010; Snyder and Maki 2015). This doctoral thesis, inspired by its sociological orientation, attempts to study volunteerism (and its relationship with technological innovations) by re-examining volunteer work as sets of relational tasks performed by volunteers (and others). Hence, it seems essential to review and utilise those studies in which a social analysis of volunteering is provided and its particular position in the broader socio-cultural context is explained.

One useful, recognised theme within the current literature is that volunteer activities unfolds in a paradoxical and hybrid sphere in sense that there is a never-ending struggle between formality and informality, passion and obligation, private and public (c.f. Brudney 1990; la Cour and Hojlund 2008; Einolf and Chambré 2011; Koschmann and Laster 2011; Warner et al. 2012). This line of studies can be seen as attempts to theorise the underdeveloped idea of volunteer work as something that occurs in ‘in the middle’ (Mitchell 1986). Thus, the point of departure for them is to conceptualise volunteering as a kind of social activity and then examine to what extend these activities are similar and associated to other forms of social activities. This enables volunteerism researchers to move between situated, short-lived actions and institutional, endured contexts.

The leisure market perspective is another well-established language to explain the nature of volunteering (e.g. Kaplan 1975; Mojza et al. 2011). Stebbins has employed social world theory to re-examine how convincing and adequate is the application of the logics of leisure-like or work-like ideas to portray the volunteering phenomenon (Stebbins 1996). His sociological challenge has resulted in the identification and development of the notion of ‘serious leisure’ which is defined as “is the systematic pursuit of an amateur, a hobbyist, or a volunteer activity sufficiently substantial and interesting in nature for the participant to find a career there in the acquisition and expression of a combination of its special skills, knowledge, and experience” (Stebbins 1996, p.215). Perhaps one useful relevance of his approach to volunteering is that this framing about volunteering activities can terminate the paradoxes and challenges associated with pure leisure activity perspective. In fact, the notion of ‘serious leisure’ locates at the meso-structural level in which social analysis is crafted at the intersection “between the sphere of immediate social interaction
and the sphere of such all-encompassing abstractions as community, society, social class, and large-scale organisation” (Stebbins 1993, p.23). That is, too, a solution to bring and embed the formalised and organisational elements of volunteering while the special position of freedom, altruism and passion is preserved. The application of the concept of ‘serious leisure’ in the particular context of voluntary sports organisations supports the general relevance and theoretical utility of the concept while it adds that “a substantial proportion of volunteers in sport do not seem to be motivated by the benefits usually derived from leisure experiences” (Cuskelly and Harrington 1997, p.18). This concept is the best corresponding to those core volunteers (and their volunteering activities) who have a key role in handling club’s affairs; there are empirical findings that suggests the total work offered by volunteers to sports clubs are considerably unevenly distributed (Shibli 1999; Nichols et al. 2005).

**Dual Role of Community**

To advance our understanding about the systematic pursuit of a volunteer activity (volunteering as sustained social activity), an understanding about the notion of community is critical. The concept of community has a special place in the volunteering-related discussion, in particular, community-based sports or what is called as volunteer-led sports organisation in this thesis (c.f. Cuskelly et al. 2006; Nichols et al. 2015). As mentioned above, the community is also a parent sphere within which volunteer social world is reshaped alongside the domain of immediate, situated actions (Stebbins 1993). Additionally, to capture how paradoxicality and hybridity of volunteering are enacted, the conceptualised idea of ‘community both as process and context’ can deliver invaluable insights (Omoto and Snyder 2002). This notion of the dual agency of community, in particular, its process role, is extremely in harmony with the critical point made in the introduction chapter. That is, context is being constructed by actions rather to be merely a structural background for the action. The community in its capacity as context affords a platform for volunteer efforts and also re-arranges them. As a process, more crucially, the community shapes the ways through which membership is exercised and volunteers are involved⁹.

⁹ Further discussion are provided in each empirical chapter where needed. Also, the concluding argument in relation to the notion of community is presented in the final chapter.
Changing Ethos of Amateurism

Voluntary organisations, of various kinds, experience unfamiliar challenges rooted in the “bewildering world of managerialism, economic rationalism and privatisation” (Jackson and Donovan 1999, p.viii). While relying on professionals is not new phenomena in these organisations, greater and by-design professionalisation generates fears about shifting the orientation from societal values to instrumental agendas (Reid Howie and Associates 2006; Hwang and Powell 2009), which raises the question of how we should develop an organisational balancing mechanisms that could accommodate this change (Kreutzer and Jäger 2010). While professionalisation-as-tool is well-connected to professionalism-as-ideology, the former underscores both process and structure (Ganesh and McAllum 2011) and its effects on the dynamics and societal role of volunteerism. Moreover, the extensive organisational implications of this are supported, externally or internally, by the argument that survival and growth require some degree of disciplinary managerialism (Jackson and Donovan 1999; Hwang and Powell 2009), which technological solutions have understood as a functional tool in this regard (Hackler and Saxton 2007).

In the domain of sports, the nature of professionalisation is understood as “the process by which sport organisations, systems, and the occupation of sport, transforms from a volunteer driven to an increasingly business-like phenomenon” (Dowling et al. 2014, p.528). This definition highlights the fact the professionalisation process has been seen as constraining and transforming the volunteer nature of the sector. It has been mentioned at the beginning of this chapter that the ethos of amateurism has dominated with most of the volunteer-led national governing bodies of sports in the UK and (Nichols et al. 2014). However, parallel with the wider context of voluntary action, this historically-shaped strong spirit of amateurism, in the UK and elsewhere, has been challenged by some institutional and cultural forces in the last decades (Enjolras 2002; Nichols et al. 2005). This process has similarly generated some concerns over the capacity of the sports sector to fulfil its civil society related “cures for the pathologies of late modern society” (Seippel 2002, p.255). This changing culture of amateurism and volunteerism in voluntary sports requires novel conceptualisations that could enable us to explain the level and the quality
by which volunteer work as a social activity is reshaped in relation to professionalising forces\textsuperscript{10} (c.f. Skinner \textit{et al.} 1999).

To conclude this section and before moving to the review of technology-oriented studies, it might be useful to tell that two terms of volunteering and voluntary organisations have gone through several conceptual and practical revisions. While there is a considerable variation among different terminological debates, the essential insight from the existing literature is that such organisations are not simply a basic pre-existing group of volunteers and some paid staff. Rather, these entities involve a complex, dynamic set of individuals, tasks, rules and norms shaped and arranged around a common objective and various working practices.

\textbf{Examining ICT Research in Voluntary Contexts}

\textbf{ICTs ‘\textit{for}’ VSOs: Enhancing the Sector}

There are a number of studies that attempt to understand and explore ICT-enabled organisational changes within the context of voluntary and non-profit sector organisations. Studies around ‘technological innovations in the third sector’, which have been carried out mainly by people whose background is in voluntary and nonprofit affairs, can be categorised on two lines of inquiry: first, those focused on the organisational consequences of technological innovations (e.g. Burt and Taylor 2000; Hart 2002; Saidel and Cour 2003; Kang and Norton 2004) and second, those seeking to understand factors that influence the processes of adoption and use of technologies in this specific context (Finn \textit{et al.} 2006; e.g. Hackler and Saxton 2007; Iverson and Burkart 2007; Kase \textit{et al.} 2010).

At first glance, these studies have generated valuable insights towards a better understanding of the organisational status ‘before’ and ‘after’ the implementation of technological projects. That is, to capture and compare specific variable that have been changed because of such projects. They provide practitioners and researchers with a knowledge toolbox to enable us to compare the challenges for and situations of the organisation before the implementation of the technological solutions and the potential aftereffects associated with such projects. They have yet to engage with and closely

\textsuperscript{10} This question is considerably answered in chapter 6 using empirical data and relevant conceptual lens.
examine the dynamics and micro-complexities of the relationship between information technologies and organisational processes. They tend to treat technology almost as a physical and external object that has relatively positive and intended (pre-planned) impacts on the organisation. In other word, the process ‘in-between’ is less-developed within current literature.

Conducting a critical literature review on the papers published during the last two decades, four instance categories regarding the role of technology in voluntary and non-profit context have emerged. These views assume that technology is an independent and external variable, which can be bought and used by people (mostly key decision makers, technically savvy practitioners, and senior managers) in order to improve organisational performance through a relatively strict, planned change.

Within these views, key characteristics of technology are explained and then in relation to those specific features, their organisational usefulness in this particular context are considered. For instance, when ICT is conceptualised as rich communication, the emphasis is given to its capacities to make voluntary-based organisations brighter in reaching their extended environments. This, for example, helps them in reshaping their organisational structure as well as developing new sources of social capital (e.g. Hart 2002; Malina and Ball 2005; Waters 2007). Also, the enabling feature of ICTs is developed to primarily discuss how such technologies offer strategic opportunities in such extended but challenging environment (e.g. Lee et al. 2001; Hackler and Saxton 2007). The concentration on ICTs as support highlights the organisationally-internal functions of information technologies from customising workplaces to redistributing group’s tasks (e.g. Lee et al. 2001; Saidel and Cour 2003). Finally, some developed the catalyst metaphor to reemphasise those activities that can only be mediated (not replaced) by ICT such as improved problem-solving techniques (e.g. Spencer 2002; Iverson and Burkart 2007). While there is a fundamental variation among such views on the benefits of technological tools, they share a common understanding that technology has obvious and positive effects on human and organisational affairs.

ICTs ‘and’ VSOs: Charting the Studies

As discussed earlier in this chapter, volunteering, as an object of inquiry, cannot be positioned in a single family of thought and hence the produced knowledge about
volunteer work and the voluntary sector is reasonably heterogeneous. This situation is even more problematic when it comes to a review of the literature on the general topic of ‘ICT and VSO’ or, specifically, ‘ICT to Sustaining VSO’, where the term ‘sustaining’ is seemingly linked to and can be substituted with other similar concepts such as stability, durability, maintenance, or development.\footnote{In fact, these terms have been interchangeably used by the scholars with a relatively closed research interest.}

However, at least, three camps of research are identifiable that have been developing a relatively systematic approach to VSO and ICT where there are also attempts to relate the work to the issue of ‘sustainability’: first, Voluntary Sector scholars with an interest in information and communication technologies, second, Information Systems researchers who treat the voluntary sector as a new research context to expand the horizons of the IS field, and finally Human-Computer Interaction and Information scientists whose ‘Action Science’ (c.f. Carroll & Rosson 2013) seeks for specific tools and applications needed for the particularities of the voluntary and community context. For each of them, ICT has a specific meaning when they share some of their interpretations. For instance, while VS scholars speak of ‘digital age’ and transformation of the volunteering culture, IS researchers examine the applicability of existing theoretical models where ‘new’ forms of organisational order are in place. The following table charts each camp along with their primary motivations to deal with this topic, dominant views on ICT, and finally selected academic works. It should be mentioned the ‘borders’ between these camps have been exaggerated in this chapter to provide the researcher with illustrations of the core contribution of each; however, there is, of course, a considerable amount of scholarly collaboration among those; their ‘common interests’ transcend their ‘disciplinarily standpoints’.

<table>
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<tr>
<th>Research Motivation</th>
<th>Conventional View</th>
<th>Academic Examples</th>
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<tbody>
<tr>
<td><strong>Voluntary Sector</strong></td>
<td>IT as Consequential in Contemporary Volunteering</td>
<td>IT as Resources (along Others)</td>
</tr>
<tr>
<td><strong>Information Systems</strong></td>
<td>Voluntary Sector as New Research Context</td>
<td>IT as Strategic Tools in Organisational Affairs</td>
</tr>
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<td><strong>Information Science</strong></td>
<td>Communities as New Sites of Design</td>
<td>Volunteers as Middle Grounded Information Managers</td>
</tr>
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Table 2-1: ICT ‘and’ Voluntary Sector Organisations: Fields and Themes

It is worth noting that the emerging discipline of ‘Community Informatics’ while perhaps not explicitly stated, has an agenda to bring these ‘fragmented’ studies together. This could, cooperatively, support the evolving literature as well as lead to consistent application of the theories and practice of Informatics in the context of voluntary and community organisations.

**IT as Consequential**

This camp’s major contribution to the topic of ‘VSO and ICT” has been provided by scholars whose primary interest is in ‘Public Administration’ or the ‘Civil Society Sector’. One common departing point for their IT-related studies is the sustainability and functioning of the sector in an extremely unsettled environment and the ways in which IT plays its dual role: First, it itself triggers those external changes, represented by terms such as Information Age as an example (c.f. Schneider 2003), and second, it can be seen as a ‘less-exploited’ resource in responding to the sector’s challenges, operationally or transformationally (c.f. Hackler and Saxton 2007; Burt and Taylor 2003). In other words, IT is paradoxical in a sense it is part of the challenge (as a phenomenon) and also part of the solution (as a resource). Given this and the lessons pioneered by other sectors, most of the research conducted here is a response and a reaction to the ‘problem-in-the-making’ in the today’s VSO environment.

Schneider argues that as nonprofit organisations have limited financial and technical backbone, technological advances may even increase the digital organisational gap between them and ‘resourceful’ organisations (Schneider 2003). Due to this contribution, the best possible IT-based opportunity for nonprofits lies in an increased ability to support local and global information-sharing needs while the ‘downside’ can be seen in changing the nature of financial supports expectations. The paper argues that such IT-induced changing expectations themselves bring ‘an additional problem rather than a way to make these [Nonprofit Organisations’] work easier’ (p. 395). The article warns that no technological idea should be replaced with traditional communication and community-building practices when it comes to securing social capital generation; IT must be used to ‘enhance’ not to ‘substitute’. Beyond this possible ‘downside’, she suggests several issues which make beneficial use of IT difficult for such organisation, including technology
access, technical assistance, and the time needed to make better use of already available technologies. Access and skill have both been discussed in other studies and Schneider’s research confirms their role; however, her study argues that the ‘time factor’ is a most critical one, especially in the context of small nonprofits. This is a puzzling character of IT-based solutions: for instance, computer-supported tools ‘require training and patience to locate and download information’ and with ‘already critical time constrains, directors of these small nonprofits are unlikely to seek new IT’ (p. 396). Building upon insights generated through some ethnographic case studies in community-based organisations, the paper suggests a list of strategies that could support nonprofits in finding their successful pathway into the information age: seeking external technical collaborations; balancing IT and core operations; extending timeframes of the projects; prioritising user capabilities over technical demands in building technology; training the staff at all organisational levels; keeping old-fashioned communication channels alongside with new technological ones.

While highlighting the generally scarce literature on the topic of ICT and VSOs, (Saidel and Cour 2003)’s paper seeks to narrow down its scope to even more limited studies about the ways in which IT can reshape the nature and distribution of work within VSOs. This paper puts a special stress on the widely varying backgrounds of the workforce in such a context; for instance, at the individual level, the predominance of females in the sector is a mediating factor in the changes that IT can provide in these contexts. Beyond such worker-level differences, there are also some institutionally distinctive elements which affect their operations, namely ‘chronic resource scarcity’ and ‘government-nonprofit contracting process’. Having such contextual differences in mind, Saidel and Cour look for better understanding of the changes brought to VSO’s workplaces; in particular ‘the relationship between information technology and the following issues: transformations in jobs; migration of work tasks within work units, shifts in the distribution of power, and effects on job satisfaction’ (p. 7). Their study shows while IT-related responsibilities are newly defined, people may embrace those with limited or no increases in pay mostly because of the opportunities that those technological activities provide such as continuous learning, more control over tasks, and career development. According to the authors’ conclusion, and in terms of power structure dynamics, ‘The introduction and expansion of IT in work units are somewhat contradictory’ (p. 22). There
is a different observation among professional executives and administrative staff in IT-related delegation of power. Their paper finally opens a number of theoretical and practical dialogues with regard to the numeric dominance of women in nonprofits and technological affairs in such workplaces.

Hackler and Saxton (2007)’s paper is one of the most well-cited studies in this field. Their study is based on a critical question: ‘[H]ow are nonprofits using information technology to enhance mission-related outcomes and boost organizational performance?’ (p. 474). The agenda for them is to advance our understanding about meanings and strategies of VSO’s IT capacity building under its core mission. Reading between the lines of the paper, it seems that putting the word ‘Strategic Use’ and ‘Information Technology’ alongside each other has a twofold purpose: to outline strategies to build IT competence and capacity in the organisation and the ways in which IT can be strategically support VSOs in their fundamental objectives. The rationale for the latter, in particular, is the fact that ‘although basic utilization of IT in the form of computers, e-mail, Internet access, and Web sites has grown relatively rapidly, there are nevertheless several critical deficiencies in the typical nonprofit’s employment of IT to help fulfill the organizational mission’ (p. 482). To translate the already existing technological architecture into strategic outcomes, they propose a mutually reinforcing relationship between IT competencies and organisational practices. At the intra-organisational level, they provide a number of dimensions in revisiting strategic use of IT. It is said that, unlike in previous studies, management ‘approval’ does not seem to be a major barrier; the limited financial, staff, time, and familiarity with resources are the most evident ‘resource-barriers’ in effective utilisation of IT potential. Two specific technologies seem to have a critical role in translating IT sources into substantial benefits: Websites and the Internet as means of information-collection and communication. At the inter-organisational level, they call for IT partnership, collaboration, and external assistance. Their study recommends that a greater and more sensible external association and partnership are essential to boost technological capacities of such organisations. This collaboration is suggested not only in terms of financial and physical support but also as a way to acquire necessary knowledge, training, expertise, and understanding needed to enhance IT capacity and utilisation. VSOs also need to think about newer technological innovation such as online commerce to deliver services in new ways.
VSO as Research Context

This research stream is found mostly in ‘Business and Management’ schools. In these institutions, there is perhaps a number of colleagues studying VSO-related affairs and hence some MIS and IS researchers have been inspired by the context-specific opportunities of voluntary sector to advance IS theory, especially to expand the horizons of the established IS literature and concepts. To exploit these opportunities, their ‘inspiration’ has been supported by a lasting, strong theoretical and methodological foundation developed over decades of systematic IS research. Hence, they have a concrete language, advanced lenses, and ‘ready minds’ to grasp the dialectics sensitively, and to seemingly conceptualise the dynamics of IT-related issues of the sector (c.f. Zhang et al. 2010; Stillman and Linger 2009). However, it seems most of the intellectual works conducted here support generating de-contextualised, universal IS knowledge, or making such knowledge robust through new context exploration. This ‘unique’ context with its ‘particular’ characteristics such as ‘users as implementers’ (e.g. Morgan 1995) can be used to develop the IS field, while at the same time VSOs may skip some ‘trials and errors’ in their sociotechnical evolution and hence shorten their ‘computerisation path’ by taking advantage of being ‘late-comers’ in their adoption and use of information technologies. What is common in this line of investigation is that they usually base their studies on one dominant IS model such as Mumford’s ETHIC model.

Morgan (1995), in his strategic analysis of information system development in voluntary organisations argues that none of the existing, well-established, IS-originated methodologies of analysis, design, and implementation ‘are particularly suited to the needs of small non-profit organizations’ (p. 225). He discusses that the limited applicability of current methodologies emerges in areas such as the multiplicity of organisational goals, the limited clarity in developing relevant strategies, various patterns of time-commitment by final users, and lack of formal risk management techniques. Such issues usually result in constant ‘tension between the need to maintain the organisation itself . . . and the promotion of the primary objective.’ (p. 227). He argues that as most (small) voluntary entities’ nature is not administrative, strategic models of IT which provide new opportunities have more input to VSO-related IS methodologies rather than those looking for efficiency improvement; meanwhile he warns against the direct application of ‘competitive advantage’ language in this sector. Building upon a sociotechnical method called ETHIC
and by highlighting the particularities of the sector, Morgan develops the ‘Information Technology Ecclesiastical Method’ to fill the vacuum that now exists in IT development and implementation methods appropriate for the sector’s specific human, financial, and technical characteristics\textsuperscript{12}.

MacKay \textit{et al.} (2004)’s study is motivated by the fact that although there are a few successful cases in which voluntary organisations have adopted the Electronic Commerce (EC) technologies to redesign their organisational outline, a majority of voluntary organisations ‘do not perceive a need to integrate these technologies into their ongoing activities’ (p. 148); the limited adoption and use can be perhaps justified by concerns over the cost, time and a narrow knowledge of potential benefits of EC technologies and the strategic role they can play in the VSOs’ activities. These internet-based technologies are primarily developed to support information-sharing, relationship maintenance, and transactions through an established website. To identify the factors influencing EC adoption among small VSOs, their study is principally based on Mehrtens’ Internet Adoption Model (Mehrtens \textit{et al.} 2001), which itself was originally developed in the context of commercial SMEs. The rationale to use this model as the research framework is the fact that most voluntary-based services are offered by small organisations within the volunteering domain. The application of the already existing model helped the researchers to ‘extend previous research by adapting the model where necessary to describe the differences in the voluntary sector’ (p. 149). Using six cases of small VSOs, their study reveals that four critical factors influencing EC adoption in this context include \textit{perceived benefits} which are mainly in the realm of communication; \textit{organisational readiness} such as new funds and new volunteer assistance, \textit{perceived pressure}, externally or internally, and \textit{perceived social risk}, the challenge on ‘programme or administration’ spending or the replacement of human communication with technology-mediated ones. They argue that VSOs’ strategic emphasis on ‘meeting a social need’ (p. 156) make them a unique context when it comes to EC adoption. This uniqueness is captured through an extension to the existing model of Mehrtens by adding the last factor (i.e. perceived social risk) and by re-defining other similar factors.

\textsuperscript{12} The ETHIC method is initiated and further developed by Enid Mumford in a series of works.
A paper by Zhang et al. (2010) was developed to stimulate the VSO-related IS research agenda. They argue that such studies are not only unorganised but also limited in numbers, perhaps because of the historical lag of the sector in adopting IS. However, given the growing economic contribution of the sector and availability of cheaper but functional technological solutions, it is a time to create a new research programme about the IS decline which has been ‘focused primary on private, for-profit organizations’ (p. 2). In doing so, they then propose an ‘IS Effectiveness Model’ to identify the sector-specific, IS-relevant encounters and opportunities. Their model to capture and incorporate the voluntary sector as a ‘Different Context for IS Research’ (p. 4) has three core elements (i.e. workers, tasks, and technologies) surrounded by two layers of organisational and social environment. The model is an updated version of the cognitive fit model proposed by Vessey and Galletta (1991). Following its original roots, Zhang et al.’s model puts a great emphasis on workers since the most observable difference between VSOs and others lies here: The highly diversified skill portfolio of workers in the sector demands that IS students broaden the ‘skill scope’ and hence Zhang et al. suggest a set of four different skills needed for effective IS development in the sector: technical (e.g. self-efficacies), domain (e.g. project management), political (e.g. resource constraints) and relationship (e.g. human cooperation) skills. In terms of the IS environment, organisationally or broader, the ‘uniqueness’ of the sector can be shown through following dimensions: as secondary adopters of IS, as protective regarding information sharing, compliant, in their political use of information, in their greater external dependency making their IS project stakeholders more heterogeneous, in the use of grants as the primary sources to fund IS projects, and holding ideology as the driving force where IS itself is rather burdensome. Such contextual differences form a platform to ‘make significant contributions in multiple ways’ in IS scholarship: constructing new VSO-stimulated theories and concepts, comparing and examining current frameworks against a new empirical landscape, and fostering business-related IS to acknowledge the social agendas practised by the sector.

**Communities as Design Sites**

For the researchers and scholars concerned with ‘designing’ better digital tools, mainly in two fields of Human-Computer Interaction (HCI) and Computer Supported Collaborative Work (CSCW), it is critical to understand how ‘users’ experience such tools (c.f. Crabtree et al. 2013), and how their collaborative work is enhanced by using such
computer systems (c.f. Carstensen and Schmidt 1999). Perhaps, the criticality of this ‘experience’ can be understood in relation to a long-lasting inherent challenge in these fields: ‘The social-technical gap is the divide between what we know we must support socially and what we can support technically’ and hence the agenda is to explore and ameliorate the gap between social requirements of designed computer systems and the technical mechanisms of such systems (Ackerman 2000, p.179).

The view of scholars in this field is that because experience happens in everyday life of the users, laboratory-based methods are problematic for generating adequate insights\(^\text{13}\). Given that, and also to move away from methodologies dominated by cognitive science, ‘in-the-wild’ approaches have been developing in these communities (Crabtree et al. 2013). According to them, the reason for the growing interest in the ‘in-the-wild’ studies, especially in the last 25 years, is the fact that, as HCI (and CSCW) researchers admit, our contemporary lives are saturated with massive numbers of technological artefacts. Thus, ‘[t]he researchers have begun following suit, decamping from their usability and living labs and moving into the wild, carrying out in-situ development and engagement, sampling experiences and probing people in their homes and on the streets’ (p. 13:1). Thus, the wild in which unusual experiences and fresh practices can be seen in relation to better design could be different forms of communities such as student-originated web-based learning communities (Rohde et al. 2004), emerging domains of nonprofit giving (Goecks et al. 2008), religious communities (Wyche et al. 2006), nonprofit youth development and human service organisations (Voida et al. 2011) or even neighbourhood community-based associations (Carroll and Farooq 2007; Carroll and Rosson 2013)\(^\text{14}\).

The growing application of electronic tools in traditional communities has encouraged scholars to re-examine existing social theories and concepts in virtual environments and how coordination is understood and managed in them. However, Rohde et al. (2004) has narrowed their case study down to a student-run course-related platform in order to have a research opportunity for exploring hybrid communities where physicality and virtuality coexist. Then, the driving research question for them is to investigate the processes of self-organisation and community-building in such mixed settings. Rolling out the technical evaluation, their central contribution is the fact that technological systems (e.g.,

\(^{13}\) Here, I refer to those interacting with the computer; see (Grudin 1993) for a detailed discussion.

\(^{14}\) Other significant studies are (Carroll and Farooq 2007; Le Dantec and Edwards 2008)
a web-based community platform called *WiInf-Central* can support the dynamics of social mechanisms among a community of students enrolled to a particular course. In particular, they found that the researched students engage in their course as a ‘shared enterprise’, even if that engagement has a reasonably limited base. The *WiInf-Central* (community platform) describes this collective enterprise ‘as an easy-to-access source of information concerning topical and organizational aspects of their course of study’ (p. 488). This conclusion is evident by looking at two aspects of the *WiInf-Central* as a virtual home-place of the students: First, the online system itself as a ‘shared artefact’, and second, the ‘shared practices’ are constructed through system usage (p. 488).

The results of this study have been re-used to develop ‘Design Case Studies’ as a practice-based research framework for CSCW studies; the key contribution of WiInf-Central’s study is on the ways in which learning is stimulated and communities can be cultivated ‘by means of appropriately designed ICT and its introduction’ (Wulf et al. 2011, p.507). As in their researched case study, the social ties are rather loose and coordinative rules are more flexible. Rohde et al. (2004) concludes the study with a reference to its relevance to wider voluntary settings beyond ‘students as volunteers’: ‘These findings are especially relevant for software-supported learning or study groups in general and might also be of interest to special interest groups or volunteer organizations that also increasingly need to co-operate worldwide and require a common identity as a basis for their work (p. 494).

If CSCW (and HCI) are about coordination mechanisms mediated by digital artefacts, then what are the particularities and specialities of managing coordination in the particular context of voluntary and nonprofit work? (Voida et al. 2011)’s response to this question is influenced by their reliance on the fundamental object of study in HCI: information. To them, studying and analysing the practices of ‘information management’ is the crucial route towards understanding the issues and challenges surrounding the use of information management systems. Researching the nonprofit context, they found a critical gap in the market for appropriate technology applications: existing technological solutions may not be able to satisfy the needs of volunteer coordinators. Considering their work practices and processes, the research conducted by Voida and colleagues conceptualises these ignored but important type of coordinators as ‘middle-ground’ information workers: The specificities of their work sit between personal and enterprise levels of data management (Voida et al. 2011).
To find out the structure and dynamics through which this ‘application gap’ might have been filled in practice, Voida and colleagues looked at the various information management strategies adopted by coordinators. Their study suggests that such strategies are largely influenced by the diversity and fluidity of the information needs, stakeholders, and work in such settings. Since the existing information management systems in the market fail to satisfy the coordinators’ work-related specific needs, different information systems assemblages are created and maintained to support them in their data-management duties. Voida and colleagues then developed the concept of ‘homebrew databases’ to capture the complexities of everyday management of information in nonprofit contexts. To better support the data management requirements of volunteer coordinators, they proposed two research trajectories: first, to work on designing more ‘human-centred database systems’ aligned for people with limited technical expertise, and second, to keep developing ‘migration, import, export and syncing standards’ in order to facilitate the interaction mechanisms and data migration across various applications. Finally, considering the work of volunteer coordinators as an instance of knowledge work in which the meaning of information evolves, they suggest HCI/CSCW communities ‘ought to consider the ways that information systems can be designed to evolve, as well—alongside individuals, groups, and organizations’ (p. 924).

As noted above, new ‘wild’ environments are at the centre of contemporary HCI studies. For Carroll and Rosson (2013) ‘local community’ life provides a rich context to learn, study and experiment with the challenges and possibilities associated with digital technologies. Their 2013 paper is a reflective document which summarises and conceptualises results from a series of community-oriented participatory design projects carried on between 1995 and 2013 in Blacksburg, Virginia, and State College, Pennsylvania. The driving motivation to engage with such technological projects was perhaps affected by HCI’s long-standing commitment ‘to address problems where they are, to work in real world contexts, to directly and effectively include and collaborate with users and other stakeholders, and to integrate scientific analysis with design intervention’ (p. 16:1). Thus, if the HCI field is about producing ‘actionable’ knowledge, how might this be useful for local neighbourhood communities?

Based on the series of HCI-inspired projects, they suggest five interrelated research themes for conducting HCI research in local communities: First, increase the cooperation...
possibilities by making things such as knowledge and skills more visible, second, develop local infrastructures, third, create place-based identities and activities, fourth, participate with the users and other stakeholders during project development, and fifth, appropriate theoretical and methodological elements by considering the particularities of the context such as sustainability, responsibility, and ownership. Highlighting these empirically grounded themes, they conclude that community informatics projects and initiatives may enhance (local) communities through three mechanisms: community identity, participation and awareness, and multiplexed support network.

Summary and the Conceptual Framework

In this final section, existing and the state-of-the-art studies are problematised with respect to their capacities in informing this research and how useful they are to arrive at the central research problem. First, using technology-oriented studies outside the volunteerism research, it is argued that there is a technological determinism within many of VSOs-related technology studies. The deterministic characteristics of these studies implies that processes of technological change itself is understood as unproblematic, black-boxed which have independent influence and accordingly the scope of research is limited to monitor and explain the social and organisational consequences of technological change (Williams 1996; McLoughlin 1999). Second, revisiting insights from the extended technology studies on the topic of volunteerism, it is suggested that main thrust of all these studies to consider sociotechnical interactions in its multidimensional assemblage. Based on these two critiques, the chapter concludes that this research project can best fit within the emerging community informatics research and sociological studies on technology, namely STS, is extremely informative in this regard.

Janus Face of Technology

To what extent can these IT-based premises for better management of VSOs be correct? Drawing upon some major technology studies, mostly from the IS and STS field, a critical examination was carried out to analyse these promises: It has been, however, revealed that information technology may have some negative impacts as well as unintended effects alongside its positive and planned ones. Unlike typical conceptualising of technology among voluntary and nonprofit scholars, the critical summary suggests that ICT cannot and should not be understood through (and perhaps be utilised based on) a simplistic
theorisation of the role and scope of technology in these organisations. In the above discourse, we discussed that technology studies on nonprofits and voluntary organisations have a tendency to consider the positive aspects of ICTs’ implementations for resolving organisational challenges. However, empirically grounded insights from ‘IS’ research offer different scenarios:

**Not an aide but barrier to communication**

It is has been already suggested that communication technologies and their inherent characteristics may hold risks for social life at workplaces, risks such as manipulation and depersonalisation. As Markus discusses, there could be a number of unintended social consequences of introducing electronic communication into organisations (Markus 1994). Some organisations might also experience drains on productivity posed by people who chat excessively, use peer-to-peer networks for music and games, and surf the Web (Tafti et al. 2007). Leonardi and Bailey have found that although a computer-aided application was designed to ease collaborative works of engineers in globally distributed firms, interpretation of implicit knowledge associated with such an application has been problematic (Leonardi and Barley 2008). This is the fact that is underdeveloped among the dominant approaches towards the application of ICT in nonprofit contexts.

**A constraint on action**

Talking about ICT as an enabler means such technologies supply users with means, knowledge, and opportunities to do more or make some new things possible. Their computational and communicative capabilities facilitate coordinated actions. However, paradoxically these technologies may constrain the manner and outcomes of individual actions. For instance, current existing technologies could constrain changes in business processes (Davenport 1993). There is no direct link between IT strategy and organisational structure, ‘one cannot and should not simply seek to identify and adopt the best available technology to restructure the organization or streamline the business processes’ (Henderson and Venkatraman 1993, p.481).

**Drift**
Technological innovations are designed to support intended changes in work processes and tasks, however, they may sometimes drift away from the purpose for which they were originally designed (Ciborra 2004a). Techniques, such as risk management and strategic planning are developed to cope with a general tendency towards unexpected changes. However, ‘ICT infrastructures tend to have a life of their own: they basically drift as a result of improvised usages; unforeseen technical interdependencies between old (legacy) and new platform; quirky design choices; surprising user resistance; and other unpredictable behaviours of both systems and humans’ (Ciborra 2004, p.3). Research by Vandenbosch and Ginzberg (1996) on collaborative platforms, shows that there is no significant successful evidence of such a technology drive leading to organisational improvement.

**Rigidity**

Technology mediates the organisational processes (Orlikowski and Baroudi 1991). However, there studies show that change associated with these processes in local situations may not just be caused by the technology. Rather, changes in organisational processes may be also happening as a reflection of the people’s attitudes/views/opinions to the planned change. So ‘that change may not always be as planned, inevitable, or discontinuous as we imagine. Rather, it is often realized through the ongoing variations which emerge frequently, even imperceptibly, in the slippages and improvisations of everyday activity’ (Orlikowski 1996, p.88). Kallinikos’s argument is also consistent with duality of the organisational impacts of technology (Kallinikos 2004). For instance, the introduction of a standardised system such as an Enterprise Resource Planning system into organisations might lead to more efficient everyday operations; however, innovation and learning may entail.

In sum, whether the aim is ‘doing valuable things with IT’ or a major technology-driven organisational change (c.f. Markus 2004), existing studies on technology and VSOs are insightful in this regard. However, a closer and more detailed analysis can help us to pinpoint the exact position and limitation of such knowledge about how information and communication technologies are being viewed and researched in this particular research area, either theoretically or practically. One main challenges, as criticised above, is their
deterministic view on technology hold theoretical insufficiency that in turn results in the simplification of organisational consequences of these technologies.

**Technology inside Multidimensional Assemblage**

This doctoral research seeks to better understand the particular relationship between technology and people in the context of voluntary and nonprofit work. The existing studies and relevant insights from within different intellectual communities (which a review of them presented above) are valuable in setting the stage ready for better contribution to the emerging field. However, there are some conceptual difficulties in the direct application of each view. These problems are associated with the specific intellectual attitudes and concerns of each stream.

Scholars in the school of volunteerism research are concerned with the socio-organisational impacts of technological solutions. This specific concern along with the dominance of policy-oriented studies have contributed to what might be thought of as a ‘consequentialist’ or ‘impact’ view of technology. Information System researchers, on the other hand, are more interested in realising the adoption of information technologies and its associated user behaviours. Such behavioural interests along with the research in organisational contexts have generated a form of ‘atomism’ with regard to human actors (c.f. Lamb and Kling 2003). Finally, information scientists and HCI researchers are motivated by improving the design of technological systems for better management of informational and collaborative needs. This object-oriented motivation along with the technological competences have resulted in ‘localist’ view on the human-technology relationship (c.f. Monteiro et al. 2012).

All in all, to benefit from the current knowledge and also in line with recent studies that go beyond the physicality of local communities and consider them in their loose organisational arrangements (e.g. Liff and Steward 2001), this research treats sociotechnical relations in the voluntary context as multidimensional, that involve multiple actors (e.g. volunteers) and multiple relations (e.g. common interest). In this view, human actors are considered as social actors belonging to various social worlds (e.g. a parent and a volunteer) and different technologies as non-human actors that can be replaced or that can mediate social or material activities (c.f. Contractor et al. 2011).
Conceptualising Technology? An STS-inspired Framework

The general purpose of this doctoral research is to understand the relationship between technology and people in the voluntary context. Hence, in this chapter a strategic review was conducted to enable a better understanding of the concept of volunteering and issues associated with the development and use of technological solutions in voluntary and nonprofit contexts. It was discussed and shown that three elements should be considered when conceptualising volunteer activities: the actors involved, the relations, and the context. It was also mentioned that organisational persistence of performing volunteer work is an important, problematic, and paradoxical issue.

Then, a critical assessment was provided to account for the existing studies conducted in similar areas of technological practice in the voluntary sector. Such studies can be categorised as falling into two groups. First, those studies that are interested in enhancing a particular form of work through technological solutions. It was argued that technological solutions cannot and should not be seen necessarily and automatically as enhancers. Second, there are studies conducted within different intellectual communities (VSO, IS and HCI) whose common theme is to examine the voluntary and technological aspects at the same time. It was discussed that we might better integrate and use such studies if sociotechnical relations are conceptualised in their multidimensional realities.

The empirical ground for this doctoral research is the context of volunteer and nonprofit work. This chapter was developed to position this research in the existing studies. According to the critical review provided in this chapter, it seems ‘Community Informatics’ offers potential in terms of grounding this research (c.f. O’Neil 2002; Gurstein 2007; Williams et al. 2009). However, limitations existing in the current studies suggest the need for more critical and nuanced analytical templates in studying technology and organising. In seeking critical approaches on technology, work and organisation, this thesis adopts insights from Science and Technology Studies while Organisational Sociology and Information Systems are also utilised in some cases.15

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15 The fuller discussion on the benefits of STS for this doctoral project is presented in chapter 3.
Science and Technology Studies

The field of Science and Technology Studies, in particular the idea of social shaping of technology, emerged as a response to essentialist views on the production and consumption of science and technology (Williams and Edge 1996). A set of controversial concepts developed in this stream to bring into question widely-accepted the linear logics of innovation and technological change and alternatively calls attention to the mutual influence of the social and the technological on one another (MacKenzie and Wajcman 1985). In this line of work the change and change-agents (i.e. human and non-human actors) are mutually defined in the absence of any essentialist account (Latour 1990).

The interdisciplinary field of STS is constructed from different social science sub-field and it includes a diverse analytical perspective developed to brings into question restricted views on the role and position of technology and science in the society (Woolgar et al. 2009). In the specific context of technology, this crucial field highlights that technical factors are only a narrow category when understanding the development and use of technology. Rather, a particular attention is to be paid on economic, cultural and social considerations (Williams and Edge 1996).

In short, sociological, critical approaches on technology, namely STS, is a powerful tool in attempting to understand the role of technology in transforming or reinforcing aspects of social order (Kling 1991; Michael 2003). Hence, STS and other sociological views on technology and organising form the conceptual foundation of this doctoral research.
3. Composing a Quasi-Ethnographic Research

Method is an ordering that makes otherness. To put it differently, otherness in one form or another always escapes method (Law and Singleton 2005, p.349). Judgements about method need . . . to be made in ways that are specific and local (Law 2004, p.103).

Aim and Structure

The aim of this chapter is to report the philosophical grounds, practical issues, and evolution of my doctoral research. This narrative presents ‘why and how’ anti-essentialist and anti-positivist thinking influenced my research endeavours. It also presents how I have attempted to produce some new knowledge about the relationship between technology and volunteerism through an ethnographic case-oriented study. In general, I shall describe how I have positioned my academic self, its processes and its end-product.

My intention is additionally to share with my readers the research adventure through which this academia-oriented ‘self’ has been co-created with so many other things over the past five years. In the beginning of my doctoral programme, I was told by various people that doing doctoral research is a long journey that needs patience, planning, and perseverance. Celebrating my experiences, I would like to add my own P in this list: perplexity. Through this reality, my doctoral studies turned into an adventure.

My experiences tell me that such puzzlement was the best driver, and paradoxically the worst barrier, to my PhD. I shall also say that the most empowering aspect of doing a PhD, for me, was the way I struggled to handle the perplexity. The PhD has taught me, in an unpredictable and disorderly process, how to break down a big, unclear idea (i.e. the research problem) to small, relatively clear points (i.e. research contributions). This ‘learning by doing’ process would never have happened without constantly questioning and redefining my methodological and theoretical position.

This chapter, therefore, attempts to portray some of the elements that have been critical in the theory and practice of such a ‘perplexity management’ process. My hope is to make a connection between this perplexity and the STS-inspired, ethnographic spirit of my research. In doing so, I have utilised this chapter to present the historical and biographical foundation of my doctoral research\(^\text{16}\) and key decisions associated with designing (i.e.

\(^{16}\) I will explain the need for this later in this chapter under the section of ‘my headwork’.
trial-and-error) a philosophical and methodological roadmap. Furthermore, inspired by Van Maanen’s (2011) thoughts, I explain how my doctoral studies can be seen as three interrelated forms of research work: fieldwork, headwork, and textwork. At the end, I go over the main points and draw a conclusion regarding my own academic position during the shaping of this particular project.

Foreword

My general research interest in doing a doctoral project was to better understand the relationship between technology and society. My academic training in business and management, both at the master and bachelor level, were largely influenced by applied and practical matters concerning management and organisation. Hence, my initial perception of the relationship between technology and people was ‘How can we come up with a better quality of life with the use of technologies?’ Given this and my related work experience, in the beginning of my studies, I wanted to understand how information technologies could be better designed in the area of urban management in developing contexts such as my home country, Iran. This was positioned under the major theme of Information and Communication Technologies for Development (ICT4D).

Whilst I was working on the project, a critical incident happened which became a turning point in my theoretical pathway and ultimately it prompted my move into the critical studies of technology, work and organising. In the beginning of my doctoral programme, I was encouraged by my adviser to attend a course titled ‘Social and Economic Perspectives on Technology’. In the first few weeks of my participation in that course, I started to realise that my approach towards the design and development of information technologies had already been criticised for its ‘deterministic, essentialist flavour on technology’. Later in the same semester, when I asked the course organiser, to kindly comment on my research proposal, he politely mentioned that my objective for ‘investigating how information technologies should be designed for the sake of human development’ was based in part on a fundamental assumption that challenged the idea, and that was the uncritical engagement with the notion of design (c.f. Stewart and Williams 2005).

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17 c.f. Science and Technology Studies (Czarniawska 2009), Social Informatics (Kling 2007) and Critical Information Systems (Howcroft and Trauth 2005).
Phenomenon of Interest: Volunteering and Technology

My doctoral research did not continue under the theme of ICT4D, but it was pursued in relation to a similar interest: the role of technological systems in the context of voluntary work. Perhaps one critical similarity between a developing context and the volunteer work context is the limited budget and the lack of strategic vision. From an analytical point of view, since the design, development, and implementation of technological systems are less critically studied in the developing country, such programmes can enrich our knowledge about technology and society (Heeks 2007; Avgerou 2008); a similar opportunity exists in studying technology in the context of voluntary and nonprofit work (Stillman and Linger 2009).

The attractiveness of the voluntary context as the empirical realm for my research also had its roots in my own volunteering experiences and sketchy observations about the challenging nature of technology-enabled work in this setting. As a result, the area between ‘doing work’ and ‘technology’ in the context of nonprofits and voluntary organisations has been the most constant element in the whole journey of my doctoral research. While there have been many changes and surprises between the initial proposal and the final research outcome, the interest and focus at the intersection of technology and volunteering have been the key focus in my doctoral journey.

Research Setting: Embracing Scottish Swimming as the Empirical Land

Having a broad interest in studying the specific intersection between volunteering and technology, I started internet-based research (using some of the basic keywords to see what was being said around this intersection. Moreover, such online research allowed me to empirically evaluate and polish my general idea, both its value and novelty. Later, its theoretical novelty was discovered in relation to established and emerging discussions.

Around 2011, when I was developing my new research proposal, the topic of social media, in particular Facebook, was one of the hottest topics in many fields, including IS and Organisational Sociology. I too became fascinated by this development. I therefore decided to get some feedback on this emerging interest from practitioners before spending the extensive time needed to examine the relevant literature. Henceforth, I

18 Thanks to Professor Eric Monteiro for encouraging me to look back on my notes and get some insights from the ICT4D (ICT for Development) literature to re-use them in my current research project.
contacted Amy Sample Ward, one of the most active writers on the theme of ‘social media for social challenges’ at that time. She kindly replied and pointed me towards the NTEN.org network (personal email: 25 Jan 2011).

Her particular advice regarding NTEN (The Nonprofit Technology Enterprise Network) turned out to be very stimulating. Perusing NTEN and other similar websites as well as by continuing correspondences with the experts, I became sensitive to evidence that technological affairs seemed to be problematic in the voluntary context. A quick examination of the relevant literature confirmed this. That is, this particular setting appears to lag behind other sectors in making use of information technologies (see chapter 2). Putting academic and practical insights together, I took one step back and widened the scope of research to include any relevant technology, including social media.

As a result of such methodological flexibility, new potential projects and empirical ‘lands’ became available for me. With the help of my principal adviser, I was offered a chance to participate in a small IT project in a voluntary-based swimming club (i.e. Water125). My intention was to carry out a kind of pilot study, i.e. pre-fieldwork (Hammersley and Atkinson 1995), in order to feel and see what was happening on the ground: This work helped me to turn vague problems into researchable questions. However, my supposed-to-be-short-term involvement grew in scope, and ended up with my travelling to new sites and projects, and meeting new people. At that point, with some knowledge from pertinent discussions on intersecting worlds of practice (c.f. Lamb and Kling 2003; Nicolini 2009) and the notion of theoretically-informed, biographical investigations (Pollock and Williams 2010), I was encouraged to explore the shaping of social and organisational practices mediated by technological objects at different island-like but interconnected sites and timeframes. Hence, that pilot study turned into a kind of proper ethnographic endeavour and an entry to other places and people beyond that club.

The following paragraphs from my iConference 2013 publication summarises my methodological thoughts when I was halfway through my doctoral journey (Eshraghi 2013, p.44):
My Research Methodology in its Half-Way Stage (in March 2013)

The current literature on [Voluntary Sector Organisations] and ICTs leaves the technology as a black-box. By formulating a ‘how’ question, this study seeks to explore what happens inside the ‘black-box’. In doing so, initially, an in-depth ethnographic case study of a leading Scottish swimming club was designed to shed light on the use of ICTs by volunteers, in particular by applying the insight of the mainstream [Computer Supported Collaborative Work] studies and IS research. However, during the earlier stages of the fieldwork, a fundamental emergent issue has arisen: people of the case study were pointing to other actors and settings beyond the case when they were being asked about their everyday work practices. This was also supported by further observations during their work with a range of ICTs. For instance, a new sports software vendor has come into the market and some people in the club were under-exploiting the functionalities of the current software with a hope to the procurement of the new system.

This issue might not be a matter of single case study; rather it seemed that its roots were in focusing on volunteers’ use of ICTs within a single setting, which was the club setting. The emergent issue, i.e. the flags made by volunteers, has encouraged me to start conversations with more diverse communities to establish an appropriated theoretical basis [...] to study such practices, we need to go beyond the boundaries of the case and also to take into account other human or non-human actors. Hence, it seems that the previous ‘flat ethnographic’ case study (Pollock and Williams 2010) should be completed with other techniques to generate data and make sense of more distributed contexts (Monteiro et al. 2012).

As a result, this research has three pathways: first, the idea to study volunteers as users of technology in a limited setting is problematic; second, it has been argued that users are social actors that their ICTs practices are shaped by diverse internal and external entities; third, a multi-setting study is required to capture all significant key players and contexts which affect the patterns of ICTs practices. This research therefore studies both the club level and other distributed settings and actors which they are being emerged through snowballing techniques.

Table 3-1: An Extract from a Conference Paper Summarising My Methodological Thoughts

The inspiration to travel in different and distributed timeframes and settings made the context of swimming in Scotland a promising empirical site for my research. The choice of Scottish Swimming might be seen as a sort of single case study. But, this ‘single’ case performs as a platform for multilevel study since it involves human actors moving around within and beyond the case and hence provides access to differing interactional events. The following diagram depicts some of the key elements that are constitutive in the system of swimming in Scotland as a voluntary-based association.
The Scottish Amateur Swimming Association (SASA) is part of the larger British Swimming organisation. However, it is administrated independently for the majority of local (and sometimes nonlocal) matters. SASA is formed from four geographically-oriented districts. In total, more than 160 clubs are affiliated with this association, and it serves around 12,000 members. The size of affiliated clubs varies between 10 and 300 swimmers. The whole sector heavily relies on the work of volunteers. Since the business of swimming training is an extremely demanding activity, there is a great need for parents’ involvement and swimmers’ commitment, and these in effect make the sport and its organisation highly disciplined.

Having a rough phenomenon of interest in mind and access to Water125 (and then SASA), I needed to reflect on how to approach and make sense of the developing empirical materials and insights. In the following sections, I will go into detail to describe the more philosophical grounds of my research as well as its authentic trajectory.

The Choice of Methodological Design

The phenomenon which I was (and continue to be) interested in exploring and making better sense of is the ‘everyday life’ of people and their use of technologies in the
volunteering context. Therefore, if I was about to explore and make sense of something, I needed to think about this process of understanding and the source and mechanism for generating such knowledge. Furthermore, my strategic and quick examination of the existing literature revealed that the everyday and in situ relations between technologies and people in this particular context has remained, empirically and theoretically, an unexplored black box (see chapter 2). I was, therefore, convinced that our knowledge about the everyday interactional events in which volunteers and paid staff, community values, work arrangements, and technologies are collectively involved is limited. To use STS terminology, we need to understand and write about this particular phenomenon from inside, which means in situ and as it happens.

My curiosity, consequently, pushed me to find out whether and how the specifications of the voluntary-ness of collective work might influence and be influenced by the shaping of (information and communication) technologies. In this section, I discuss the philosophical foundation on which and the practical methods by which I sought to find some answers and articulate a convincing image for the potential audience.

Research Philosophy: Joining Anti-Positivism and Anti-Essentialism

This section introduces the particular tradition (interpretivism and constructivism) underpinning my doctoral research and emphasises the commensurability between these philosophical stances and the critical standpoint on technology and society informing this research.

For many years, the doctrine of positivism, which has its roots in the natural sciences, was extensively utilised to study and explain social phenomena (Goulding 2002). Advocates of positivism in the field of social science hold the view that there is a high-level of similarity between the behaviour of human beings and non-humans in the sense they react to some sort of external stimuli. In this tradition, there is a grounded stress on discovering

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19 “The how of research is generated by the why of the world” (Turner 1991, p.123).

20 This notion of ‘from inside’ is perhaps one of the most critical objectives in the STS lexicon. For more elaboration and application see (Latour 1990; Suchman et al. 1999; Woolgar 2011).

21 This is the point from which critical studies on the relationship between human and technological actions became the key source of my regular readings. In particular, STS-flavoured works provided me with novel and provocative thoughts to explore sociotechnical affairs as they unfolded.

22 It is mentioned above and also in chapter 2 why the relationship between technology and people (here volunteering practice) requires fresh, nondeterministic approaches. Also see Russell and Williams (2002).
the truth through facts. This also provides a basis for validating evidence-based knowledge. Hence, researchers should only target measurable behaviours and dimensions. Anything unobservable, such as meanings, are marked as insignificant (Haralambos and Foster-Carter 1985). The legacy of positivistic thinking has significantly resulted in some methodological exclusiveness and rigidity in the context of mainstream IT studies (Avgerou 2000; Davison and Martinsons 2011). Because of its focus on measurable, external realities, many research questions in positivist traditions are explained in terms of causal laws (c.f. Czarniawska 2004b).

In the specific context of technological studies, there are a set of widely utilised assumptions about technological affairs that explain the very relationship between technology and society in a deterministic way which is itself analytically close to the positivist doctrine. This (technological) determinism implies that technologies and computerisation have some sort of impacts for organising and human activities (Williams and Edge 1996; Kling 2007), and human actions can be ‘caused’ by technological drivers, which are external and independent of human behaviours (Leonardi and Barley 2008). The determinism is a version of essentialism in which things like technologies hold certain, fixed properties and the task for the researcher is to find the casual relations between different entities while the enactment of technological practices is left as a black box (c.f. Neyland 2008; Woolgar and Lezaun 2013). I might say that determinism is a more applied and incarnate form of essentialist philosophy that by default is reductionist towards the mutual shaping of technology and society.

Both positivism and essentialism (including determinism) have recently undergone protracted criticism, in particular for their inability to address the very essence of human inquiries, such as meaning-making, and their ignorance about the social roots of knowledge and technology. In the context of organisational studies and technological affairs, those scholars who are inspired by sociological ventures have particularly discussed the analytical failure of and the conceptual dissatisfaction with positivist and essentialist perspectives on technology and organising (Czarniawska 2004b; Kling 2007; Pollock and Williams 2009). Hence and in response to such shortcomings, new

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23 These ‘impact studies’ are a mode of research that can just capture a particular snapshot before and after the implementation of a specific technological innovation, which again embeds technological determinism (c.f. Pollock and Williams 2009).
philosophical and methodological projects have been developed to provide social and organisational researchers with powerful devices and novel angles for redefining and studying their object of inquiry.

Both interpretivism and constructivism were conceived in reaction to the inherent limitations of positivism and essentialism for human inquiry (Schwandt 1994). They hinder ‘logical empiricist’ methodologies and fail to recognize the importance of lived experiences by social actors. While interpretivism is more concerned with the fundamental inapplicability of natural science frameworks in the domain of human inquiry, constructivism is in favour of relationality and the role of perspective in shaping knowledge (Schwandt 1994).

My particular interest in studying the ‘mundane’ and the ‘everyday’ and the importance of language, meanings, and situation when opening this black box, encourages a conversation with the ‘interpretive turn’ (Czarniawska 2004b; Golden-Biddle and Locke 2007). At the core of the interpretive paradigm is a fundamental emphasis on the role of cultural and contextual items, including the researcher, on the creation of knowledge about the human activity (Locke 2001). An interpretive researcher believes that ‘[w]hat we call our data are really our own constructions of other people’s constructions of what they and their compatriots are up to’ (Geertz 1973, p.9). In line with this tradition, anti-essentialism helps us to bypass seeing human actors, including researchers, as rational individuals that find out truth and knowledge which is out there (c.f. Schwandt 1994; Woolgar et al. 2009).

In short, my research is constructivist in the sense that it rejects essentialist, deterministic views on the relations among technological and human actions in voluntary contexts. It is an interpretive piece of work since it foils on the efforts that seek to define external, independent variables and a kind of casual relationship between them. To attend in such a philosophical foundation, an abductive research strategy and ethnographic case-specific practices were largely useful for reaching out and staying close to human (and technological) actions.

**Research Strategy: Evolving Abductive Method**

A book titled *Designing Social Research* by Norman Blaikie (Blaikie 2009) is one of the recommended research books that bring the theory and practice of social science research
together. Until the later stages of writing for my final version of the thesis, I had used the logic, language, and guidance of this particular book to structure and build my individual methodological journey.

One critical issue for any junior social scientist is to think about the best fit between the theoretical and the empirical elements of their work (Becker 1986, 1996). Working with my own research questions and the particular field, I initially made specific use of Blaikie’s proposed categories of research strategies and the ways in which they are connected to theory and data.

Emphasising the crucial role of concepts in social science as ‘building blocks of social theories’ (p. 111), Blaikie summarises the existing views on how we can better use theories and models to answer research questions around four research strategies: inductive, deductive, retroductive, and abductive (c.f. Blaikie 2009). In the inductive strategy, theory is generated inductively from the data. For deductive studies, there is a need to initially develop some hypotheses and then test them against the data. In the retroductive strategy, there is great emphasis on the mechanism and hypothetical modelling. However, in abductive studies, the researcher produces social scientific (technical) analyses that are generated from everyday (lay) accounts.

My broad research question and its highly exploratory nature urged me towards a research design that starts from the data and empirics. In fact, my main research question as well as many pieces of the research, were designed to be relatively open and this allowed me to discover and explore invisible facets and unusual issues associated with my interest to know what do people do with technology in voluntary settings?

While I was primarily inspired by the inductive strategy in designing my research, leaving theoretical engagement with the data for later research stages, even from the early days of actual fieldwork, I realised that I was actually shifting toward a more abductive style. Firstly, in my research, I had been looking for a satisfying and strong sociological account of the everyday use of technological objects by volunteers in performing their work. Secondly, I found myself constantly going back and forth between my empirical

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24 During the years I was completing my doctoral studies, his book was in widespread use among my fellow PhD students. Apart from field-specific references, this book was the one we ‘borrowed’ from and ‘discussed’ with each other.
observations and some conceptual tools that enabled me to express them (Clarke and Star 2008); or I found myself at the ‘interplay of observational and conceptual work’ (Van Maanen et al. 2007, p.1149). In other words, for practical reasons, I was attempting to find some technical and scientific vocabularies to map out, analyse, and explain the collected lay language, and this is at the heart of the abductive scheme (Blaikie 2009). Such attempts include a conversion (i.e. theorisation) of the informants’ first-order concepts to the researcher’s second-order concepts (Van Maanen 1979).

The abductive method is seen as ‘probably the method used in real practice in many case-based research processes’ (Alvesson and Sköldberg 2009, p.4). Alvesson and Sköldberg continue that in the abduction, there is a fundamental stress on discovering a kind of ‘hypothetic overarching pattern’ for interpreting the case-in-question. Such a proposed overarching pattern (an emerging theory) will be adjusted and refined during the research process through the successful development of the ‘empirical area of application’ (p. 4). This strategy is also more in concordance with the light application of a few theoretical outlines as discussed in (Hammersley and Atkinson 1995).

Research Method: Performing Ethnographic Study

To utilise the rather enlightened perspectives of anti-positivism and anti-essentialism, researchers need a closer engagement with and participation in the observed world in order to better understand it (Walsham 2006; Neyland 2008). This is associated with the active interpretation of the studied world. Thus, qualitative methods such as ethnographic interviewing and participant observation are the key devices by which social researchers attempt to elicit people’s perspectives on ‘the social worlds they live in, their work, and the events they observed or were party to’ (Locke 2001, p.9). The other value of the interpretive tradition is that it inherently offers an intellectual space for the reflexive nature of the research process (Etherington 2004; Golden-Biddle and Locke 2007). Hence, the observer and the observed are brought closer to each other in all phases of research, especially in the analysis and interpretation of data. Later in this chapter, I will explain how the role of an embodied and present researcher is important in capturing and accessing the very foundations of practice and action.

Following the discussion on the philosophical paradigm that manages the research pathway, there are two related but more pragmatic issues that should be noticed and
justified: the role of theory in research\textsuperscript{25} and the choice of method in gathering quality data. In this regard, I shall comment on my own story.

There are different methods that enable researchers to keep their commitment to interpretive and constructivist perspectives, of which ethnography is one strategy (Locke 2001; Wyatt and Balmer 2007). The strength of ethnographic practice is to attend to how human actors make their lives in all its complexities and mundanity. In addition, we are faced with an intellectual pressure that calls for elaborating the multiplicity of objects and how such ontological multiplicities are enacted in (sociotechnical) practices. John Law satisfactorily reminds us that we could respond to this pressure through ethnographic attempts:

Realities are not explained by practices and beliefs but are instead produced in them. They are produced, and have a life, in relations. So what we need is ethnography . . . . It allows us to explore the continued enactment of objects. And as a part of this, it allows us to investigate the multiplicity of those objects, the ways in which they interact with one another. (Law 2004, p.59)

And so, the practice of ethnographic engagement is useful for tracing and approaching ontological hybridities and sociomaterial assemblages (c.f. Latour 1992; Woolgar and Neyland 2013) which both are at the centre of doctoral thoughts. Following my interest in critical studies, namely STS, as well as some of the above-mentioned occurrences in the initial stages of my research, I became even more convinced of the suitability of a kind of ethnographic style for my research.

Ethnographic studies have a very special place in the heart of the STS discipline; however, some ‘methodological innovations’ are necessary to make ethnographic designs a better fit for STS-motivated challenges (Hine 2007). It seems there is a strong connection between organisational ethnographies and STS-inspired ones in this regard. For example, consider this:

As the above studies suggest, the representational burden of ethnography has become heavier, messier, and less easily located in time and space, and innovations in tale telling are on the rise. (Van Maanen 2011, p.225)

\textsuperscript{25} For instance, see (Gregor 2006) for an in-depth discussion in the context of IS research.
In this chapter, there are pointers to some of my own micro-innovations (e.g. to force an observed actor to draw for me what he means by a specific point) and the utilisation of such innovations (e.g. the idea of Biography of Artifact by Pollock and Williams 2010) are mentioned.

But, before talking about my specific practices of ethnographic engagement, I need to clarify the structure of this chapter, in particular the next three sections. As a social science student, I am encouraged and trained to think about and organise different pieces of my research project around the three fundamental dimensions of empirical materials: collection, analysis, and presentation (c.f. Blaike 2009). Even reading through many of the well-established relevant journals, this preferred style is evident in numerous published papers. Although this structure can be powerful in organising and presenting many qualitative data, I found that this language and classification did not fit well with my actual research practice. This personal dissatisfaction forced me to further investigate the extended domain of sociological inquiry in order to find a more satisfying style. Ultimately, I discovered myself in a very effective conversation with Van Maanen’s paper on ‘Ethnography as Work’ (Van Maanen 2011).

Van Maanen argues that ethnography is a form of work that involves three kinds of sub-work: ‘fieldwork, headwork and textwork’. This taxonomy provides stronger grounds on which to think about and report ethnographic studies because their processes are highly unpredictable and nonlinear, similar to what naturally occurred in my doctoral project. Hence, his particular vocabulary and critical standpoint were inspiring for the makeup and telling of the intertwined empirical and conceptual pieces of my research. It was utilised for composing this so-called methodology chapter.

In what follows, the important points about my ethnographic attempt is presented based on the taxonomy extracted from Van Maanen. The following picture, for instance, shows how fieldworking became part of ethnographic academic ‘work’: observing with steady headwork (left-hand top), on-site note-taking and some textwork (left-hand bottom), and getting prepared to run a creative, workshop-style focus-group (right).
On My Fieldwork: Studying from Inside

Fieldwork, in the sense communicated here, is one of the key traits of qualitative research, including ethnography, in which researchers are sensitised towards the *constructed character of variables* (Becker 1996). According to Van Maanen, fieldwork is a technique by which social researchers collect empirical materials by ‘subjecting the self’ to a series of contingencies over a long time. This requires that any fieldworker attends at least one arena of action in another’s life situation. In ethnographic efforts, rather than predefining any device for data-gathering, researchers themselves (i.e. their bodies, emotions, senses, etc.) perform as research instruments (Sanday 1979). This leads the researcher to not simply study ‘the field’ but ‘study in the field’.

Studying *in the field*, provides a type of knowledge about the kinds of responses, either voices or silences (c.f. Star and Strauss 1999), that others perform in particular social situations: ‘a localized understanding of the cultural processes—meaning making—as it occurs from a few vantage points within’ the *fieldworked case* such as an organisation or a community. However, to be successful in this work, creative and ‘sneaking’ strategies play a critical role (Van Maanen 2011, p.221).

Being an Involved Researcher: An Emergent Multilevel Field

In essence, there are at least two modes of engagement in interpretive studies: being ‘outside’ and being an ‘involved’ researcher (Walsham 2006). While in the former, formal
interviewing is a central device for data collection, in the latter, more direct involvement in action as what happens in participant observation are the *sine qua non* (c.f. Chase 2005; Walsham 2006). But, the possibility of ‘real’ *participant* observation is questioned for its practical and analytical issues, especially in the organisational ethnography context. For instance, in my case, participation in some social roles, such as a community leader, was inherently impossible. To overcome such challenges, it is suggested that direct, prolonged observation can be employed as a more affordable method (Czarniawska 2004a). In addition, traditional ethnographic procedures are ineffective in capturing crucial facets of contemporary social practices since they are bounded by one place (Czarniawska 2004a). In fact, since traditional (anthropological) ethnographies are designed to locate in particular moments and organisational sites, during the observation the researcher may feel that they are not in the right place or the right time (Law 1994). Such challenges have triggered a rethinking and redeveloping of ethnographic practices (e.g. Marcus 1995; Hine 2007; Neyland 2008; Pollock and Williams 2010; Falzon 2012).

One key argument I have learnt from all these recent modifications to ethnographic conduct is the fact that we should be open to shifting from physical places to interactional spaces when conducting fieldwork. In a similar vein, it is discussed that by doing fieldwork in different sites, new conditions will be formed that enable researchers in ‘generating, examining, and making more conceptually dense the emerging concepts’ (Soulliere *et al.* 2001, p.254). The whole argument is that many vital interactions involved in the dynamics of the observed phenomenon would be missed if ethnographers remain located only in particular moments and settings.

**How to do Ethnography? Missed Interactions Included**

In the initial stages of my fieldwork, I also came to feel this problem of ‘missing the action’ (Law 1994). In my research, I realised that some observable interactional events and distributed processes were constructive to the shaping of volunteering practice, but it was not possible to simply capture them by observing people in their every life since they mostly were imbricated with less visible technological objects and historical backdrops.

For me, one useful way to understand and utilise such necessary shifts was the notion of ‘co-presence’ developed by Beaulieu (2010). For her, this conception of co-presence, ‘foregrounds the relationship between self and other and interaction that achieves
presence in a setting’ (0. 457). Discussing the values of shifting the focus from a single physical location to include more interactional sites, she argues that for STS-like ethnographic studies, the researcher should be concerned with being co-present rather than physically co-located. This enables researchers to reshape the fieldwork in a way that they can see and account for other invisible (perhaps mundane) places and forms of interaction that are critical for better understanding of their study object. For instance, a website that is related to a laboratory is, as she shows, a resourceful object that can provide the fieldworker with new directions and can help in establishing relations with new, less visible people.

Co-presence is, therefore, an alternative to more classical anthropologically-oriented ethnographic practices in which physical co-location is a requisite. Relying on the classic works in the symbolic interactionism tradition, for example Goffman (1959), Beaulieu highlights the fact that interaction is a complex phenomenon, and that the pure co-physicality by the observant researcher does not necessarily secure availability for interaction. However, it is not to disparage the value of physical co-location as a resourceful research strategy. In short, this theoretical-methodological shift is a way to access new modes of presence:

Co-presence decentralizes the notion of space without excluding it. It opens up the possibility that co-presence might be established through a variety of modes, physical co-location being one among others. Not only does it enable the researcher to take mediated settings very seriously (insofar as they are a means or resource for being co-present), but it also does not exclude face-to-face situations. Co-presence as a starting point enables a more symmetrical treatment of forms of interaction (Beaulieu 2010, p.454).

Based on my doctoral experiences, I would suggest that by applying this notion of co-presence, some sort of multilevel-ness might indeed be generated in the research process. The orientation to and concentration on interaction encourage researchers, as happened in my case, to travel more easily, empirically and analytically alike. The idea of a multilevel research design also addresses some critiques of single case studies and their limited capacity in generating abstract concepts: Some important knowledge, as mentioned above, will be produced even from a single case, if relevant distributed settings and timeframes are considered. So, one potential methodological contribution of this framing is to respond to the emerging but also confusing interest in the application of multilevel studies in the IS domain (Zhang and Bandara 2012).
Sources and Makeup of the Empirical Materials

To comply with the essence of ethnographic study, I had to keep reminding myself to carefully craft and examine new ‘how’ and ‘why’ questions (Van Maanen 2011). Even in those moments when I was getting close to more formal interviewing, by using ideas from ‘laddering interviewing’ and ‘photo-dairy interviewing’ (Schultze and Avital 2011), I was attempting to capture, contextualise, and conceptualise people’s meanings, self-reflections, and understandings about technology-related issues. Furthermore, to enhance the quality and completeness (i.e. richness) of the data, I asked people to draw something about the topic of the talk, and then those visual materials were incorporated into the analysis and further fieldwork. For instance, I encouraged one of my interviewees to draw their opinions in relation to the different communication means for Scottish Swimming and the following figure was the result (see Figure 3.3). This was useful in generating deeper contextual understanding from the participant’s social worlds (Chase 2005; Schultze and Avital 2011).

Figure 3.3: An Attempt to Make the Interview ‘Ethnographic’

In my empirical work, I used many different techniques to get closer to the action (Latour 1991) since this is one effective strategy to study any phenomenon from inside. These techniques involved chat-like and semi-formal interviews as well as observations and attendance in various events such as training workshops, swimming competitions, and both formal and informal meetings. Similarly, different materials, websites, published newsletters, archival records, and software logs were investigated and utilised to enhance my understanding and also to enhance and illustrate the developing narrative.
The organisation and management of empirical data is an important but difficult task in any qualitative research. The pace of happenings and conversations in fieldwork was faster than my ability to write them down completely. Hence, over time, I developed personal codes and often wrote in my native language, Farsi. These two accelerated the process of my note taking. My difficulty to understand local accents and slogans and writing in Farsi both seemed to be a disadvantage at the beginning. However, it became useful in a novel way later in my research. My informants were happy to help me with my English and hence gave me opportunities to double check my notes and understandings by email or later when they had more time. The following image is extracted from a note take in Farsi (see Figure 3-4).

![Figure 3-4: Example of Notes in Farsi: Setup of a Competition Control Room](image)

In facing the messiness and large volume of data, I experienced different computer tools, but Evernote was an extremely useful application for me in the management of empirical materials (and also for quick notes and micro-analyses), especially those data that were collected when I was surfing on the net and reading about swimming, its voluntary nature, its technologies, and so on. The following image shows part of my fieldwork data managed in an Evernote notebook (see Figure 3-5).

![Figure 3-5: Organising Online Empirical Materials in Evernote Application](image)
In order to provide an overview of the forms and length of my ethnographic engagement, I organised my empirical notes based on three ‘areas’: first, the observed swimming club (Water125), second, the larger context of swimming affairs in Scottish Swimming, and third, any other relevant instances that are beyond the scope of Scotland. The following table shows the distribution and type of ethnographic engagement (see Table 3-2).

<table>
<thead>
<tr>
<th>When</th>
<th>How</th>
<th>Who</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>25-Aug-11</td>
<td>INT</td>
<td>Senior Adviser</td>
<td>01:15</td>
</tr>
<tr>
<td>29-Aug-11</td>
<td>INT</td>
<td>Membership Admin</td>
<td>00:40</td>
</tr>
<tr>
<td>05-Sep-11</td>
<td>INT</td>
<td>Treasurer</td>
<td>00:38</td>
</tr>
<tr>
<td>16-Sep-11</td>
<td>INT</td>
<td>Swimming Convenor</td>
<td>00:48</td>
</tr>
<tr>
<td>19-Sep-11</td>
<td>INT</td>
<td>Meet Entries</td>
<td>00:33</td>
</tr>
<tr>
<td>09-Oct-11</td>
<td>INT</td>
<td>Head-coach</td>
<td>01:11</td>
</tr>
<tr>
<td>31-Oct-11</td>
<td>INT</td>
<td>Senior Adviser</td>
<td>00:57</td>
</tr>
<tr>
<td>01-Nov-11</td>
<td>INT</td>
<td>Pool Hire Convenor</td>
<td>00:21</td>
</tr>
<tr>
<td>09-Nov-11</td>
<td>INT/OBS</td>
<td>Swimming Convenor</td>
<td>01:02</td>
</tr>
<tr>
<td>09-Nov-11</td>
<td>INT</td>
<td>IT Team Internal Meeting</td>
<td>00:53</td>
</tr>
<tr>
<td>01-Dec-11</td>
<td>INT</td>
<td>IBM Meeting</td>
<td>00:48</td>
</tr>
<tr>
<td>09-Dec-11</td>
<td>INT</td>
<td>Senior Adviser</td>
<td>01:21</td>
</tr>
<tr>
<td>16-Dec-11</td>
<td>INT</td>
<td>TeamUnify Webinar</td>
<td>00:45</td>
</tr>
<tr>
<td>21-Feb-12</td>
<td>INT/OBS</td>
<td>Swimming Convenor/Senior Adviser</td>
<td>00:38</td>
</tr>
<tr>
<td>26-Feb-12</td>
<td>OBS</td>
<td>Water 125 Development Meet</td>
<td></td>
</tr>
<tr>
<td>01-Mar-12</td>
<td>OBS</td>
<td>Water 125 Office</td>
<td></td>
</tr>
<tr>
<td>23-Apr-12</td>
<td>INT</td>
<td>Committee Presentation</td>
<td>00:47</td>
</tr>
<tr>
<td>12-May-12</td>
<td>INT</td>
<td>Membership Association Secretary</td>
<td>00:54</td>
</tr>
<tr>
<td>30-May-12</td>
<td>INT</td>
<td>Focus Group @ Coaches</td>
<td>01:40</td>
</tr>
<tr>
<td>10-Jun-12</td>
<td>INT</td>
<td>Focus Group @Committee</td>
<td>00:54</td>
</tr>
<tr>
<td>22-Apr-13</td>
<td>INT</td>
<td>STO Convener</td>
<td>01:53</td>
</tr>
<tr>
<td>02-May-13</td>
<td>INT/OBS</td>
<td>STO Convener</td>
<td>01:09</td>
</tr>
<tr>
<td>10-Oct-13</td>
<td>INT</td>
<td>Volunteer Parent</td>
<td>00:10</td>
</tr>
<tr>
<td>10-Oct-13</td>
<td>INT/OBS</td>
<td>Water125 Champs</td>
<td>00:32</td>
</tr>
<tr>
<td>22-Oct-13</td>
<td>INT</td>
<td>STO Convener</td>
<td>01:16</td>
</tr>
<tr>
<td>23-Oct-13</td>
<td>INT</td>
<td>Vice President/ Secretory</td>
<td>01:04</td>
</tr>
<tr>
<td>30-Oct-13</td>
<td>INT</td>
<td>Fundraising</td>
<td>00:45</td>
</tr>
</tbody>
</table>

Table 3-2: Interview and Observations at Water 125

There was a never-ending dialogue between my fieldwork in Water125 and the broader context of swimming in Scotland, which was mainly the East District that Water125 is directly affiliated to. While my ethnographic study started in Water125, I realised that to

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26 In the tables, ‘INT’ stands for talk-oriented data and ‘OBS’ refers to feeling-oriented data.
better understand the source and unfolding of some activities, I need to extend my focus both temporally and spatially. In short, in the period between 21 March and 30 October 2013, I was fieldworking both in Water125 and beyond, and I maintained my connections to my informants until around the middle of 2015 for final double-checks regarding the gathered data and emerged interpretations.

<table>
<thead>
<tr>
<th>When</th>
<th>How</th>
<th>Who</th>
<th>Time</th>
<th>Where</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 21-Mar-13</td>
<td>INT</td>
<td>Coaching Officer</td>
<td>00:39</td>
<td>Stirling University</td>
</tr>
<tr>
<td>2 18-Apr-13</td>
<td>INT</td>
<td>Meeting with the SS Co. Team</td>
<td>00:15</td>
<td>Stirling University</td>
</tr>
<tr>
<td>3 15-May-13</td>
<td>INT</td>
<td>Marketing Adviser</td>
<td>01:31</td>
<td>UoE Business School</td>
</tr>
<tr>
<td>4 13-Jun-13</td>
<td>OBS</td>
<td>National Open Champs</td>
<td>00:25</td>
<td>Tollcross Centre</td>
</tr>
<tr>
<td>5 16-Jun-13</td>
<td>INT</td>
<td>Committee Member</td>
<td>00:25</td>
<td>Tollcross Centre</td>
</tr>
<tr>
<td>6 13-Dec-13</td>
<td>INT</td>
<td>UK-wide Technical Adviser</td>
<td>01:33</td>
<td>Commonwealth Pool</td>
</tr>
<tr>
<td>7 13-Dec-13</td>
<td>INT</td>
<td>Committee Member</td>
<td>00:54</td>
<td>Commonwealth Pool</td>
</tr>
<tr>
<td>8 13-Dec-13</td>
<td>INT</td>
<td>Archiver</td>
<td>00:14</td>
<td>Commonwealth Pool</td>
</tr>
<tr>
<td>9 13-Dec-13</td>
<td>INT</td>
<td>Ex-President</td>
<td>00:12</td>
<td>Commonwealth Pool</td>
</tr>
<tr>
<td>10 13-Dec-13</td>
<td>OBS</td>
<td>Observations/ Parents</td>
<td>00:12</td>
<td>Commonwealth Pool</td>
</tr>
<tr>
<td>11 20-Dec-13</td>
<td>INT</td>
<td>Marketing Adviser</td>
<td>01:06</td>
<td>Stirling University</td>
</tr>
<tr>
<td>12 07-Jan-14</td>
<td>INT</td>
<td>East District Archiver</td>
<td>02:13</td>
<td>Livingstone</td>
</tr>
<tr>
<td>13 08-Jan-14</td>
<td>OBS</td>
<td>East District Archive Office</td>
<td></td>
<td>Livingstone</td>
</tr>
<tr>
<td>14 11-Jan-14</td>
<td>OBS</td>
<td>East District Age Groups</td>
<td></td>
<td>Commonwealth Pool</td>
</tr>
<tr>
<td>15 11-Jan-14</td>
<td>INT</td>
<td>Meet Manger</td>
<td>01:12</td>
<td>Commonwealth Pool</td>
</tr>
<tr>
<td>16 11-Jan-14</td>
<td>INT</td>
<td>Senior STO Admin</td>
<td>00:10</td>
<td>Commonwealth Pool</td>
</tr>
<tr>
<td>17 21-Jan-14</td>
<td>OBS</td>
<td>STO Workshop @ 1</td>
<td></td>
<td>Mercait Gate Centre</td>
</tr>
<tr>
<td>18 02-Feb-14</td>
<td>OBS</td>
<td>STO Workshop @2</td>
<td></td>
<td>St Margaret's Academy</td>
</tr>
<tr>
<td>19 20-Feb-14</td>
<td>INT</td>
<td>STO Admin</td>
<td>01:08</td>
<td>Waverly Nero Café</td>
</tr>
</tbody>
</table>

Table 3-3: Interviews and Observations at Scottish Swimming

The structure of the reported fieldwork periods may suggest an unnecessary engagement in the field. However, to clarify this longitudinal fieldwork, I must elaborate one of the key characteristics of any ethnographic study: ‘slowness’. This property is both a condition and the result of the ethnographic process; that is, there would be no ethnography if there was no ‘lengthy and sustained’ fieldwork (Czarniawska 2004a; c.f. Van Maanen 2011). Although having a close involvement with the field (as happened in my ethnographic project) is useful in providing an in-depth access to the relevant people and issues that might only emerge as the result of this commitment, such studies are also very time consuming, and the opportunity costs are a major challenge (Walsham 2006).
My empirical focus, in which knowledge about the relation between volunteering and technology were being developed was the swimming activity in Scotland. However, I also enjoyed access to empirical work beyond the geographical scope of Scotland (e.g. I conducted fieldwork, including interviews and one-day observations in the United States where Hy-Tek software and its competitor TeamUnify were developed and then brought to other countries including Scotland (See the following table)\textsuperscript{27}. The main driver in doing so was to sharpen and rethink my ethnographic sensibility in the data-collection-and-interpretation process and to discover the contextual particularities of my case.

<table>
<thead>
<tr>
<th>Who</th>
<th>What (main point)</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>TeamUnify co-Founder</td>
<td>The history of software development and its challenges in the market</td>
<td>00:50</td>
</tr>
<tr>
<td>A commercialised club (Owner)</td>
<td>The process of transforming a parent-run club to a large commercial club; role of TeamUnify in this process</td>
<td>01:17</td>
</tr>
<tr>
<td>A commercialised club (Staff)</td>
<td>Hearing thoughts of a parent who was experienced both in Scottish and American swimming culture</td>
<td>00:55</td>
</tr>
<tr>
<td>An University-affiliated club</td>
<td>Who to be affiliated to a university affects the operational processes and parents engagement</td>
<td>00:40</td>
</tr>
<tr>
<td>Idealware Adviser</td>
<td>Typical challenges and pitfalls in small voluntary orgs</td>
<td>00:35</td>
</tr>
<tr>
<td>Secretary @ an US Association</td>
<td>The problems and activities to deal with commercial and voluntary-based swimming clubs</td>
<td>02:05</td>
</tr>
</tbody>
</table>

Table 3-4: Supporting Empirical Materials beyond Scotland

On My Headwork: ‘It Could Be Otherwise!’

The second element of research work of any ethnographic study is \textit{headwork} which refers ‘to the conceptual work that informs ethnographic fieldwork and its various representational practices’ (Van Maanen 2011, p.222). Hence, it commands both the collection and presentation of data. According to Van Maanen, there has been a growing pressure on \textit{organisational} ethnographic attempts to be more critical and generative with regard to theory. This is mainly constructed on the idea that ethnographic accounts, because of their personalised traces, are not fertile in delivering generalised and abstract meanings. Retrieving the pragmatic roots of ethnography, scholars argue that even theories are local and situational (c.f. Van Maanen 2011): ‘Some theories work better than others depending on the particular problems addressed and the equally particular situations and times in which they are used’ (p. 222). Hence, questions (and changes in their scope and orientation) would inform instead of lead to theories. This line of

\textsuperscript{27} For a full version of this story refer to my chapter on imbricated trajectories.
reasoning prevents the researcher from being obsessed and overly concerned about appropriate theory before a research project starts.

In practice, the choice of theory is a matter of both fit and ‘taste’ (Van Maanen 2011). Ethnographic taste itself the fruit of a complexity of parallel interactions not limited to the horizons of the research project28. This involves ‘ethnographers, their mentors, their readings, their disciplinary orientations, their colleagues, their students, their subjects, their friends, their critics, and their readers (increasingly their subjects too)’ (p. 223). The value of this thinking about theory and analysis (i.e. headworking) is its capacity to making visible the mundane elements of research, more specifically, in doctoral projects, in which junior researchers often deal with unexperienced circumstances, no matter in the field or at the desk.

There have been numerous occurrences and occasions, during the doctoral adventure and before, that contributed to my taste in fieldworking and textworking. Scholars, peers (?), lay informants, and other people who I met and lived with were more or less at the heart of my developing and ever-changing research taste.

Some moments and places were critically significant in shaping my thoughts and taste. For example, I presented my in-progress work three times within four years in our weekly semi-formal gathering at the Edinburgh Social Informatics Cluster29. There, I redefined the orientation of empirical work and initiated some new theoretical contributions. Similarly, my regular formal and informal presentations at my Business School were influential. Institutional differences in the taste of these two communities were constitutive in the development of my strategic textwork, as were other academic events such as classes30, conferences, seminars, workshops and doctoral colloquia31, YouTube32 and Internet-based resources, and a scan of who cited my scholars of interest and how each played a role in developing my taste.

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28 This pushed me to start this chapter with some personal history.
29 https://sites.google.com/site/socinfoed/ (Accessed in 28-03-2016)
30 For example, Contemporary Social Theory, Science, Knowledge and Expertise, Explanation and Understanding in Social and Political Research Degree Regulations and Programme of Study entry for Explanation and Understanding in Social and Political Research
31 To mention some: UKAIS, ECIS, EGOS, BAM, AOM, C&T, CSCW, iConference
32 For instance, Annemarie Mol (https://www.youtube.com/watch?v=O_WSOONuAOe); Trever Pinch (https://www.youtube.com/watch?v=IWPldG_cPNo) and Steve Woolgar as mentioned before.
All these were also useful in my later systematic exploration of the relevant publications, audiences, and communities.

Creating a Theoretical Cocktail

The relation between method, theory, and data is a matter of long debate in social science circles and beyond. This debate exhibits some hostility when it comes to ethnographic practices since traditionally they have little to do with theory by default (van Maanen 2011); however, recent developments in ethnographic studies have created more space for the role and assistance of theory during all phases of the research process (c.f. Neyland 2008; Pollock and Williams 2010). In a similar fashion, STS-inspired works are criticised for an overemphasis on their empirical endeavours that might result in theoretical wars (e.g. Kling 1992). While STS-like studies are favourably committed to empirical work and the specificity of case-based studies, discourse is emerging that indicates that the community (and other scholars inspired by the STS tradition) can benefit from fresh ideas through conceptual and theoretical experiments (Sismondo 1993; Gad and Ribes 2014).

In short, ethnographic and STS-related scholars have recently shown a greater interest in embedding more theoretical elements in both fieldwork and writing. However, the
philosophical heritage and the methodological exercise of such interest does not follow the logic of conventional social and anthropological studies. In particular, there is a resistance to the academic fashion to push scholars to stake out some theoretical claims before their actual empirical engagement. By contrast, a ‘rather shameless eclecticism’ is encouraged since selective pieces of different theories might be even more useful in explaining and generalising about certain matters (Van Maanen 2011). ‘No overarching theory required’, Van Maanen asserts (p. 222). He defends the benefits of making a kind of theoretical cocktail: ‘Use only what fits such that analytic and empirical inquiries run in parallel and adjust to one another’ (p. 222).

It is important to clarify that creating a theoretical cocktail does not mean to randomly pick up, prepare, and blend several theoretical bits. To extend this analogy, I shall say that a good mixed cocktail requires an understanding of each individual ingredient, the possible combined taste, and even thinking about the shape of the serving glass (i.e. situated, case-specific representation of the selected theoretical concepts). Cocktails, while they may have been developed in a specific locale and setting, can last longer and be enjoyed globally beyond their hometowns (i.e. specific intellectual community or philosophical stance). That is, both theory and experience are essential in theoretical cocktail making.

**Data Analysis: Between the Field and the Desk**

Data analysis in my doctoral research was evident in the fieldwork, headwork, and textwork. It began when the first few pieces of empirical material were generated and was just about finished in the final revision of the thesis. I approached writing as a form of analysis (Latour 2004; Richardson and St. Pierre 2005). While analysing data and writing interpretations were my activities from the beginning to the end, the most intensive and formal phase of data analysis started when my intensive engagement with the field neared its end, and I returned to my desk to put everything together. In fact, data analysis was itself a major factor in defining the end-point for fieldworking. As mentioned earlier, ethnographic practices were at the core in generating empirical materials for my research. Yet, to make sense of the collected data and to produce solid interpretation, *qualitative thematic analysis* as advocated in grounded theory (c.f. Strauss and Corbin 1990) was a useful device in the analysis of my data. In essence, when it came to my data analysis, I utilised the legacy of grounded theory ‘as a flexible and versatile data analysis technique’
To remember the points I mentioned in the preceding section, it is now possible to say that my theoretical sensitivities (Locke 2001; Goulding 2002) were developed as the result of my heterogeneous headwork.

In practice, I combined different tools such as Evernote, Office, and paper-based drawings to map out how varying empirical materials are related and interdependent. The following image shows part of my ethnographic observations and my immediate attempts in analysing and verifying them ‘from the field’ (c.f. Van Maanen 2011); they are an exemplification of the interconnectivity between textwork, fieldwork, and headwork in my research. Sometimes I added a column suggesting how one specific interpretation was thematically related to literature, theory, or other empirical data (see Figure 3-7).

**ETH32: National Open Championship 2013**

<table>
<thead>
<tr>
<th>When</th>
<th>13-16 June 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Where</td>
<td>Tollcross International Swimming Centre</td>
</tr>
<tr>
<td>Who</td>
<td>[Redacted]</td>
</tr>
<tr>
<td>File</td>
<td>NationalOpenChamp_June2013.pdf</td>
</tr>
<tr>
<td>Others</td>
<td>Scottish Gas National Open Swimming Championships 2013</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Seq.</th>
<th>Description</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>At lunch time, two people were discussing at the GUEST ROOM about whether is fine to live-streaming the meet in the room. One said that why we should do this while we need to go to the pool-side to make a better sense of the on-going ‘ATMOSPHERE’ and this would empower us to work better under of that. The other lady replied that the other point is that we could come back at break times to see if we missed live. The important point is to give us the ‘FLEXIBILITY’. The guest room was significantly cooler that pool-side with a full menu of ‘filling’ coffee and tea. This sticks some guests to not leave the room for the pool at all.</td>
<td>Some of these people have a great power to support ‘technological change’ desired by most Live-streaming at the pool-side is not the primary goal of such innovation but it seems even ‘virtualisation’ of the on-site reality could make the process of such development hand. This supports the idea of political factors affecting innovations in VSOs where ‘business-minded’ people (i.e. can hardly see side effects of their innovative ideas).</td>
</tr>
<tr>
<td>2</td>
<td>The Guest Room is equipped with a laptop and a projector. Some representatives from Scottish Gas (Sponsor) are here. A table with coffee, tea and biscuits are being ‘filled’ pretty fast. People are amazed with the live-streaming for its first time.</td>
<td>The core ‘buyers’ of your innovation: Scottish Gas provides money while volunteers provide human resources. One way for the cooperation to ‘by-pass’ volunteers is through those giving the community financial resources. Discussions happen at the very first times of an idea (above).</td>
</tr>
<tr>
<td>3</td>
<td>I met Forbes there for the first time. He was very positive and has a rough idea of what I am doing in my project. When the words went to ‘technology and social media’, his obvious concern appeared: ‘I have not that much expertise’ he</td>
<td>As a manager, prediction matters.</td>
</tr>
</tbody>
</table>

*Figure 3-7: The author at the Desk: From Notes to Thoughts and My Textworking*
Scrutinised Themes and Utilised Concepts in this Study

In my doctoral work, empirical materials were collected using a variety of tools and techniques including the recording of interviews and filming of practices. This provided a rich appreciation of technology-related practices within and around swimming management in Scotland. To make sense of the generated empirical materials, the so-called *analysis* includes the coding of interviews, writing up the theorised stories from field notes (Golden-Biddle and Locke 2007), and an iterative examination between produced empirical materials, emerged analytical categories, and utilised theoretical concepts to facilitate and enrich the identification of key themes\(^33\).

Second-order concepts are those notions used by the fieldworker to explain the patterning of the first-order data. Descriptively, many second-order concepts are simply statements about relationships between certain properties observed to covary in the setting and may occasionally converge with first-order interpretations (Van Maanen 1979, p.541).

In this interpretive process, I was attentive to make connections between different elements and themes uncovered by my informants; I attempted, as Latour (2004) advised\(^34\), to keep looking at the whole picture in order to elaborate the complex relationships rather than focus on neat individual elements in my empirical materials. This endeavour was very useful in generating themes that are analytically solid. To use Van Maanen’s language, my final themes and their conceptual solidity emerged at the intersection between first-order and second-order concepts and attempt to somehow fictionalise the facts emerged from their relationships (c.f. Humphreys and Watson 2009).

To advance this first-order, second-order concept, I suggest that third-order concepts are those concepts which combine and reflect on the first two to stimulate rethinking, extending, or adjusting an existing theoretical concept.

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\(^33\) In fact, analysis started from day one and ended in the last edition before submitting the final draft; it is in-progress still and will shape later publications from this work.

\(^34\) “When your informants mix up organization and hardware and psychology and politics in one sentence, don’t break it down first in neat little pots, try to follow the link they make among those elements that would have looked completely incommensurable if you had followed normal academic” (Latour 2004, pp.62–63).
I organised the whole empirical work around three selected scenarios. The following table captures how these specific empirical scenarios, the core relevant themes that emerged, and the main utilised theories were collectively developed and articulated (see Table 3-5).

<table>
<thead>
<tr>
<th>Empirical Scenarios</th>
<th>Emerging Scrutinised Themes (c.f. Second-Order Concepts)</th>
<th>Key Utilised Concept</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT Project Development</td>
<td>Escalating, Improvising, and Adjusting</td>
<td>Drifting (Ciborra 2002)</td>
</tr>
<tr>
<td>Technological Non-Use</td>
<td>Paralleling, Hardworking, and Moralising</td>
<td>Conditioning (Maines 1982)</td>
</tr>
<tr>
<td>Sustained Work Processes</td>
<td>Re-Professionalising, Duplicating, and Simplifying</td>
<td>Tuned Trajectories (Timmermans 1998)</td>
</tr>
</tbody>
</table>

Table 3-5: Scrutinised Theme and Utilised Concept in Each Empirical Scenario

By design, in my final thesis each of these scenarios acts a stand-alone since they have been empirically attractive and theoretically reasonable.

On My Textwork: ‘The Text is a Laboratory’

The text, in our discipline, is not a story, not a nice story, it’s a functional equivalent of a laboratory. It’s a place of trials and experiments (Latour 2004, p.69).

Writing is perhaps the most critical task of any student of social science because this is the juncture in which understanding is achieved, ideas are communicated, and justification is made (Becker 1986; Latour 2004; Sandberg 2005). The writing is then not only about generating a text for the potential readers, but it is also ‘a method of inquiry, a way of finding out about yourself and your topic . . . a way of “knowing”–a method of discovery and analysis’ (Richardson and St. Pierre 2005, p.923). In the particular context of ethnographic efforts, a considerable amount of data analysis and interpretation happens in the writing process and in the preparation for writing (Humphreys and Watson 2009, p.41). Textwork, which is one type of research work in ethnographic efforts, is labour-intensive and demands a spirit of intrepidness (Van Maanen 2011). There are different challenges and choices in the process of developing a text from ethnographic materials. Using relevant insights, I shall review some of the issues associated with my textworking.

Producing a Text that Convinces

To convince people, in particular non-academics who read the results of qualitative research, we need to first think about one fundamental dilemma as argued by
Hammersley: Qualitatively-generated findings may generate conclusions that seem to lack common sense, however, such findings are open to be explored, modified, and even rejected by people who have a sensible familiarity with the particular research context. Their backgrounds and experiences perform as an important resource in the judging process (Hammersley 2007). This dilemma seems to be an unavoidable but still challenging point in STS-flavoured studies like mine. To follow the STS directive of ‘It Could be Otherwise’ (e.g. Woolgar and Lezaun 2013), researchers are encouraged to generate concluding remarks that are in some respects counter-intuitive and controversial. That is, to methodically doubt and make problematic (Blum 1970) is part of the goal. So, what to do with this dilemma? To reinterpret Hammersley’s argument, we need, first, to admit that ‘not everyone can be convinced’ and second, to be ‘strategic in formulating of the final report’:

It is not possible for researchers to make their judgements transparent, in the sense of fully intelligible to anyone, irrespective of background knowledge and experience. Indeed, there are limits to the extent to which these judgements can be made intelligible even to fellow researchers, because of the situated nature of judgement. Certainly, it is the case that such intelligibility is an achievement, it is not automatic: speakers need to be able to formulate the situation, the reasons for making the judgements that they did, and so on, in ways that facilitate understanding; and, equally importantly, the audience must be able to draw the right inferences from what is said, on the basis of the background resources they have (Hammersley 2007, p.291).

In dealing with these issues of audience and formulation, which were critical in my textwork, I discovered Golden-Biddle and Locke (1993) teachings to be very useful on how to convince the reader of the value of an ethnographic study through the final written work. Based on the long tradition that considers written work as texts, they seek to establish a connection between the constructing and interpreting processes of such texts and their convincing capacity. This standpoint implies that the ‘convincing discussion’ can be exercised in the context of ‘interactive researcher-text and reader-text relationships’ (Golden-Biddle and Locke 1993, p.596).

In exploring an operationalised solution that enables researchers to deal with the intriguing challenges raised by convincing tasks, they developed three major dimensions through which one can realise a convincing ethnographic text. First, the text should be ‘authentic’;

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35 Nonetheless, this challenge is more severe when an STS-motivated study is presented for a non-STS audience like organisational researchers (c.f. Woolgar et al. 2009).
that is, to assure the reader that the researcher was ‘there’ and the field-based experiences are genuine. Second, the readers of the ethnographic text should be able to make sense of what they are reading. Hence, the reader should somehow define the intellectual community who would find the text ‘plausible’. That is, the text has incorporated elements of the readers’ backgrounds and language in the theoretical narration of the empirical materials that trigger an active role in the readers. The third dimension is ‘criticality’: The text is able to encourage the reader to rethink and revise some of their assumptions and ideas that they take for granted. The text needs to activate a kind disruption within readers which results in novel reflections.

Verification and Generalisation Contextualised

Because of the STS flavour of my research, these convincing dimensions were already automatically exercised at a satisfactory level. When considering the potential benefits of a relationship between STS and mainstream Organisational Studies, it is already claimed that ‘by design or by default, STS studies are much better written’ (Czarniawska 2009, p.159). There is pressure in the writing culture in STS to generate novel and reflexive texts. But, to make a fruitful friendship between these two communities, it might be useful to explore the position of the two conventional concepts of verification and generalisation in the process of composing a novel, reflexive, and convincing text.

Perhaps, the notion of verification has the closest standard language to that of this notion of convincing. But again, we must consider that many standard social science terms, if used, would not function well in the context of ethnographic endeavours. My doctoral studies, because of their STS-originated explanatory character, required me to admire and use a kind of ethnographic style. Since these styles are in nature more associated with the ‘logic of discovery and happenstance than a logic of verification and plan’ (Van Maanen 2011, p.220), even using the language of verification raises certain assumptions and must be carefully written:

Analysis and verification in ethnography is something one brings forth with them from the field, not something which can be attended to later, after the data are collected. When making sense of field data, one cannot simply accumulate information without regard to what each bit of information represents in terms of its possible contextual meanings (Van Maanen 1979, p.548 emphasis added).
This notion of *from the field* also responds to the issue of limited generalisability in ethnographic case-oriented inquiries (Czarniawska 2004b). Here, what is important is that a research account should be an immediate proxy to the everyday life it reports. Hence, some new understanding about empirical cases and their role in the final argument is required. We are already reminded that generalisation in such studies does not happen ‘across’ cases, rather it is developed ‘within’ them (Geertz 1973).

In generalising most ethnographic studies, one may not follow the logic of ‘one-to-many’ but seek to create a vague whole story so that ‘we may think of the ethnographic story as an emergent entity in a vague whole, whose parts will never add up to a complete picture’ (Winthereik and Verran 2012, p.41); hence to develop such stories the relational complexities between the ethnographer and other material of the here-and-now will be articulated and bundled. In this process of developing a rather whole story, the agenda of generalisation becomes theorisation (i.e. to deliver *theorised stories*).

**Structure and Style of the Thesis**

At a more practical level, especially for junior researchers like myself, the question is how the above-discussed particular issues of verification and generalisation can be successfully managed in the process of ethnographic work, in particular, in producing a text that aims to be convincing.

Different text-constructing strategies are suggested here. One beneficial set of such writing-oriented strategies is discussed in (Humphreys and Watson 2009). While there are varied strategies to developing an ethnographic text, the fundamental epistemological point is to submit that in such studies there is no ‘concept of an ultimate or final truth. No research account can ever be totally “true” but that some accounts are truer than others’ (Humphreys and Watson 2009, p.42). In fact, in such studies, the strict boundary between fact and fiction has fallen apart and *fiction-like* research products serve in the same manner as do *scientific styles* (Sanday 1979).

To produce a final ethnographic output, one can choose from a continuum that at one end allows minimal manipulation and at the other end significant manipulation or fictionalisation of the accounts (Humphreys and Watson 2009). One in-between strategy is to write *semi-fictionalised* ethnographic texts which describe much of what I practised in
my textwork. My thesis, in general, is better positioned in this category of a semi-fictionalised style since in the final text the reader would find a ‘restructuring of events occurring within one or more ethnographic investigations into a single narrative’ (Humphreys and Watson 2009, p.43). Furthermore, as discussed earlier, the role of theory in my research was to inform both the investigation and writing process, but some additional contributions are made to the existing theoretical concepts in the writing accounts. Such style relies on the pragmatic tradition in defining that what is counted are true and valid research accounts. That is, those accounts should be locally situated and contextually thick. In such a writing style, researchers attempt to assemble and convey interpretive constructions to be understood by imagined readers (Humphreys and Watson 2009).

To explain how I exercised a convincing agenda and the way through which I ended up with a kind of semi-fictionalised style, I shall share how my empirical chapters were developed. In so doing, let me to begin with an example, communicating the story of the production and unfolding of the chapter titled ‘Technology Project as Helical Drifting’.

To develop this particular empirical chapter, I tested three other versions, none of which was satisfactory (for myself or my advisers). Initially, I had some surprising micro-stories and then attempted three times to find a theoretical plot to connect them—to bring them together and deliver a final message that could encourage my readers to rethink some of their assumptions about the topic (c.f. Golden-Biddle and Locke 1993). In the first version, I looked at the whole picture from the angle of the external technical volunteer. Then, I attempted to tell my reader that volunteering is a kind of network and the failure to build this network may result in unsuccessful projects. None of them worked because of the limited utilisation and dialogue between the applied theoretical concepts and their empirical counterparts. Finally, this idea of drifting as the core argument of the chapter was developed when I was in a discussion with my adviser and by chance I used the term constant shifts in the observed project.

Almost every empirical chapter had the same story of theoretical and narrative development. Based on the empirical matters I found surprising and their potential novel theoretical insight (i.e. empirically-grounded theoretically-informed theme), I decided to produce three stand-alone but related empirical chapters. Each individual chapter
contains its own theme-specific examined literature, methodological points, so-called findings, as well as the argument and reflection upon it. This strategy was motivated by its capacity to organise messy data (c.f. Law 2004) and hence my knowledge about such messes was co-constructed at the intersection of fieldwork, headwork, and textwork. Each chapter-specific core argument was initially vague and open to continual changes. However, the overall theme, rooted in the richness and surprising capacity of the obtained empirical materials, was consistent enough to frame my conceptual thinking and writing style. Beyond the aforementioned benefits of the semi-fictionalised style, this mode of writing was helpful in keeping the argument of each theme-based chapter independent and complete, while at the same time I could make the stage ready to connect such themes for the overall argument of the thesis. This thesis involves three empirical chapters titled as follows.

- Technology Project as Helical Drifting:
  - Shadowing an IT-based Change Project in a Voluntary Sport Club
- Technological Non-Use Can Be Still Activity!
  - Examining Sociotechnical Conditioning in Low-Tech Mundane Settings
- Volunteering in-the-Making:
  - Imbricated Trajectories and the Social Process of Persistence

The reader will discover that the conceptual density is accelerated from the first to final chapter due to both practical and theoretical reasons; in particular, my close engagement with the field and to make the stage ready for the final theorised narration. The underlying theme through which each chapter was connected to the overarching argument reflected my particular interest in exploring the mutual relationship between volunteerism’s critical features and setting-specific sociotechnical interactions. The full argument is presented in the final chapter of the thesis.

Also, to stay committed to creative writing, I integrated my discussion and conclusion chapter and developed instead a stand-alone chapter combining and synthesising the chapter-specific arguments.
Epilogue

Being a Good Researcher: Performance and Ethics

Without a doubt a good piece of ethnographic research is not separate from the person, who is at the same time, a researcher, an author, a manager, a student, a father, a husband, and so on. Therefore, to generate a good text is extremely dependent on the performance of the researcher, who is a social actor performing different roles and responsibilities, including those that are proximal to research activities. Hence, in this brief section I shall comment on the challenges I faced and practices I followed to be a good researcher. To me, research has two major parallel processes: firstly, to be productive in the management of research, and secondly, to perform well regarding ethics, intentions, and actions.

Regarding my research performance, it is worth remembering that the conduction and production of a kind of ethnographic study required me to develop some new research and writing skills, and even many social and personal skills. The challenge and also the empowering forces that I needed to perform were some crafting work and interpretation of works at the same time (Van Maanen 2011). The outcome of conducting this research is by far more than ‘the book’ (i.e. dissertation); it has empowered and somehow regenerated me.

In terms of practices, especially when I was performing in and shaping my field (see above), I attempted to be organised, nonjudgmental, open-minded. Computerised applications were a great help in managing the messy worlds of data, questions, interpretations, writings, and relations (c.f. Law 2004; Law and Singleton 2005): In particular, I used Evernote, Qiqqa (esp. in reviewing the literature), Mendeley, NVivo (esp. in the earlier phases of empirical interpretation), and Dropbox (to manage my raw empirical materials).

In terms of research ethics and integrity, my doctoral research project has been conducted in line with the guiding policies of ethical practices documented by the UK Economics

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36 I vividly remember Ebba Sjogren’s kind works when she was telling me that the aim of the PhD is ‘you’ not ‘the book’

37 Thanks to Farajam Eshraghian who introduced this to me.
and Social Research Council (Core Research Principles Framework)\textsuperscript{38} as well as the Edinburgh University Code of Practice for Research\textsuperscript{39}.

Under these two frameworks and also to exercise the careful evaluation of all interactions in my ethnographic fieldwork in alignment with my own ethical principles (c.f. Hammersley and Atkinson 1995), I did my best attempt to anonymise as much as was feasible. Hence, names of all people and the majority of places are pseudonyms. The only name which is real is SASA, where this association is in fact the context of my empirical work rather than a significant piece of its material. Also, some insignificant details about the involved people and places were changed to minimise the chance of being recognised (Murphy and Dingwall 2001).

In practice, general and case-specific ethical principles were practised to make sure that the fieldwork and textwork remain morally solid. If recording, interviewees were clearly informed even to the extent that sometimes I put the recording device in front of them as a visual reminder that their voice was being recorded. On a few occasions I was asked to turn it off and just make notes and I did. When corresponding by email, the recipient was notified that ‘I am a doctoral researcher’, even in those moments when I was involved in some sort of action research. There were dual benefits here: to assure people that there were no non-research interests, as well as to get permission to use the exchanged information in my PhD. For instance, the following extract shows how I informed individuals about my research role in the very first email exchange with a US-based swimming club.

I am a doctoral student in Scotland, and I am studying how swimming clubs, esp. those benefit from voluntary staff, use digital technologies in their everyday activities. Here, in Edinburgh, all clubs, including one I am helping them in their IT stuff, have been using Hy-Tek, but at very limited level and they generally have serious problem with using IT (Personal Correspondence, 13 Feb 2013)

The ethnographic nature of my studies encouraged me to capture many occurrences and actions in the form of photos and sometimes short videos. Similar to my message when

\textsuperscript{38} http://www.esrc.ac.uk/funding/guidance-for-applicants/research-ethics/our-core-principles/ (Accessed 28-03-2016)

\textsuperscript{39} http://ukrio.org/publications/code-of-practice-for-research/ (Accessed 28-03-2016)
recording the interviews or even informal chats, I first made sure that people who were
being photographed or filmed first gave their consent.

Much of my novel data emerged from national or district-level swimming competitions.
To attend and observe such events, I received an official invitation from the organiser
team. However, in these cases I followed the same regulations for taking photos in these
events as everyone else. I registered my camera at the allocated desk and followed the
exact regulations for taking photos during the competition (see Figure 3-8).

Figure 3-8: The Permission to Take Photos as Competition Happens

Quasi-Ethnographic Endeavour as Methodological Stance

Considering the previous sections, it has already become clear to the reader that my
research (improvised) design is and is not ethnography at the same time. It has exploited
many strengths of traditional ethnography but has not been completely committed to its
principles and procedures. Some modifications, with great support from novel
ethnographic practices, were applied to develop a case-specific ethnographic design.

Elaborating the idea of the ‘quasi-ethnographic’ (c.f. Jensen 2004; Murtagh 2007;
Czarniawska 2009), I feel more comfortable labelling my work as a quasi-ethnographic
endeavour^40, which is almost doing ethnography^41 while my usage of the word ‘quasi’
brings my methodology very close to ‘strategic ethnography’ (Marcus 1995; Pollock and
Williams 2010) where the emphasis is on the importance of theory in the selection of
relevant sites and ‘ethnographic sensibilities’ (STAR 1999) in which the focus is on how
emerging empirical materials should be interpreted.

^40 See (Hine 2007) for a discussion in this regard and consider (STAR 1999; Pader 2006) for the similar idea
of ‘ethnographic sensibilities’. Star ‘brought an ethnographic sensibility to the data collection and analysis:
an idea that people make meanings based on their circumstances, and that these meanings would be
inscribed into their judgments’ (ibid, p. 383). To read a critical examination about the application of quasi-
ethnographic approaches see (Forsythe 1999).

^41 I remember, when I was testing the idea of ‘quasi’ with the audiences at the 2014 iConference, my chair
said to me that your work is also ‘quasi’ since you have not really swum in the pool.
Let me end this so-called methodology chapter with an additional justification for doing some sort of ‘modified’ ethnography which I labelled quasi here. In the coming Scottish Graduate School of Social Science Summer School (i.e. 2016), a full day workshop is designed to empower social science students to conduct better ethnographies. The new workshop is titled ‘Strategic ethnographies – research in a borderless world’ and it aims to present and develop:

... a multi-disciplinary discussion about modern ethnographic work, noticing in particular the extension of the studied (cultural) ‘space’ across its physical boundaries into multi-sited and virtual environment. Both of those circumstances require a new imaginative approach to ethnographic research, based on mixing methods and/or non-traditional engagement with the studied community.
4. Technology Project as Helical Drifting: Shadowing an IT-based Change Project in a Small Club

Introduction

There is almost no disagreement that new information and communication technologies hold unique opportunities for the voluntary sector. The adoption and use of information and communication technologies (ICTs) has been widely seen as a potential solution for the sector’s innovative and simultaneous response to growing challenges such as legitimacy crises, budget cuts, or old-fashioned structural constraints (Burt and Taylor 2003; Hackler and Saxton 2007). However, there are different and sometimes conflicting views on how best to practically develop, utilise, and conceptually analyse such technological projects. For instance, should voluntary organisations use IT expert volunteers in their IT-enabled change projects, and to what extent?

Two major research streams can be characterised when it comes to understanding the actual processes and outcomes of developing and implementing IT projects. On one hand, there are scholars whose main concern is to identify and analyse the barriers and factors associated with the lengthy, disruptive and ineffective processes of adopting and developing ICT-driven change programmes (Hackler and Saxton 2007; Kase et al. 2010). For them, the frame of reference is constructed by the ‘technological realm’. On the other hand, there are also lines of research motivated by highlighting the context of voluntary organisation in order to understand how supportive and prepared that context is for IT innovations (Burt and Taylor 2003; Zorn et al. 2011). For them, the frame of reference is built around the ‘organisational realm’.

Since each stream holds its own specific frame of reference, the conduct and analysis of technological activities may produce dissimilar, possibly incompatible, conclusions. For instance, while the use of technical assistance to help voluntary-based organisations with IT utilisation for better functioning is encouraged (Hooper and Stobart 2003), others argue that self-empowerment would not be achieved unless such organisations can handle their IT function by themselves e.g. without any help from outside experts (Stillman et al. 2009). Put differently, for the technology-centred stream, the use of external technical assistants as one form of ‘expert volunteer’ is a distinctive and economical opportunity for the sector to fill its technical gaps and address its challenges. For the organisation-
centred stream, the extended history and embedded values of an organisation form its contextual conditions, and form the basis for any IT solutions that are defined, developed, mediated and re-shaped.

While these two streams hold different reference points, the focus in both approaches is on the issue of ‘adjustment’: how to match IT with the organisation. Hence, the critical task of the organisational members, practitioners, and researchers is to find out the ways in which this adjustment process can best be designed, implemented, and assessed. This leads the attention towards those resources, strategies and individuals whose functions and roles are crucial in making and sustaining the adjustment between IT and the organisation.

Adjustive thinking like this implies that there are moments of control and planning that occur to make that match smoother and more effective. Yet, we do not know very much about the reverse process which seems to be as comment e.g. those moments in which these plans go wrong and the envisioned control is not achieved. So, this chapter seeks to identify the point in which an organisation fails to achieve its desired goals and adjustment is necessary. By putting to one side the prescriptive and normative accounts of the information technology function in voluntary organisations, and investigating more deeply these processes, the chapter aims to provide a more detailed, enriched, and micro-level analysis of the process of making IT-enabled change in voluntary settings. The question which stimulates this chapter is:

- How does the adjustive model of IT-enabled organisational change in voluntary settings come down to in real time, in the local situation?

We are reminded that that any attempt to study ICT-related organisational change should consider two things at the same time: First, we must consider both the social and material nature of technology, and second, we must emphasise the socially constructed nature of change and technology’s contingent impacts on the organisation (Barrett et al. 2006). The studies on voluntary sector organisations are no different in this respect. For instance, (Stillman et al. 2009) have discussed how, by considering internal organisational culture, community organisations could successfully situate information technologies on their own terms and particularities.
In a similar vein, my attempt in this chapter is to convince my reader that ‘adjustive thinking’ is rather reductive and does not provide adequate vocabularies or a satisfactory framework to make sense of and theorise the development of IT in voluntary organisations. Such approaches, while providing beneficial insights, are not strong enough to capture and reckon the necessary actors, activities, and arrangements required for situating and shaping the IT function. In short, in the space and through the process of this so-called ‘adjustment’ we would lose the opportunity to grasp the complex nature of change and technology as stressed by Barrett et al. (2006).

To account for such complexities, this chapter draws inspiration from developments in the field of Information Systems Research, mainly the notion of ‘drift’ as developed by Ciborra (Ciborra and Lanzara 1994; Ciborra 1996, 2002). This notion sheds light on the empirical story, re-narrated from a quasi-ethnographic study, of developing IT-enabled change supported by expert technical volunteers in a community-based swimming club. The drift perspective potentially offers a different lens to capture the dynamics and complexities of such a project. Using this notion, it is argued that IT projects do not necessarily follow their planned paths; the adjustive efforts and plans ‘drift’ as a result of intersecting temporal, local, external, and infrastructural factors.

This chapter is structured as follows: First, it critically reviews some of the influential literature on the relationship between IT and voluntary organisations and how such relations should best be designed. Second, it quickly provides some notes on the research method and choice of narration. Third, it introduces the notion of drifting and reconstructs Ciborra’s general model. Fourth, it re-tells the story of developing an IT-specific innovation in a voluntary organisation. Fifth, it analyses the narrated story to make two main contributions: Using empirically-informed, theoretically-enriched insights, this chapter attempts to operationalise and extend Ciborra’s model. While his model is an artefact-oriented one, this chapter offers to apply his model at the level of a technology project. The second contribution is to provide an alternative perspective for studying and deploying technological attempts in voluntary settings.

Adjustive Model of IT-enabled Change Management in the Voluntary Sector

Voluntary Sector Organisations (VSOs) serve significant roles in society through ‘common features’ such as self-governing logics, nonprofit-distributing mechanisms and
also volunteer-supported activities (Harris and Billis 1986; Kendall 2003; Lewis 2005). Their operational environment has become more competitive, in particular in terms of funding opportunities and volunteers requirement (Burt and Taylor 2003) as well as managerially-driven forces toward more productivity especially given the limited resources available for the sector’s organisations (Hackler and Saxton 2007), and stakeholder’s pressures for more accountability (Zhang et al. 2010). In response to these increasing internal and external challenges, a number of solutions and strategies have been proposed including better use of information and communication technologies. (Burt and Taylor 2000). With a focus on organisational development, VSOs, like other business firms and public sector agencies, are also today welcoming ICT innovations, while the history of the sector tells us that this a more recent move given that they have lagged in appreciating such technological innovations (Pereira and Cullen 2009).

The increasing proliferation of technological innovations in the sector, especially newer forms of economical ICTs (technologies that are reasonably inexpensive to be adopted with limited financial resources), as well as the fact that sector is changing internally and externally with new models of work and struggles for improved visibility, has led to a growing consensus that it is time to study technologies in the context of VSOs (Seshadri and Carstenson 2007; Pereira and Cullen 2009; Zhang et al. 2010), in particular because such technologies alter the ways people organise their work activities and communications (Orlikowski and Barley 2001).

Since early work in the 1960s (c.f. Herzlinger 1997 cited in (Zhang et al. 2010)), the ICT-related studies in this sector have revolved around better deployment of IT. In doing so, their strategy has been either ‘making a change driven by IT’ or ‘making sense of such technologically-enabled change’; whether the scope of the change is small-scale or transformational. The former stream of studies, alongside with practical research outputs, are more ‘solution-oriented’, looking for better ‘utilisation’ of IT, for instance, through involving ‘outside technical assistance’ (Gordon 1998; Hackler and Saxton 2007). On the other hand, the latter stream, which is considerably narrower, is more concerned with the ‘explanation’ of ‘deeply rooted’ social conditions in which a change process happens, such as in historically institutionalised missions (Burt and Taylor 2003) and about the institutional symbolic meaning of technological decorations (Zorn et al. 2011) of voluntary organisations.
The idea of involving technical assistance that provides support for a particular IT-related issue seems an understandable and sensible idea given the sector's limited financial resources and technical skills for both running an appropriate IT project and building relevant capabilities for further developments (Carroll and Farooq 2007; Hackler and Saxton 2007). In fact, the parallelism of the shortage of ‘in-house’ skills and the opportunity to ask for technical assistance seems like an opportune and tempting idea, at least for the ‘people side’ of the VSOs’ technological needs (Sethibe et al. 2007). Moreover, the technical assistance idea has gained extensive attention at the practice level: Many individual practitioners, national programmes and action-based institutions have recently responded to the rationales supporting technical assistance as a solution.

Beyond such ‘solution-oriented’ ideas, including technical assistance involvement, there is a narrower line of study concerned with explaining the roles of socio-political, institutional and organisational conditions shaping IT in the context of VSOs. Indeed, Burt and Taylor argue that ultimate IT-driven changes ‘emerge from the inter-play between historically institutionalised values, strategic objectives, and technological capability’ (Burt and Taylor 2001a, p.54). The critical contribution here is then the enabling or constraining role of ‘social, deeply-rooted’ conditions in the shaping of technological solutions.

**Technical Assistance as Working Solution**

Much has been written about the factors which are critical in improving the utilisation of technological innovations in VSOs. The goal of this line of work is to articulate solutions that can eliminate or handle technical, organisational, and environmental barriers in developing, adopting, and using digital technologies. Furthermore, they look for any solutions that can support and facilitate IT adoption and use in the sector.

There is a wide-ranging set of solutions such as supportive top management, appropriate IT infrastructures, reengineering of IS-related tasks, consistent political views, definite IT plans, motivated staff members [c.f. (Gordon 1998; Te’eni and Young 2003; Hackler and Saxton 2007; Williams et al. 2009)], however, it seems such solutions respond to three fundamental, generative challenges: time deficiencies, financial shortcomings, and a scarcity of skills. Given the significance of these three, and the dynamic that exists between them [c.f. Zorn et al. 2011)], the use of external intermediaries, in particular
technical assistants, tends to play a critical role for VSOs in advancing their IT-related change programmes.

Financial support, adequate time, and technical expertise are key to a successful IT project in any particular context, including voluntary organisations. Given the fact that financial resources are significantly limited for long-term technical contracts, lack of internal available skills, and staff that are already overworked, such organisations may develop a network of support personnel, mainly volunteer-based, alongside their internal expertise. While such networks are temporal and perhaps unstable, VSOs learn through the externals’ involvement how to grow their own local expertise and best use available technologies (Schneider 2003; Carroll and Farooq 2007; Denison and Williamson 2012). This idea has been significantly welcomed at the practice level: movements such as Circuit Riders [c.f. (McInerney 2007)] and Tech-for-VSOs programmes and institutions are growing fast. At the end of thesis, a list of such initiatives is included (see Appendix 1).

Using mobilised technical assistance not only boosts VSO technological infrastructure and capacity, but, through judicious partnerships and aligned collaborations, these organisations enhance their strategic use of IT beyond daily administrative operations. As VSOs’ environments are more heterogeneous in comparison to business firms, such external associations have the capability to ensure the appropriate handling of technology in order to sustain an organisation, especially given the diverse internal and external stakeholders with conflicting views that VSOs boast (Hackler and Saxton 2007; Zhang et al. 2010).

One desirable consequence of involving technical assistance is the space it potentially provides for VSOs to pay more ‘attention on the strategic management of technology and less on the technical proficiencies required for development and support’ and hence ‘[t]hose technical capabilities that are not core to the organization’s mission should almost always’, according to Rockwell, ‘be outsourced’ (Rockwell 2007, p.77). The ‘tendency to outsource appears likely to continue for all sectors, leading to smaller IT units with the remaining staff required to take on more strategic roles’ [Weill and Ross 2004 cited in (Sethibe et al. 2007)]. This is particularly relevant for VSOs given the fact that a key driving force for the sector’s technology projects is better fulfilment of their social mission, and
hence investing in IT may be understood as turning away valuable resources from fundamental functions (Zhang et al. 2010).

**Contextual Conditions Influence IT Development and Use**

Unlike solution-oriented studies, there is little critical research to explain in detail the complex process of technology development and use within voluntary organisations. The core agenda of this narrow line of studies is to generate ‘more in-depth examination of the historical and contextual conditions shaping the nature of technology-enabled innovation within voluntary organizations’ (Burt and Taylor 2001b, p.314). Burt and Taylor’s contribution under the UK-based ‘Virtual Society?’ research programme is one of the earliest and most influential works in the domain of ICTs and VSOs, in particular for the special attention they pay to the fact that technology itself can be shaped by VSOs’ contexts. Surprisingly, not only before their published papers, but also after that series from 1998 to 2003, there is still limited research that focuses on how context can influence IT projects. Indeed, Burt and Taylor’s papers have received a large number of citations across different communities researching ICTs and VSOs (e.g. CSCW42, IS and VSO). However, wider appreciation of the argument they made on the role of context in shaping IT adoption-and-use is still less evident. Even studies that have considered context emphasised ‘contextual factors’ that facilitate IT adoption, not how IT can be altered because of them [e.g. (Minikin 2010)].

Burt and Taylor’s overall contribution is based on two phases. A survey-based study of 1500 UK-based VSOs was conducted to map out the adoption and application of networked technologies within the sector. Then, to capture the core of technology-enabled transformations, they went beyond the emerged statistical associations and conducted two in-depth case studies to explain in detail why selected volunteer-intensive organisations performed better in technological innovations (Burt and Taylor 2001b). This qualitative research showed that social conditions are considerable factors in shaping IT within VSOs, where ‘founding philosophies and the deeply rooted values that accompany these have a profound effect’ and the final IT-driven change programme emerges from ‘the inter-play between historically institutionalized values, strategic objectives and technological capability’ (Burt and Taylor 2001a, p.54). They made it clear

42 e.g. (Voida et al. 2011)
elsewhere that such ‘historically embedded values … are the very essence of the [researched] organisations’ (Burt and Taylor 2001b, p.325) which shaped the adopting technologies. This particularly confirms the idea that organisations’ core mission and deeply rooted ideology drives VSO technology projects (Zhang et al. 2010). Such values and missions are of course subject to change, but such changes may happen over a long-period of time, ten years for example [c.f. Burt and Taylor (2001b)].

In a similar effort, Zorn et al. (2011) stresses the role of institutional forces in shaping IT, and they call for the theoretical sensitivity needed for such influences which are ‘less prominent in the literature’; they also particularly view ‘ICTs as a symbolic resource to establish legitimacy’ (p. 5), especially in response to the field’s institutional isomorphic pressures. Such institutional forces alongside with organisational characters have a determining role in the adoption and nature of ICT. Some examples of pressures derived from institutional isomorphism are perceived leadership in the field, professionalism, expected practice, competitor scanning, accountability, and marketisation. For instance, the more an organisation is sensitive to what happens in its broader competitive environment, the more an optimal use of ICT is predicted, especially for engaging with key stakeholders. As there are many (institutional and non-institutional) forces in operation, the ultimate contextual condition is produced through their convergence, in particular through the longitudinal process of (social/institutional) learning.

Summary and Further Analysis of the Existing Knowledge

In short, it is discussed that the idea of involving technical assistance has been seen as a ‘working solution’ with at least three interrelated functional benefits:

- **Complementing** the limited and unstable financial resources: Technical volunteers act as a ‘filling strategy’ to address technical gaps and associated organisational problems such as slow operation as many tasks are done manually.

- **Organising** IT-related functions: Whether technical assistance is identically close to a technology project, or their role is more on an intermediary-basis, the organising role is enacted though exploiting the disciplinary capacity that exists in any externally-mediated arrangements because of standardisation that is needed.

- **Professionalising** outcomes for VSO human resource management: By freeing their time, VSO staff can concentrate on the core functions instead of being interrupted by technical
issues. This seems completely understandable as VSOs’ activities are assumed to be more mission-driven rather than efficiency-driven.

In addition, not only this particular solution, but also other IT-related activities in VSOs are considerably affected by deeply-rooted non-technical conditions; such conditions might not be easily visible, but they are recognisable in the form of values, norms, symbols, missions, and objectives. They are hard to change because they have been historically constructed and contextualised. Specifically, the correlated mechanisms in which IT is affected through its social conditions are:

- **Governance**: Social forces such as historically embedded values and deeply rooted missions influence the organisational structure as they direct the way limited sources are allocated, particularly in light of key relationships (within and across the organisation) and how IT is can reconfigure such relations.

- **Learning**: There are also factors (neither technical nor organisational) with the capacity to influence the nature of IT through their influence on people’s behaviour, the image the organisation wants to present, and what practice is accepted.

The following figure summarises the process of ‘technical assistance involvement’ in IT projects in VSOs based on existing literature (see Figure 4-1).
Now, let’s be more critical with the existing research on the adoption and use of technology in the context of the voluntary sector. There are a couple of issues surrounding the current research that are discussed elsewhere (see chapter 2), but the remainder of this section attempts to draw the reader’s attention to the fact that VSO technology studies are, implicitly or explicitly, built upon some taken-for-granted theoretical foundations and concepts which are themselves under criticism: How do staff members (volunteer or paid) make decisions? Does the technical relate to the social (and how)? How (and why) do VSOs operate? In fact, this chapter seeks to bring into question the current ways for conceptualising acting entities and organising activities within the volunteering domain to advance our understanding of ICT use and adoption in the sector. This, therefore, opens a space for a new conceptual lens.

There are almost no explicit answers to the above-mentioned questions within VSO technology studies; however, the following assumptions (with the illustrative examples) can be inferred:

- **(Human) Actors as Individual Decision-Makers**
  According to Zhang et al. (2010), individuals who work in VSOs are observably different from business-based workers, especially because of their varying ‘problem-solving’ skills such as technical, domain, political and relationship skills. Another key differentiating characteristic is the higher level of ‘inartistic motivation’ in their use of technology. What signals this is the fact volunteers (and other VSO staff) are individuals who make a ‘choice’ based on their own specific mental capabilities and problem-solving skills. Nevertheless, these purposeful and knowledgeable actors are constrained by the deep structures of the organisation.

- **(Technological) Artefacts as Distinct Entities**
  ICTs are defined as ‘applied computer systems, including computer hardware, software programs, computer networking, and consulting services to support the use and implementation of information technology’, and their diffusion throughout the sector could bring considerable change (Hackler and Saxton 2007, p.457). This clearly demonstrates that technology is seen as an exogenous and independent entity with a capacity to cause change. Furthermore, while (Burt and Taylor 2001b) accept the mutual influence of ICTs and VSOs, technologies still have ‘inner logics’ that generate opportunities and limitations for the sector’s organisations.

- **Organisations as (Resource) Containers**
  (Hackler and Saxton 2007)’s paper on the strategic use of ICTs in VSOs is based on the ‘resource-based’ view which ‘posits that organization[s] can enhance their competitiveness and maximize returns through the development and deployment of key organizational resources’ (p. 477). In other words, organisations attempt to make the best use of their resources in generating organisational outputs. In particular, VSOs monitor the moves of competitors and need to be responsive to the emerging innovative practices within the sector (Zorn et al. 2011), for instance, novel patterns of volunteering. VSOs have some resources and they constantly look for the best allocation in their operations with a hope
to improve competitiveness, though this is not their initial objective. The point here is that organisations are a place for organisational interactions with a core objective: the best allocation of resources albeit under the organisation’s philosophy of existence.

To conclude, VSOs technology studies view ‘acting entities’ as human individuals who make rational (technological) choices. Also, to them ‘organising activities’ in VSOs have a recognisable, pre-established logic which is mainly based on the best use of resources and well-designed structures. This ‘resource-focused’ logic frames the ordering needed to enhance competitiveness. This is not surprising as most of current organisational thinking about VSOs, is shaped under the dominance of ‘economic theorising’ (Koschmann 2011). Moreover, the majority of the literature on VSO and ICT views digital technologies as merely ‘technological means’ (i.e. a sort of resource) rather than a set of sociotechnical arrangements (Stillman and Linger 2009).

**Drift Phenomenon: Reconstructing Ciborra’s General Model**

Within the last two decades or so, the study of organisational changes perhaps remains one of the most dominant issues for organisational thinkers, and since more and more ICTs are used and pervasive in contemporary organising activities, advanced and sophisticated theories are needed to make us able to capture the dynamics of technologically-induced organisational change (Barrett et al. 2006; Leonardi and Barley 2008).

The previous section has attempted to show the reader that existing knowledge on the issue of ICT-enabled change in voluntary organisations advocate the idea that ICT and change, as fairly separated entities, affect each other. At the heart of two main approaches there is an implication that any projects aimed to develop and implement ICT-specific innovations can generate some (major or minor) organisational benefits if ‘managed’ (i.e. controlled alignment) properly and carefully.

Such approaches, in principle, find their philosophical roots in dominant management discourses in which the establishment of ‘effective governance’ of new technologies (Ciborra 2002) has been the focal point, analytically and practically. However, there are growing speculations, supported by ethnographically-inspired empirical studies, on such modernist, industrial-society-attached philosophies. Given this emerging landscape, this
chapter endeavours to find ways in which we can embrace and theorise on the complex dynamics of ICT-enabled changes in VSOs.

Hence, this chapter applies and reflects upon the notion of ‘drifting’ recently developed within different intellectual communities (Ciborra 1996; Berg 1997; Quattrone and Hopper 2001). Specifically, this chapter uses and reflects on chapter five in Ciborra’s book titled ‘The Labyrinths of Information: Challenging the Wisdom of Systems’ (Ciborra 2002) where he put together materials from three of his main publications to explain and theorise on the notion of drift. His selection of these publications was conducted for a number of reasons: Firstly, his contribution is perhaps one of the more systematic and comprehensive attempts to conceptualise this notion as a self-standing theoretical framework, not as an additional elaboration to another argument. Secondly, it has been customised and applied in the specific realm of ICTs. Finally, his explicit emphasis on ‘the grassroots of the organisation, where its core competencies and skills are daily deployed and perfected’ is highly relevant within pluralistic settings like VSOs where decision-making tends to be more democratic and flat (Jonsson and Zakrisson 2005).

To see the very roots of Ciborra’s drifting model, we need to know that his core argument is fundamentally built upon a major critique to oversimplified, widely-used formal methods of ICT development in which, as he believes, human dimensions are absent, ignored or taken-for-granted. Thus, he endeavoured to build a new phenomenologically-originated vocabulary much ‘closer to human experience and existence’ (Ciborra 2004b, p.19). In this regard, he developed a set of key concepts including Gestell, Bricolage, Care, Improvisation, Situated-ness and Drift (Lanzara 2009, p.13).

The notion of drift is particularly articulated to bring to our attention the complexity and elusiveness of most IT-specific innovations and associated changes. This notion also reveals that existing change management studies, which are concerned with planning, control, and prediction, are problematic when applied to capture the depth of such changes. In fact, IT-enabled changes are very often shifted and drifted (Ciborra 2002; Lanzara 2009). The model of drifting can be seen as an alternative agenda to those alignment-oriented and planning-based models for developing and implementing ICTs. This new thinking urges us to see how ever-changing goals and activities produce different outcomes. To understand the genesis and process of such outcomes, the particular ‘task
for the analyst or consultant would be to identify and harness the contents and dynamics of such an alternative agenda’ (Ciborra 2002, p.92 emphasis added). Hence, the next sections endeavour to reconstruct and elaborate Ciborra’s drifting model based on these two dimensions of content and dynamics.

**The Content of Drift: An Encounter that Matters**

What is the essence of drift? Does it reveal a kind of shortcoming in management? To reinterpret Ciborra, what constitutes a drift phenomenon is an encounter between humans and the non-human. Rather than considering drifts as negative consequences, we should celebrate such phenomena and their innovative agencies and hence new analytical development is required.

Drifts are generated at a unique ‘phenomenological middle ground, where intentions of humans and non-humans mingle and blur; where learning and recalcitrance, hacking and inertia show up simultaneously’ (Ciborra 2002, p.84). To make a landing on such imagined ground and see the very nature of that encounter, we need to submit to the ‘plasticity’ of the non-humans on one hand, and the ‘multiform practices’ of non-humans on the other hand. Existing modernist concepts of planning, rationality, formality, and capacity are not able to explain the deviation and shifting of the sociotechnical projects from their initial planned paths (Berg 1997; Quattrone and Hopper 2001; Ciborra 2002).

To develop a mode of drifting, we need to consider ‘those modes of operation that make up the fabric of the world of practice’. These modes of operation are about ‘situated technology’ or about non-humans as ‘experienced and seen from the swamp of contingent situations and practices’ (Ciborra 2002, p.90). By adopting the metaphor of ‘swampy’ time and space, Ciborra makes the point that temporal relations in IT projects are not reducible to spatially-oriented ones encouraged by strategic alignment methods. Swamps are ‘opaque’ and ‘shapeless’; so are activities associated with drifting. That is, such activities ‘are local, short, and sudden, and do not exist outside the specific situation where they appear’ (Ciborra 2002, p.92). Drift is ‘thus the outcome of the match between two agents: technology-possessing affordances; and humans in their various roles of sponsor, user, and designer’ (Ciborra 2002, p.91). For Ciborra, the significance of situation is that it gives certain ‘people’ and ‘things’ a mattering element (c.f. Ciborra 2002, p.160). Such ‘mattering’ can be better captured through the notions of affordances-possessing (as
for objects) and role-playing (as for people). Before going into the dynamics of drifting phenomena, let’s elaborate these two notions using other relevant studies.

**Non-Human as Affordance-Possessing Agent**

Relying on (Norman 1988), Ciborra uses the notion of affordance to develop his general model of drifting. The affordance concept is useful to ‘capture those fundamental properties that seem to tell us what the things can do for us’ (Ciborra 2002, p.90 emphasis added). So, rather than speaking of isolated things or de-contextualised artefacts, we need to seek how a specific ‘assemblage of affordances’ came into existence. Within and by drifting, hidden affordances are disclosed, new assemblages are shaped, and this opens new possibilities for further action. While for Ciborra and many other drift researchers alike, affordances are utilised widely within the technological domain, i.e. a piece of hardware or software, this chapter proposes a broader version, where any kind of non-human has affordances, from digital software to a physical keyboard to a conceptual frame. The argument is that things do not force themselves upon a human’s actions, but by being present at the moment of action, they propose and offer certain possibilities for action which in turn may receive different responses by the actors in a particular moment (c.f. Hutchby 2001; Callon and Muniesa 2005).

**Human as Role-Playing Agent**

The second agent involved in drift-making is the human actor. But, as Ciborra underlines, what really matters here is the various roles played out by people in a given situation. While he has briefly touched on the notion of ‘various roles’, this notion directs our attention towards similar IS-oriented studies, in particular, inflectional contributions made by (Lamb and Kling 2003). They make a similar point: ‘Most people who use ICT applications utilize multiple applications, in various roles, and as part of their efforts to produce goods and services while interacting with a variety of other people, and often in multiple social contexts’ (p. 197, emphasis added), hence, they argue, we need to shift from ‘users’ to social actors whose daily interactions are instilled with ICT use. According to (Lamb and Kling 2003), people fulfil multiple and situational roles, in relation to technological objects. During such encounters, technologies also contribute by helping to construct identity and control perception. Since human roles are ‘multiple and aggregate’, individual and collective preferences are articulated and compromised.
The Dynamics of Drift: Inertia, Implantation and Impromptu

How does drift happen? What factors contribute to drifting? This section attempts to provide a basis to answer these questions. (Ciborra 2002), in his conclusion about drifting, summarises the whole argument in the following sentences (p. 98):

Implementation tactics, the power of the installed base, and the sheer complexity of the new infrastructure are all factors that make for a different outcome: drift.

According to this concluding remark, to understand the dynamics of drifting, we need to consider three factors: tactics, installed base, and the proposed innovation. Building on other and similar contributions, this chapter extends these three factors to enable technology researchers to map out the making of drift.

Implantation: The Sheer Complexity of the ‘New’ Technological Innovation

For Ciborra, one key aspect in making drift is the ‘sheer complexity’ of the new technological innovation. If the new project is a kind of planned project of action, the considerations of this new project should be understood before and during any attempt to relate this project of action to existing ones. Such complexity, as also mentioned by (Barrett et al. 2006), has both social and material dimensions: the ways through which people develop a mental frame about the innovation; the aspects of the work which could be streamlined or complicated by this innovation; whether the technology reshapes the existing distribution of resources and roles; whose accountability will be affected; are existing standards compatible with the new system; how much extra work is required to train people to use it; will there be any need for a new gateway and who should deal with that; what process are more likely to be involved and how; and so many other aspects.

Inertia: The Power of the Installed ‘Base’

Existing sociotechnical infrastructures grapple with the ‘inertia of the installed base’ (Star and Ruhleder 1996) and hence the installed base can be understood as both an enabling and constraining factor. This notion plays a significant role in making visible the challenges associated with the traditional planning-oriented and top-down approaches. Installed base implies a gradual and incremental nature in development. Its long-term nature calls for particular attention to the politicised aspects of shaping infrastructures. While this line of inquiry seems to be ‘less innovation-oriented’, it provides a rich
framework to examine ‘networked and distributed ICT-related change processes where the existing reality plays a significant role’. It aims to work with both proximal, small-scale issues and social, large-scale matters in theorising the very assemblage of infrastructures (Aanestad 2011, p.32). While the installed base highlights the inertia of the existing context, this does not suggest that such infrastructural contexts are impossible to innovate. The point is that this would be a conflicting and negative process involving various actors and objects (Igira and Aanestad 2009). Since objects are embedded in work practices, it should be considered that the ‘installed base then includes existing knowledge and experiences, tools, routines, and so on. In this regard, all aspects of modifying, integrating, and replacing existing information systems and technologies’ play roles in organising activities (Igira and Aanestad 2009, p.215).

**Impromptu: An Infinite Variety of Coping and Care ‘Tactics’**

As (Ciborra 2002) argues, to understand a drift phenomenon, one should capture the dynamics of the encounter between objects, people, and collectives. Drift happens when such an encounter is open and flexible. The fluid territory on which such openness is based is ‘the swamp of everyday life in organizations’. People who live in such a world, ‘move around like insects, relying on an infinite variety of coping and care tactics’ (p. 90). These tactics are generated by ‘impromptu, local existential projections and . . . long-term strategy’. Since they are so close to the moment of encounter with things, they are powerful in reading and discovering new affordances and action possibilities. Tactics are sought to find potential matches between the known and the unknown and this makes the world progressing and ‘*bricolage* and rapid improvisation into source of innovation’ (Ciborra 2002, p.91).

**A Quick Note on the Method**

**The Case of IT Replacement in a Swimming Club**

This chapter uses a voluntary sport organisation as a case study. Volunteering has a long history in this sector. In Nordic countries, for example, a majority of sport organisations operate exclusively or primarily on a voluntary basis. Even for those limited non-voluntary ones, there are still a number of volunteers working alongside paid staff (Østerlund 2013). On the other hand, there is increasing pressure on the voluntary sport sector to manage their ‘diverse’ information and ‘high’ workload by using IT (Minikin 2010). This means a
push for some sort of IT-driven organisational change while Thiel and Mayer’s (2009) study shows that organisational change is difficult in the sports sector. Hence, the context seems to be ideal for the purpose of the chapter’s research objective: understanding how IT is used in an organisational change that is challenging by-default.

The empirical case study involves Water125, a relatively large swimming club (in comparison to other regional clubs) which operates on a voluntary basis, and which has an interest in an improvement in their IT tools and systems. Also, some other supplementary data from other related sources are used to augment the argument where needed.

Fieldwork and Narration

The data used here comes from a longitudinal, quasi-ethnographic study in this swimming club. I deliberately decided to not use the ‘first person’ pronoun in narrating some parts of the story in order to distinguish between my role as ‘outside’ researcher and ‘involved’ actor. The empirical data is presented in the narrative format (as a story) to provide insights into the full picture of the processes related to IT projects, in particular, the social, organisational, and technical contexts and the issues that may arise. Also, ‘ethnographic stories have in them a capacity to re-present the world in ways that are generative for the people and practices that the stories are about’ (Winthereik and Verran 2012, p.37). However, this mode of presenting itself puts a limitation on the extent to which a particular theme may be discussed while also keeping the narration in order sequentially and logically sensible.

Empirical Story: Main System Replacement Project in Water125

This empirical story is presented in a chronological manner in which a technological project in Water125 has drifted from its initial plans. While the story narrated here is organised based on the sequence of the events, not all of data gathered in the same order. For analytical purposes, the collected data are articulated and re-organised. There is an explicit emphasis on the circumstances under which various changes happens in the

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43 For background information on Water125 see appendix 3.
planned actions. In fact, the story highlights those sociotechnical interactions that are related and generative to the emergence and dynamics of the drift.

The Birth of an IT Project Idea: TeamUnify Procurement

Every year in September, one of the most significant national swimming events happens in the USA: The United States Aquatic Sports Annual Convention. The convention is ‘to gather all of its delegates together for the purpose of making decisions that will affect the future of our sport’ (USA-Swimming 2014). While highly dominated by USA swimming affairs, there are some other programmes and exhibitions which encourage overseas swimming players to participate, and get updates and information about sector trends and transformations, training techniques, competition equipment, racing methods, and safety policies in all swimming-related sports and activities.

Hamish, who was a key figure in the management of Water125 but who was no longer involved in the day to day running of the club, attended the 2010 event. Hamish ‘is in this job since [he] was 16’ (Interview by Nelson on 25 Aug 2011). In his many years in swimming, he built international alliances with key players and was able to attend important meetings in the context of swimming. He had a special interest in American swimming, not only because of its worldwide dominance, but also because he had a ‘family interest’ there: his son. It was a two-fold enjoyment to work and interact with some American clubs: he could visit his ‘lovely’ grandchildren and feed his ‘swimming’ passion (Interview on 21 Feb 2012).

Unplanned Meeting

In his attendance at the 2010 event, Hamish was approached by a ‘new American’ technology company (TeamUnify) which aimed to change the ‘technological paradigm’ of swimming-related software that was historically shaped by Hy-Tek Ltd (in 2008, Hy-Tek was acquired by ActiveNetwrok). Hy-Tek, ‘the leading software and services provider to over 95 percent of the swimming and track & field clubs, schools and organizations in the United States’ (Active-Network 2008), had been in the market for more than 25 years and it was claimed that its products are used by a large number of ‘professional leagues . . . , national governing bodies, and high schools and colleges in over 30 countries around the world’ (ibid) including Water125 and almost all Scottish clubs. Despite the extensive and deep power of Hy-Tek, TeamUnify, the new but fast-growing swimming software
vendor, seemed to tackle the ‘swimming technology dominant logic’ mainly generated by Hy-Tek products. Hamish, a person with a long history training and managing Scottish (and British) Swimming, was TeamUnify’s ideal port to ‘get a foothold in the UK [Swimming]’ (Hamish’s email on 29 May 2011). They had already offered to demonstrate their wares while on a conference video call with Hamish (and Water125’s members). When the author (as observer) was in Hamish’s home-office, he was trying to show him some brochure of the TeamUnify product which he had brought from the States, but emphasised that the TeamUnify website itself ‘is self-exploratory’ and I could get a good picture of what the product looks like; he himself had worked with the demo version of the new software at the event (Field-note on 31 Oct 2011).

**Tackling a Dominant Player in the Market**

TeamUnify claims it can revolutionise swimming management (Interview with its Co-Founder on 20 Feb 2013). However, when it comes to organising and running regional or country-wide swimming meets, many local and national governing bodies and swimming associations have been standardised on the Hy-Tek system which seemed to be the ‘first phase’ of IT-enhanced swimming, by automatising competition events. While there was a good response from the market in utilising Hy-Tek Meet Manager software, two other complementary software packages, i.e. Team Manager and Business Manager, were less welcomed. Knowing that a change in a long-used platform based on the Meet Manager system was not an effective technique to get prospects and customers’ attention, the current ‘pressure point’ of the TeamUnify marketing strategist was on the automation and centralisation of swim team information in their training sessions—a function that Hy-Tek solutions had failed at. TeamUnify’s developers intended to ‘essentially replace [Hy-Tek] team manager’ (Vendor’s response email on 9 Nov 2011). This could be interpreted as the ‘second phase’ of technology-enabled swimming management by centralising team information: This move promised to ‘Completely Eliminate the Islands of [Information] Chaos’ (TeamUnify.com). The snapshot below taken from TeamUnify’s website visually advertises the system’s capability to improve team performance by getting rid of costly ‘repetitive tasks’ and freeing up ineffectively spent time (see Figure 4-2).
As mentioned earlier, Hamish, with support from Flora, his wife, was in charge of the revision of squad structure. However, they were both overwhelmed with a large number of ‘urgent calls/issues’ and ‘manual works/tasks’ as a result of chaotic and fragmented information management within the Club.

When TeamUnify’s foregrounded features (on centralised integrated platform) attracted the attention of the incredibly busy Hamish (as well as the seemingly disorganised and chaotic activities of the club) the idea of new system procurement was born. The idea of procuring the new system occurred at The United States Aquatic Sports Annual Convention in September 2010. In addition the Club seemed to be lagging behind other ‘smaller’ clubs in terms of IT, and this was really annoying for Hamish since Water125 had a reputation for being a leading club in Scotland.

Establishing an Assistant Group: IT Group Formation

On his return to Scotland, Hamish started thinking about a shift from the current Hy-Tek platform to new software, i.e. TeamUnify. While this replacement decision might be easy to make for many small organisations (once convinced of the benefits of a solution), for organisations like Water125 it was anticipated that this might not be the case. This was not only because of the number of staff affected by such a procurement (i.e. from coaches to admins to the Committee members), but also because the flat organisational structure of the Club required a good level of agreement among key players. Apart from the decision-making side, the implementation of such a replacement would need support and training for many actors who would be involved in it. Water125’s key people were
informed with ‘some general stuff’ about Hamish’s idea, and given just the name of TeamUnify (Focus Group with Coaches on 30 May 2013).

From Feeling to Action

Hamish needed to find a way to progress his idea within the Club. ‘He has a very strong personality’ (Interview with the Fundraising Administrator on 30 Oct 2013) and great communication skills. The author vividly remember when he wanted to ask an urgent question of one of the ex-coaches of the Club, how skilful he was—polite but firm in getting his answer quickly through the phone (Field-note at the office on March 2012). Also, his passion about swimming and persistence signalled to people that he was determined to make Water125 a better club (for example he was arguing with the race commentator about using his voice in ways to create a more thrilling atmosphere; field-note at poolside on 26 Feb 2012). His personality and passion gave him the opportunity to act as a hub for sending and receiving much informal ‘word of mouth’ information in the Club and he used this to increase his personal (and the Club’s) social capital. The Club filled its ‘volunteering positions’ through advertising them among parents of the swimmers and others. This was not the approach taken with the ‘special’ positions, set up by Hamish around the idea of forming a new ‘IT Team’.

Technical Volunteers as Special Volunteers

Using their network, the Club’s key people might approach some ‘specific’ parents (or volunteers) when ‘urgent’ help is needed or the position is ‘not typical’. In about May 2011, after a couple of months spent preparing the Committee for this IT project, Hamish finally approached two parents who had already volunteered in other areas: Nelson and Ian. Also, Mary was invited by the Head Coach (she is Hamish’s close friend and colleague).

- Nelson, who was currently a squad administrator, was a university professor with an interest in information systems research and had good technical skills
- Ian, who was a passionate time-keeper, was a scientist with a background in IT development projects
- Mary, who was in charge of fundraising activities, worked as a knowledge manager in a large IT company (IBM Scotland)
Nelson offered Ali (i.e. the author), a doctoral student interested in studying IT in the context of volunteers, the opportunity to be involved in the project. His understanding about the objective of the project was quite firm and clear.

‘… The club wants to buy a new system and is thinking also about social media and better ways of interacting with swimmers, parents and others…’ (Nelson’s email to author on 3 June 2011).

Ian started working with the team with a certain level of doubt concerning the goals of the project. He was active in attending meetings, but occasionally ‘timekeeping commitments’ made him ‘absent’ (Interview with Ian on 10 Oct 2013).

Mary, soon after her partial engagement in the IT project, made it clear that she was not by any means an ‘IT expert’ and she just work with some technical staff. Alternatively, she attempted to find some ‘free help and professional advice’ from her IBM network for the Water125 IT project, bringing new kinds of resources, such as a website expert’s time and help to address Water125 website issues (Mary’s follow-up email to Hamish on 6 Oct 2011).

In summary, by August 2011, a year after Hamish was introduced to TeamUnify, an IT team was established within the Club to work on the IT project which was clarified by Hamish as below:

‘… I have also added below 2 websites which we need to consider. The first is for the Hy-Tek meet software we use currently to run our own Development Meets and which is used to operate in Scotland and across most of the world (except England!!). The second is for the newer type of service provided by a company called Team Unify operating out of the USA which focuses more on the administrative support functions. Their website is fairly self-explanatory and I know they are very keen to get a foothold in the UK. They have already offered to lay on a Conference video call with us at a time of our choosing to lay out their wares. www.hy-tekltd.com and www.teamunify.com

If you get a chance to look over this, it would be useful Thanks for agreeing to meet’ (Hamish’s email to Nelson on 29 May 2011)

Hamish had been expressing more and more excitement throughout the process of the IT team establishment. There were high hopes for the Club, infused mainly by Hamish and supported by his wife Flora, to build more efficient processes for the staff members and training-focused swimming sessions.
Working on the Replacement Proposal: IT Team in Action

The team started working on the Club’s new IT project even though there was some ambiguity on the exact objective and scope of the project. The divergence was rooted in Hamish’s idea for a ‘rapid’ procurement (Field-note at his home-office on 31 Oct 2011), Nelson’s understanding about the club’s new technological projects was a transformative in nature:

“The club's upcoming procurement of a new packaged systems, and its general interest in refreshing its IT systems and perhaps the adoption of some social media” (Nelson’s email to Ali on 6 June 2011).

However, to Ian it was not clear that what the project was exactly about and hence he hold a suspicion view (Interview on 12 Oct 2013). Despite different interpretations of the total aim of the project, what was clear was that the first immediate step was to evaluate the replacement of the Hy-Tek system with TeamUnify, auditing its benefits and potential challenges.

In doing so, the team, under the leadership of Nelson, started interviewing key people in the Club with a preference for those whose job used more IT. These people were selected by Hamish, but the IT Team was open to finding ‘other important people’ through snowballing in their interview meetings. The very first interview with Hamish himself and the Club’s current secretary was carried out by just Nelson. This two-hour long interview acted as a critical roadmap to the issues the IT team needed to consider, who they may want to talk with next, and to some extent, the dynamics of the people in Water125. Also, after this session it became clearer for Nelson that Hamish’s ‘sensible idea’ to purchase a new system (TeamUnify) was part of his ‘quite ambitious vision’ to use new information systems for the Club (Nelson’s description of what Water125 IT project is about at IBM meeting on 1 Dec 2011).

…we met with [Hamish] and he is kind of like he set-up kind of his vision of what they want for the Club and it is quite ambitious vision, not to, you know like bringing new kinds of systems and process…

What is the Big Picture?

In the first round of interview sessions, around nine people, including Hamish, Flora, the Club treasurer, pool-hire manager, the Club secretary and head coach were interviewed by the IT Team, mainly by Nelson. They were asked to talk about their work and the
challenges they already had with current IT systems and tools. However, as some of them had been told by Hamish about TeamUnify, the IT Team also asked for their immediate reflection on such a replacement. The results of these data was summarised by the author in the ‘Note on Water125’ document. The data were separated into four categories: Practices (e.g. specific tasks of each person), Relationships (e.g. who works with whom), Tools (e.g. how they communicate) and Others (e.g. challenges and problems they feel). On 17 October, soon after the August launch of the IT Team, Hamish asked for an update from the Team. The summarising ‘Note on Water125’ plus a detailed analysis on ‘IT Options for Water125’, a report generated by Nelson, were both sent to Hamish in mid-November as he was keen to know what the ‘next stage’ of the project would be before the IT Team’s presentation about it in one of the regular meeting of the Committee Management.

Amendments but Necessary Activities

Besides ‘interviewing key people’, some further activities had also been carried out by the author as part of the fieldwork, such as doing market research for potential vendors in the market and attending a webinar by TeamUnify whose invitation was sent to Hamish. When the list of the other ten software packages in the market, with a quick analysis on each based on price and compatibility was sent to Hamish, it received almost no reply from him except ‘I’ve seen them’ (Field-notes on Oct 2011). By contrast, he expressed more interest in the TeamUnify webinar which the author attended on 13 December 2011. The core ‘advertising’ element of that ‘demonstrative webinar’ was the centralisation of data which are accessible online and in real-time, as well as communication as one of the key elements in the system (Webinar-notes on 14 Dec 2011). Not surprisingly, those were similar to Hamish’s problems with the Hy-Tek system (beyond administration-side difficulties). ‘We need to be more online’ although TeamUnify was not mentioned by him in that context (Nelson’s Interview with Hamish on 25 Aug 2011). Hamish again received (another!) persuasive message and asked Nelson to take any action if required (passing the responsibility to him):

44 For this market analysis see Appendix 1 extracted from my research diary on 18 Oct 2011
45 The following, extracted from the webinar-notes shows the order by which the functionalities of the system were presented: ‘Website Development, Managing Volunteering Jobs (by parent and admins), Fundraising Tools (email contact list and social media accounts), Report Generation, Easy Communicative Tools, Registration, Mobile Apps (for parents and coaches)’
… I have just received this intriguing message from Team Unify and wondered if you would like to follow it up. I am afraid that I have been unwell again with another unpleasant cold and throat, so am out of circulation for a bit. (Hamish’s email to Nelson on 9 Jan 2012).

Disappearance of the TeamUnify Procurement Idea

The project was progressing slowly in December 2011 and even more slowly in January 2012 as everybody (both the IT Team and Water125 people) were quite busy with their ‘New Year’ activities. However, during this time the Team followed through on one of their key actions and that was to deal with Mary’s suggestion to take advantage of IBM’s societal development initiative for its 100-year celebration. The first meeting happened in December 2011 with the attendance of Ian, Nelson, Mary, Ali, and two experts from IBM (Field-notes at IBM Office on 1 Dec 2011). Nelson initially gave them an overall picture of the situation and the project in order to facilitate their input into the Club and ‘possible various ways to help’. The immediate impression from IBM, based on their own research on the Club’s old website and Nelson’s presentation was that there were some potential areas for their involvement:

… i) access to software/systems (such as their IBM connection software - which is social media); 2) access to expertise (incl those with expertise on financial systems); and 3) perhaps even money (Nelson’s email to Hamish informing him about the meeting results on 2 Dec 2011)

Displacing Opportunities

The case of IBM was perhaps ‘unique and promising’, especially given Water125’s very limited resources for IT, but, there was a point:

They really could not (and didn’t want to) help unless they knew what the long-term vision of the Club, in terms of IT, was (Mary’s follow-up interview at Oct 2013).

Their point was itself an approval of Nelson’s conclusion that the Hy-Tek replacement was not the Club’s main information systems issue, as reflected in his draft ‘IT Options’ report. In the meeting, the IBM people were trying to push the IT Team to draw up a clear map of the Club’s current situation and to build a vision. That actually was what the Team had been conducting since the early stages of the project. Hence, the IBM comments were not much help. However, this encouraged Nelson and convinced him to ask for a meeting with Hamish ‘clarify aspects of the vision’.
Changes in the Commitment and Priorities

Surprisingly, Ian left the Team’s meetings and discussions with no notice. It happened ‘naturally’ as he started feeling that the project’s scope and its related actions and outcomes were not clear-cut (Ian’s follow-up interview on 12 Oct 2013). It also seemed that another reason for him to quit the IT Team was that he understood the Team would not purchase TeamUnify’s system anymore, especially because of the way the project was navigated by Nelson. To him, the main project was to make a decision over the TeamUnify procurement, but this was not the key objective of the Team as a whole (Fieldnote at the Team internal meeting on Nov 2011). However, while the initial goal for the IT project was to replace an old administration system with a new one, Nelson’s involvement was not limited to this, and after the first round of interviewing sessions, he realised that the project should deal with some quick and (mostly non-IT) practical actions such as building ‘guidelines and templates’ for volunteers who work with high volumes of data, and secondly to build a future IT vision for the Club.

Emergence and Establishment of a New Project: Website Re-Design

As part of his fieldwork strategy, the author sought out more involvement with the Club. In a meeting with Hamish, a set of activities were found that might be appropriate. One of those, based on Nelson’s suggestion, was to think about redesigning the Club’s website. The website idea was born to give the IT Team a way to find out more about the ‘details’ of everyday practices as well as different understandings of IT in order to finalise ‘Water125’s IT Vision’. Further, it could possibly be used as a hub for ‘external and internal communications’ (Interview with Nelson on 12 Feb 2012).

Becoming Convinced for a New Change

Immediately after the suggestion, Hamish (and his wife as a member of Committee) personally agreed on the website project, but, it took about a month until the ‘green light’ was received from the Committee. Nelson, himself, had good experience working with Moonfruit, an online ‘website builder’ platform, and he wrote to Ali:

46 In fact, the Club was one of early adopters of websites in this sector, but it was already dated with very low regular visits.
... for the website design, have a look at 'moonfruit' as a possible platform. I use it for my own website, but looks like a possibility for [Water125] too (email on 11 Feb 2012).

His main reason for this suggestion was that the extremely easy-to-use functionality was one the Club’s prospective technical volunteers with limited IT skills could work with. On the other hand, it seemed IBM was looking for something specific to do for the Club and this gave Mary and Nelson the idea to look for some website related stuff from IBM for Water125. A web expert from IBM showed some interest, and Ali asked for his support for the website project. However, it became immediately clear that it might not be a good idea to work with him, not only because of his late responses, but also because he limited his support to just giving some ‘general’ guidelines which didn’t add much to Nelson’s and Ali’s knowledge (Field-notes on 24 March 2012). The only benefit of this expert was his approval regarding the usability and appropriateness of platforms like Moonfruit for the Club’s particular situation.

From April 2012 to around the end of May, Ali was doing some one-to-one interviews and focus group sessions to understand what people actually wanted from the new website. As the ‘word’ about the project spread within and across the Club, different reactions emerged. For instance, the Club’s head coach, an important person as she was a full-time employee with many diverse responsibilities, including being in charge of updating the current website, made it obvious that she ‘was not at all technical person and not sure about how new website builder platforms works’ (Field-notes at 1st Focus Group on 30 May 2012). However, a young part-time coach asked for some sort of involvement in the website project.

Concerting on the Drifted Plan

Meanwhile, when the Moonfruit account was purchased, on 28 March, Ali started creating a demo version of the website. Nelson was producing some ‘guidelines’ with a hope to redevelop some ‘work practices’. As Ali was supposed to finish his period of fieldwork soon, Nelson was helping him with the website as he was supposed to become the ‘webmaster’ after its launch. In a meeting with the Committee on 4th April, Nelson gave a progress report with a detailed assessment of the reasons for the TeamUnify procurement project closure:
If this option [i.e. TeamUnify] undertaken could entail quite radical restructuring in terms of current work practices (would also require a significant retraining of staff). Not an insignificant task. Whilst current situation is highly labour intensive, it currently works (extracted from Nelson’s slides for the Committee session).

Not only did the internal situation of the Club, such as training issues, hinder the new system procurement, but there were some technical ‘uncertainties and doubts’ that did not get resolved. In particular, the accuracy and ease with which the current system provided an exchange of meets information with Scottish Swimming’s platform, standardised around Hy-Tek, was another key justification in not pursuing replacement of the old but working Hy-Tek system. The figure below is Nelson’s ‘concluding slide’ to reject the TeamUnify option.

**Problem with moving to TeamUnify**

- Team Unify developed around a different international context and some of the functionality contained in system likely to be different from that used within Water125.
- Team Unify suggest their systems are compatible/usable across national contexts. When contacted they pointed us to [another UK-based Club] have also confirmed that their systems are compatible with Hy-Tek data formats.
- If this option undertaken, could entail quite radical restructuring in terms of current work practices (would also require a significant retraining of staff). Not an insignificant task.
- Whilst current situation is highly labour intensive, it currently works.

![Figure 4-3 Nelson's Assessment of TeamUnify Option](image)

Ali also presented his ‘simple, basic website demo’ as described by Nelson. Interestingly, the Committee started expressing lots of active excitement and positive engagement by seeing the new ‘fantastic’ website. Their unexpected reaction to the website convinced Nelson that the Team’s current actual technical goal should be to deliver a website ‘soonish’, and as progress was slow because of Ali’s summer trip, he and his wife put a great deal of time and effort over August 2012 to build the website. Nelson was already named the Club’s webmaster and since then, his main focus was the website, and any other works with a connection to the website. For instance, some squads started putting Doodle-links for swimmers’ availability on the website rather than exchanging them by email. Not surprisingly, after having a well-designed, modern website, all other possible IT developments were ‘naturally’ stopped and the overall image was that the ‘job was done’. Nelson was supposed to be the Club’s webmaster for a long period of time, but
unexpectedly, Ali, who was no longer in touch with the Committee, received an email below from the Club’s secretary on behalf of them:

I am aware that [Nelson] has recently stepped down from his website duties and understand that it is possible that you might help us with some updating? Is this the case? (email on 4 Oct 2013)

And after that, she ‘bombed’ Ali with ‘the [really urgent] changes need to be done sooner than others’ (Her email on 8 Oct 2012). A parent had accepted the offer to become the new webmaster, but he was a bit nervous about doing these jobs (Informal chat with a Committee member 12 Oct 2013). A year after the launch of the website, in October 2013, the Club was looking for somebody to update its website until the new webmaster come on board. The club now had an ‘extraordinary fabulous website’ but in terms of the challenges they had beforehand, nothing significant had changed (Interview with Ian on 12 Oct 2013). This was nobody’s mistake; basically nothing could be improved unless the Club developed an organisational mission, which is different from its swimming mission. IT improvement projects need practical objectives and individuals (volunteer or paid) involved for the long-term that have strong personal ideas of what they want from IT (Interview with a Committee member on 22 Oct 2013).

Examine the Story and Literature: The Helical Drift Model

This section, firstly, examines and analyses the empirical story, utilising the drift perspective. Then, it endeavours to extend and advance Ciborra’s general model by using empirical insights. Three realms of drift and their mechanism in making the overall drift are explained. Finally, it reflects upon the existing views and assumptions on the role and dynamics of information technologies and voluntary sector organisations.

Zooming In: Three Realms of the Drift Phenomenon

Drift in the Orientation and Practicalities of the IT Project

In Water125, the IT project was triggered with a relatively clear objective. On Hamish’s return from the United States, with follow-up conversations with the TeamUnify marketing team, there was no doubt that the club needed to make a planned, rational response to this opportunity. The actual idea was formed when the affordances of the new system met Hamish and Flora’s personal and organisational life. To make the need for the new project visible and mobilise resources and volunteers for that, Hamish played
a double role: First, as a long-time professional coach, he drafted a squad re-structuration, and second, as a just-technical-enough person, he managed to show some people the ‘imaginary’ (Ciborra and Lanzara 1994) ideal club running on the TeamUnify platform. The promises of the new system, its apparent high match with the club’s vision (to be the leading club in Scotland), and Hamish’s focal role at that time convinced the Committee not to reject the project at its initial stages despite the fact that they tended to only concentrate on core programmes like a revision in training or urgent issues like a complaint from members.

The project started with a relatively narrow scope and specific orientation: to make a cost-benefit analysis about switching to TeamUnify, an assessment of the potential trades-offs associated with migrating, rapid procurement, and replacement of the club’s swimming management system. During the mobilisation and formation of the IT Team, a few other ‘possible’ IT improvements such as use of social media were mentioned and discussed. This was done not only to make the job more interesting for the joining technical volunteers but also to assure them about the flexible and democratic style of volunteering at Water125. However, within a few meetings, the IT Team started developing suspicions about the nature of the project. While the project was framed to signal appealing flexibility, this ‘flexible structural property’ (Davidson 2006) seems to have generated disruptive constraints for one of the technical volunteers (Ian) which made him sceptical and uncertain about the future.

More encounters with different administrative people as well as with the physical documents and electronic files built by them made the IT Team, in particular Nelson, aware that the replacement idea was the result of two major problems: lack of IT vision as well as the great amount of effort needed to implement and use the system on an everyday basis and train users. Events such as meeting with IBM and their concerns over the overall roadmap, as well as Ian’s leaving were critical in making the stage ready for a fundamental shift in the project orientation: firstly to define and develop a long-term IT vision and secondly to revisit and simplify some of the work practices. This new orientation needed a more detailed and local understanding from the club. Hence the idea of website re-design was initiated by Nelson to provide the IT Team with more knowledge about the club’s everyday politics and communicative practices.
While website re-development was launched as a catalyst for and an intermediator to the core project, it turned out to be itself the core project. This happened as a result of some unexpected, uncountable incidents. First, it was the reaction that the IT Team received from meeting the Committee and presenting the project’s progress. At that particular meeting, two main presentations were delivered to the group: Nelson’s slides comparing and analysing the current issues and prospective challenges if TeamUnify was adopted and Ali’s website demo presentation. While the Committee was relatively apathetic about the former, they expressed much more interest and engagement for the latter. The colourful demo with dynamic navigation provided visible and relevant affordances for the club. The second occurrence was that at the same time that the project was progressing very slowly, Hamish’s personal interest and organisational power were both decreasing; his ‘sensible idea’ was potentially becoming just another of the many failed ideas. Finally, the third incident was Ali’s unavailability in the summer and the increasing social pressure on Nelson to deliver something soon. These together gradually led to a shift in the scope and orientation of the initial project of platform replacement.

Drift in the Obligations and Relations of the Involved Social Actors

In relation to the drift of scope and orientation of the project, people, especially core members of the IT team, exercised various levels and degrees of engagement in the project. At the earlier stages of the project, people had developed and a specific idea about the nature of their commitment and involvement in the project. Such commitment was initially based on their own individual backgrounds with the technical information about the project gained from its being circulated across the club; having various discussions and meeting with Hamish was the most central source.

Since each person’s ‘mental image’ (Ciborra and Lanzara 1994) about the project and its practical requirements was based on common sense, clear-cut judgements, and strategically-selected evidence, the commitment and division of labour to the project seemed to be linked together based on some identifiable and satisfactory boundaries. Since the project, at least at its earlier stage, seemed to be manageable by the existing team, the internal work distribution and the imagined relations among actors were shaped fundamentally based on each person’s skill-portfolio, time-availability and willingness: Nelson to interview various people, Ian to map out the key issues, Ali to summarise the notes and Mary to seek the best contribution from IBM. The existing configuration and
its associated obligation seemed to be neatly functional even if not structurally settled and articulated.

In the course of the replacement evaluation, new aspects were created to the work-and-social relationships within the IT team and also between them and other social groups in the club. As for the intergroup dynamics, the hidden layers of organisational politics became more obvious, and the Hy-Tek-associated difficulties were pushed back to other personal and group-level factors. While expressing sympathy for the terribly intense workload on Flora, some core members had doubts about any fundamental change since the existing work practices and technical systems had been working for many years even if without ‘maximum’ productivity. For instance, one main concern for key actors like the treasurer and head coach was the blurred dynamics and integration between current and future volunteers and how their commitments to the project and the club as a whole would be affected. Such concern had been raised since the suggested project seemed to give rise to an extensive redefinition in the existing division of labour and members’ relationships. The promises of the project, the capabilities of the project team, and the knowledge of the other key people in the club (e.g. immediate beneficiaries of the project) co-evolved together and this mutuality was afforded since the initial, explicit mapping of the people’s relationships neglected the ‘qualitative, dormant, mundane, and to-become-fashionable’ aspects of obligations (c.f. Kreiner 1995).

In terms of intragroup dynamics of the project team, the initial work distribution and the sense of obligation to the project were reshaped and modified several times, since they had been primarily developed based on the explicit and visible assumptions which were also in harmony with fashionable frames of volunteering in Water125. For involved parents, the dominant and most experienced form of volunteering is timekeeping at races; such volunteer work requires time-bounded, one-off, well-defined commitment. It provides a relatively flexible structure and usually follows the patterns of learning-by-doing. However, the design of the project and its collaborative nature needed more distributed, negotiated, and fixed forms of engagement along with a good level of technical knowledge and skill.

While Ian expressed that his main reason to leave the project was its unclear future, an alternative reading is possible: Spending time in the project could make limited visible
impact in comparison to doing timekeeping at the squad, a job which was always looking for committed volunteers. The main gain of the project was to do something really different for the club, but for Ian, the project failed to provide additional necessary gains that could compete with his timekeeping role. As for Mary, the commitment to the project was informed, not surprisingly, by her main professional affiliation to IBM. While not considering herself as a technical person, the team and the club’s hesitation in responding to IBM’s offers were her main argument in withdrawing her commitment to the project. These two changes to the relations within the group had changed the overall picture and workload for Nelson and Ali. Having less technical manpower meant easier navigation of the project while at the same time the obligation increased. When the orientation shifted towards website redesign, the support and pressures from the club’s committee as well as Ali’s limited progress with the project made Nelson convinced to narrow down the project’s scope and channel his effort towards developing a new website that was not only visible for the committee but could be maintained into the future.

Drift in the Configuration and Dynamics of the Project’s Outside World

For people involved in the project, mainly the team and Hamish, the unit of analysis and object of interest was naturally the project. In particular, Hamish played a significant role in managing and defining the context of the project. It was to be negotiated with some relatively fixed, external individuals that play only one critical role in the club. Replacing Hy-Tek with TeamUnify, as Hamish insisted, was not supposed to make a fundamental change in the practices of pool-hiring or financial management of the club or the role of people who fulfil those tasks.

However, over time, as knowledge and awareness about the project as well as its potential and actual consequences increased and was made visible for more people, the actors outside of the project started to react and then modified their relations to the project. For instance, the presentation given to the committee by the project team itself triggered a wider discussion about the preferences and routines of the club.

To understand how and why Water125’s replacement project drifted to a website redesign one, we need also to account for the ‘bewildering complexity of relationships not necessarily centred around the project itself’ (Kreiner 1995, p.341). In doing so, various levels of the outside world are identifiable: within the club, within the swimming sector,
and even well beyond the club or swimming. Water125 was claimed to be the leading club in Scotland. While they had been one of the very early adopters of a website in this sector, the technical features of the platform and its specific design had attached the website to his developer, who used to be the head coach. When he left the club, the website became a well-worn website. Meanwhile, one of Water125’s close rivals in the country developed and implemented a radically innovative and functioning website. This put the club and the committee under organisational and social pressure to fill the gap between the club’s label as ‘leading’ and the club’s old-fashioned website. The very first website for Water125 was created in the age of CMS-based technological dominance. Such platforms needed high level of technical skills and competences to keep the designed website updated and dynamic. While over time the involved ‘technical costs’ such as domain registration and host hiring decreased, which were positive given the club’s constant budget problems, lack of access to skilful volunteers with long-term commitment limited the benefits to merely financial ones. The development and popularity of cloud-based platforms and Nelson’s personal successful experiences in working with one of them, i.e. MoonFruit, afforded the drifting of the project. What would have happened to the TeamUnify procurement project if there was no MoonFruit with similar costs or Nelson was not aware or experienced in using this service?

**Zooming Out: The Helical Drifting**

Using insights informed by the empirical investigation and extended by relevant theoretical concepts, this section seeks to extend and advance Ciborra’s general model. According to (Ciborra 2002), three main contributing factors in the construction of drift are the power of the installed base (or the inertia axis), the sheer complexity of the new sociotechnical system (or the implantation axis) and the various temporal and local tactics used to deal with ongoing process of human-object interactions (or the impromptu axis). The results from this study flags three related realms of drift phenomenon for a developing project: the obligations of and relations among social actors, the orientation and practicalities of the project, and the configuration and preferences of the organisation. The following figure attempts to relate and place this study’s results into (Ciborra 2002)’s general model of drifting. The following figure explains and exemplifies the helical

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47 CMS stands for ‘Content Management System’; this computer application allows different users create and modify digital contents, including webpages, through a common user interface.
process through which a drift phenomenon is produced, mobilised, and grown. The name helical comes from ‘helix’ which denotes an ‘object having a three-dimensional shape like that of a wire wound uniformly in a single layer around a cylinder or cone, as in a corkscrew or spiral staircase'. This analogy highlights the smooth and evolutionary process of drifting.

![Image: Helical Drifting in the Observed Case]

**Figure 4-4: Helical Drifting in the Observed Case**

**Basic Foundations of Drift Phenomenon**

There are three main factors contributing in the making of any given drift phenomenon: Implantation, Inertia, and Impromptu. When a new innovative object (idea or technology) faces the existing stable arrangements of the organisation, organisational members, in real time and constantly, will seek to make more aspects of the innovative object visible and match the hidden to the obvious. The results of such time-tagged, everyday encounters can cause a shift and redefine organisational and institutional arrangements.

**Different Realms of Drifting Projects**

**The Practical Orientation of Project: Limited Common Language**

The project proposed at Water125 needed an engagement with and translation of many actors and artefacts and was supposed to make changes to core processes of the club, all at the same time. This helped in turning the project into a kind of infrastructural form.

48 [http://www.oxforddictionaries.com/definition/english/helix#helix__7](http://www.oxforddictionaries.com/definition/english/helix#helix__7)
As (Neumann and Star. 1996) discuss, constructing any infrastructural-like projects is by and large different from ‘more self-contained, object-oriented’ projects. Since infrastructural projects interact with many dimensions of the installed base, connections with the world beyond the scope of the project need to be stronger and fitted. This entails the involvement of more participating actors and hence further interdependency. Such external–internal coupling gives rise to a paradoxical situation. That is, the final result of infrastructure-like projects needs to be relatively ‘invisible, and transparent usefulness’. Therefore, people within and around such projects struggle to find a ‘common language’ (c.f. Neumann and Star. 1996) to talk about them. Lack of a common language and the very complexity of the meanings associated with the technical and organisational consequences of the project, in light of the well-established installed base around semi-used Hy-Tek and paper-and-email work processes, made the stage ready for several swings in the project’s orientation and boundaries that, in turn, fed the overall drift.

The Relational Obligations to Project: Social and Structural Conditions

In the early stages of the project, the assumed commitment and the work distribution were both relatively clear with relatively well-defined boundaries. However, as the project went forward and people exercised various modes of engagement and obligation, the relations within and around the project team drifted several times. This point has also being raised by IS researchers before. According to (Newman and Sabherwal 1996), the development and implementation of any technological projects are dependent on a ‘sustained commitment’ to the project. The making and maintenance of such commitments go beyond the merely individual and technical realms and also require negotiations and compromises about distant issues of and those activities which may not seemed core to the project. Such ‘social and structural conditions’ may seem to be subsidiary and peripheral in relation to the in-the-making technological project, however, they play a significant role, especially in challenging and complicating the durability of initial project-oriented commitments; they have an immediate influence on the conditions under which the ‘withdrawal of commitment’ to the project is more likely to happen. These conditions are enacted and built up by the qualities of the social groups in which each of the key actors participates as well as the political, institutional and economic domains surrounding the project (Newman and Sabherwal 1996). Any challenge to develop and

49 See the notion of ‘side bets’ (Becker 1960)
articulate a relatively conclusive frame, which facilitates collective interpretation among different involved actors, increases the constraining role of structural and social conditions.\(^\text{50}\)

The Dynamic Configurations of Project’s Environment: Systematic Complexity

In making sense of the project’s specific field of operation, the people involved in and obligated to the project have imperfect tools, similar to everybody else. There are no fixed, lifelong interpretations of reality. There are some elements that make the project’s field of operation challenging and hard to easily and rationally define. One important element is the ‘systematic complexity’, introduced by (Kreiner 1995) to understand the relevance of projects. The systematic complexity implies that there are events and timeframes which are not proximal to the project, but that can ‘ramify’ and change the ‘very foundation on which the project and the environment originally negotiated their relationship’ (p. 340-341). The key point is that individual actors’ attitudes towards and relations with the ‘focal project’ will not remain stable and unchanged if there is an alteration in the dynamics of the intersecting social worlds in which they play various roles. As (Ciborra and Lanzara 1994) views from a different perspective, the relative openness and plasticity of innovative projects means that they interact with and evolve along existing institutional arrangements and in-use frames; such mutuality generates alternative work routines and redefines organisationally-shaped mental images (Ciborra and Lanzara 1994) that reshape the original context of the negotiated project.

Revisiting ICT-enabled Change Literature in Voluntary Sector Studies

What insights does the drift perspective generate for future studies investigating technology-enabled changes in the voluntary sector? Recalling the above-mentioned summary of some of the existing literature, two levels of discussion can be driven: first, the fundamental assumptions about the technology, people, and organisation, and second, the models to implement and examine the technology and change.

Within the existing literature, the focus is on the management of adjusting processes in which the new technological idea or tool is being imported in the observed voluntary organisation. This line of inquiry conceptualises people as rational decision-makers.

\(^{50}\) For further discussion see (Orlikowski 2000).
working together to choose, adopt, and localise new technological objects in their organisation. The organisation is a place in which resources are distributed and contained to follow its objectives and respond to its values. For the technology-oriented scholar, the point of departure is the technological realm and he seeks the professionalising, organising, and complementary aspects of the technological innovation. However, for the organisation-oriented researcher, the organisational and institutional context should be the point of departure to understand the ways in which current governance and learning mechanisms can affect the process of a technological project.

The drift perspective brings into question both the fundamental assumptions and adjustment models advocated by either technology- or organisation-oriented streams. At the core of the drift-based critique is the fact that in principle such adjustment management is hard to achieve. The argument lies in the significance of temporal relations and unexpected events which occur and need real-time action and decision. To provide a useful vocabulary, the drift perspective calls for us to reconceptualise people as role-playing agents and technologies as affordance-possessing agents, and that their interactions happens in the swamp: the organisational life is constituted in the swamp world where the movements of vision, radical improvisation, and bricolage does matter. The following table summarises how the drift notion can be helpful in rethinking voluntary sector research regarding information technologies (see Table 4-1).

<table>
<thead>
<tr>
<th><strong>Existing View:</strong> IT-based Change as Adjustment Management</th>
<th><strong>Proposed View:</strong> IT-based Change as Drifting Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Axioms</td>
<td>A1: Humans as Role-Playing Agents</td>
</tr>
<tr>
<td>A1. People as Rational Decision-Makers</td>
<td>A2: Non-Humans as Affordance-Possessing Agents</td>
</tr>
<tr>
<td>A2. Technologies as External Entities</td>
<td>A3: Organisational Life as in the Swamp</td>
</tr>
<tr>
<td>A3. Organisations as Containers</td>
<td></td>
</tr>
<tr>
<td>Models/Foundations and Realm</td>
<td></td>
</tr>
<tr>
<td>M1: IT as Professionalising Tool</td>
<td>F1: The Power of Installed Base</td>
</tr>
<tr>
<td>M2: IT as Organising Tool</td>
<td>F2: The Multiplicity of Tactics</td>
</tr>
<tr>
<td>M3: IT as Complementary Tool</td>
<td>F3: The Complexity of Innovation</td>
</tr>
<tr>
<td>M4: Governance Shapes IT</td>
<td>R1: Obligation (People)</td>
</tr>
<tr>
<td>M5: Learning Shape IT</td>
<td>R2: Orientation (Project)</td>
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<tr>
<td></td>
<td>R3: Preferences (Organisation)</td>
</tr>
</tbody>
</table>

Table 4-1: Existing vs. Proposed View on ICT-based Change in VSOs
The argument presented here, specifically, allows us to reflect upon the two particular propositions derived from the existing literature. The existing knowledge suggests that, first, technical assistance can and should be considered as a unique working solution, and second, historically-shaped contextual conditions influence IT development and use. The drift perspective enables us to open the black box of IT projects in any given organisational context, including the voluntary sector’s, and account for temporal, infrastructural, and unfamiliar relations that complicate the process of technology-associated changes. To remember the realms of drift, what this chapter seeks to argue is: First, in regard to the first proposition, as much as technical assistance can be understood as a solution (Te’eni and Young 2003; c.f. Hackler and Saxton 2007), it should also be considered part of the reframed challenge: its involvement can reconfigure existing arrangements and demand for new vocabularies. Such assistance also needs a sustained obligation, which does not seem accomplishable by only considering the individual and project-related factors. With regard to the second idea, the key argument is centred on two notions of embedded values and institutional symbols (c.f. Burt and Taylor 2003; Zorn et al. 2011). This study is in agreement with the role of context in the form of values and symbols in shaping IT, but it wants to add that there are moments and occasions through which such contextual conditions are, not that much historical and longitudinal, in the later stages of a project there may be drift in the theories-in-use of the organisations. These two additions imply that developing a project does not mean developing something in ‘a bracket in time’ (Kreiner 1995) or at the surface. However, projects involve many temporal, local tactics which while they are still part of the context, to be functional have to ignore the neatness and articulation that has been made through the influence of historical organisational factors. Also, projects, over time, can cause breakdowns in the working theories of the organisation which might not be necessarily reflected in the espoused values and missions; this can create a gap between values and preferences of the organisation.

Conclusion

This chapter is developed with respect to a perceived need in dealing with contradictory views on technological projects in voluntary settings. It is also argued that to successfully achieve this aim needs a deeper, situated understanding about the process through which IT-enabled change is navigated and managed in voluntary settings. Hence, relying on the
reconstructed version of the Ciborra’s notion of drifting, a story of an IT-specific innovation development in a small voluntary sports organisation is analysed. The findings suggest that technology projects do not follow the pre-defined plans and there are a number of local improvisations. The roots of such situated changes are diverse, but one of the main ones is constant changes in the practical orientation of the project.
5. Technological Non-Use Can Be Still Activity! Examining Sociotechnical Conditioning in Low-Tech Mundane Settings

Introduction

Sociological work on technological innovation has been successful in putting forward the neglected and invisible issues associated with technological developments and their role in the society. Almost two decades ago, Sally Wyatt and colleagues, in line with the fruitful programme ‘turn to the user’, attempted to inform the cursory ideology in which ubiquitous connectivity was seen as a strategy towards the challenge of the digital divide (Wyatt 2003). At the core of their efforts was to show both academics and policymakers the necessity and value of studying non-users in their own right. Also, from a normative view, they attempted to justify that people have a ‘right’ for a limited engagement with technology.

Since Wyatt’s seminal work, we have witnessed, especially in recent years, the emergence of an interest among other intellectual communities to study non-use and non-users (Cushman and McLean 2008; c.f. Satchell and Dourish 2009). For most technology-oriented scholars, the contemporary problem is no longer the appreciation of people who do not use a particular technological solution. Rather, the well-established terminologies of ‘have nots’, resistance, or rejection seem to be problematic or inadequate when they are applied to make sense of the relations and mutual effects among the producers, users, and non-users of technological artefacts. In this spirit, the sociological endeavours pursued to take into account the technological non-user have since moved beyond their initial empirical problematization towards recent calls for more all-encompassing theoretical accounts that consider the production, use, and non-use of technology as part of a whole (Wyatt 2014a, 2014b).

For seekers of this type of overarching theoretical understanding, the field of Science and Technology Studies has an obvious and powerful attraction because of its critical and unconventional investigations about the complex processes through which technologies are related to our social life. The particular body of STS which has explored the issue of technology non-use encompasses those studies that are driven by the problem of social and technological exclusion. Almost all non-user studies have been carried out, entirely or partially, in relation to the topic of exclusion, but there is the potential to confound the
distinct notions of ‘social’ and ‘digital’ exclusion. To unpack nuanced relationships between the processes of non-use and exclusion, STS-originated social constructivist and semiotic approaches towards technological artefacts and human conduct provide some enlightenment.

In line with such sociological accounts, two specific studies have had widespread impact: Selwyn’s work on non-users and Oudshoorn et al.’s investigation on excluded users (Selwyn 2003; Oudshoorn et al. 2004). Although there are some important differences between these two, their fundamental argument shares similar important insights that seem relevant to understanding non-users of technology. Selwyn’s paper seeks to reposition how we approach the phenomena of non-use, crucially by looking at the site of consumption. He underlines the fact that people’s sociotechnical interactions will be better understood if we regard technologies as textual entities and individuals as the potential ‘readers’ of these technologies. Technology non-use, therefore, is analysed as a situation where a particular technology is ‘not read’ by a particular actor or group.

On the other hand, the work by Oudshoorn and colleagues attempts to convince its audience that excluded-ness and the process of non-user construction is partially centred in the development phase for building technologies. They argue that the phenomenon of non-use is somehow inscribed into the nature of the technological artefacts.

While there is a significant variance between these two, the point of departure to understand non-use is analytically very close to the immediate sociotechnical relations that emerge around ‘the technology’. For Selwyn, the idea of ‘technology as text’ (borrowed from Woolgar (1991)) is adopted to conceptualise non-users as nonreaders. For Oudshoorn et al., a version of the ‘script approach’ (developed by Akrich (1992)) is modified and advanced to posit that forms of use and non-use are scripted into a technology, and as future users are defined by that specific script, non-users will also be built into the technology at the site of production. These vocabularies of built-in non-users or non-readers of technologies seem to be powerful in unpacking the non-use phenomenon. Accordingly, I take them as starting points for my own discussion in this chapter.

My particular argument is motivated by a scepticism of whether such vocabularies can be readily applied in the context of low-tech mundane collaborative work. What this chapter
hopes to show, is that in contexts where an ecology of technologies is constructed to serve a mixture of pragmatic needs and social values, it might be hard to understand the non-use phenomena using current terms (such as non-reading or inscribed non-use).

In addition to this theoretically-related, setting-specific contribution, at a more abstract level, there is also a question about the suitability of such terminologies for the contemporary agenda regarding non-use phenomena. That is, if we mean to conceptualise non-use as a kind of sociotechnical practice (c.f. recent discussion by Wyatt), and since such practices need an ongoing enactment, this chapter argues that the vocabularies of textuality and scripting might be less helpful in capturing the processual and sociohistorical backbones of these practices.

The rest of this chapter is organised as follows: The next section provides a quick historical review to show how and why non-use studies have become important. Then, non-use phenomena are explained at two differing sites of technology consumption and production based on the works of Selwyn and Oudshroon et al. An analysis is offered to show the limited insights of the existing theoretical thrust for understanding non-use phenomena in low-tech sociotechnical settings (in which there is an ecology of mundane technologies rather than a significantly concrete, innovative and transformational technology). Following this, and drawing on the work of Maines and his concept of ‘conditioning’ (Maines 1982), I propose that technology non-use in such settings can be better understood in terms of mediating and conditioning processes through which (sociotechnical) actions are conducted and the relevant orders are enacted. Then, the utility of the proposed framework is illustrated, using an empirical, quasi-ethnographic examination of sociotechnical innovations in the specific context of voluntary-based swimming. The chapter concludes with some reflections on the potential contributions of the argument developed here for debates on the issues of politics and exclusion in sociotechnical affairs.

Non-Use as Emerging Research Programme: Concepts and Challenges

As discussed earlier, the initial analytical concerns regarding non-use of technology had focused on legitimising and justifying the existence and role of non-user actors in the domain of policymaking, education, and technological projects. Such concerns resulted in a number of studies carried out in a variety of settings (and beyond the dominant scope
of the Internet). Nonetheless, most of these attempts are rather conceptually disjointed and scattered.

Reclaiming the value of studying the non-use of technology, and in line with the prevalent theorising around the ‘practice turn’ (c.f. Suchman et al. 1999; Czarniawska 2001; Nicolini 2009) it seems that there is a growing interest in studying non-use and non-users in a more concrete and systematic way. At the core of this recent attention is perhaps that scholars seek to shift the analytical interest from non-users (i.e. actor) or non-used (i.e. artefact) to somewhere in between human actors and technological artefacts. That is, there seems to be an interest in developing a terminology and concepts that enable us to explain the moments of non-use and the context of non-use, which I might call the ‘non-use ecosystem’.

This shift will enable researchers to better understand the dynamics of non-use and to theorise non-use as a kind of sociotechnical action or practice (Wyatt 2014b; Baumer et al. 2015), while earlier studies can be marked as static and normative. Consequently, this fresh research agenda needs to develop theoretical lenses and/or methodological tools which can support non-use researchers, firstly, to sensitise their empirical efforts towards seeing and capturing the relevant types of data and, secondly, to intensify their conceptual work in mapping and articulating the critical relationality of phenomena. In the next section, I will review and compare three major theoretical lenses which can conceivably be used to respond to critical and emerging studies of non-use.

Existing Theoretical Candidates to Conceptualise Non-Use

Originating in the practice realm, the analytical tools which can be used to capture the ‘relationality’ of and in non-use are very well-established in STS, and it seems that they can convincingly satisfy such research interests. In this regard, three STS schools of thought can shed light: ANT (actor-network theory), SCOT (social construction of technology) and the Social Worlds Perspective. I first review ANT and SCOT which have already been adopted by other scholars in exploring and theorising non-use, and then I will discuss their conceptual challenges. Relying on this discussion, and by highlighting the particular characteristics of ‘mundane settings’ such as the amateur sport associations discussed in this thesis, I then suggest that STS readings of Social World perspectives, in
particular, the theory of Negotiated Order might provide better vocabulary and insights to explain the non-use of technology.

Non-Users as Relevant Social Group

Within the classic SCOT-based studies, there are intellectual opportunities to ‘include’ the role of non-users in the long process of shaping a particular technology such as a bicycle. Bijker's explanation is that ‘active’ opponents or ‘excluded’ actors, by generating their own crafted interpretations, challenge and contribute to the nature of the final meaning of the technological artefact (Bijker 1997). In fact, each ‘sociotechnical ensemble’ holds a kind of obduracy associated with its capacity to function in a way that if this obduracy is altered, mostly through micro-politics, an opportunity will be provided for reshaping and adding new elements to the existing ensemble and constructing a new sociotechnical one which might now be used by previous non-users.

While SCOT’s fundamental notion of ‘relevant social groups’ establishes a strong basis for viewing and incorporating non-users such as ‘anti-cyclists’ in the process of technological development, it fails to pay attention to those actors who are not immediately and directly associated with the technology in use, and therefore while affected, they are silent and are possibly ‘suppressed’ in that process. Hence, this ‘relevant-social-group’ notion lacks enough affordances to satisfyingly capture the ‘irrelevant’ social groups and thus members of such specific social collectives remain invisible in the analysis (Winner 1993).

Since SCOT is very much interested in the role of users or even non-users in shaping the meaning surrounding technology use and their agency for technological change (Pinch and Bijker 1984), it methodologically disregards those actors that have little or no connection with the technological artefact, for instance, those ‘secondary’ users of a particular technology whose use of technology is through a proxy. From a political point of view, advocated by Winner (1993), SCOT cannot identify and accommodate the voices that are never heard and similarly the decisions have not yet made since they have been left ‘out’ of the ‘pluralist framework’.
Non-Users as Managed by Scripts and Scripters

Madeleine Akrich, one of the key precursors to the ANT ideology, has raised and discussed the issue of non-users (Akrich 1992) even though her discussion may not yet be fully recognized by the researchers who are interested in the topic of non-use. Akrich’s central argument is that non-users are produced in the process of reshaping or constructing a new sociotechnical network. Such networks are ‘characterized by the circulation of certain types of resources and the exclusion of other actors. The ‘narrative’ patterns and scripts dreamed up by those who conceived the [technological objects can be] quite specific, a function of their position’ (p. 209).

The technical objects along with designers and powerful relevant actors together define with whom they would interact. Inferred from her argument, a technical object (or the whole relevant sociotechnical system) only becomes a ‘workable’ and functioning one through ‘a process of elimination’. Such objects, through their specific material scripts, seem to tolerate only ‘docile users’ and exclude other non-relevant actors whose contribution and participation in the developing network do not align with the core and primary objectives of the technical object and its innovators. However, as she has argued, there are varying degrees of docility for those users who remain in the sociotechnical project process without being ‘eliminated and excluded’.

This notion of script is very powerful and seems apropos in explaining most non-use practices. However, it seems that the ANT conceptualisation of scripts is rather exclusive and restrictive:

In actor network theory scripts are more restrictive, they are semiotic embeddings (reflecting the imagination of the designer) within a material artefact – typically a piece of technology – of a program of action for a user to undertake in interacting with the artefact (Darr and Pinch 2013, p.1612).

This critique has its roots in the looser but more insightful version of scripts developed in the context of organisational sociology (c.f. Barley and Tolbert 1997). The underlying argument is that scripts should be understood as forms of modalities. Reinterpreting this argument, ANT’s scripts are extremely attentive to the object (and the world of its designers) and offer little conceptual space for addressing the extended settings in which non–object-oriented scripts heighten, mediate, challenge, or even reverse those object-bounded material scripts. Take a swimming pool as an example. It reflects and embodies
the imagination of those who have been involved in its construction, varying from legal to financial to practical actors.

According to ANT followers, the scripts of a built pool define who can swim and who cannot. For example, if the depth of a pool slopes to a deeper end, it prescribes the area of diving and constructs swimmers as non-divers at the shallower end. However, if a training session is happening, potential swimmers are asked not to dive at all. This particular temporal rule is not part of the material script of the pool but does shape the use patterns and hence creates a non-diving pool for a period of time. Likewise, it is true for what can be called ‘local cultural scripts’. In Scotland, for example, young boys and girls cannot be together during ‘warm-up’ sessions but can be together during the actual competition. Such ‘do’s and don’ts’ are not part of material scripts but reflect the historical and biographical constitution of rules associated with pool-use.

Transformation of such nonmaterial scripts, or what ANT might call as re-scription, usually follows a different timeframe. Depending on their nature, and the complexity and degree of association with other scripts, human negotiation is required to change or modify such scripts. In the context of Coronary Heart Disease and the construction of ‘truth’ that connects dietary fat and cholesterol to heart diseases, Garrey has argued that ANT offers a limited analytical toolbox to understand the shaping and working of such ‘scientific knowledge’ since its development and formation happens during longer periods of debate and negotiation (Garrey 1997).

Garrey particularly brings into question ANT’s fundamental insufficiency in considering, capturing, and explaining the difference among actors manifested through social and political orders. Then, if the research agenda (or interest) is to encourage silenced voices to speak, he invites social scientists to work their ideas out using symbolic interactionism, in particular the Social Worlds perspective.

Unlike actor-network theory, it [the symbolic interactionist perspective] does not rule out considerations of social structural factors. Moreover, social worlds theory is particularly suited to the investigation of the ways in which people create, maintain and use social structures as part of their efforts to impose meanings on one another. . . . Actor-network theory ignores the differences among actors, in favour of concentrating on whether or not they

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51 There are attempts by ANT supporters to respond and resolve this issue of ‘macro-actor’, e.g. (Helgesson and Kjellberg 2005) and (Tryggestad 2005).
are part of the network. Social worlds theory, on the other hand, invites analysis of the differences among actors . . . The resources and possible actions open to different actors constitute the structural conditions which shape the outcomes of the power struggles which characterize controversies. (Garrety 1997, p.756)

To reinterpret the underlying argument presented above, it could said that in the process of constructing nonmaterial scripts we demand to grant more agency on humans while the role of the non-human in a sociological explanation is still considerably regarded. Hence, the difference among actors, largely shaped by the specific distribution of resources, becomes an important part of the analysis. In particular, this theoretical (and methodological) interpretation suits the context in which the moral and conceptual framework plays a role. In other words, if the setting to be observed is not technologically dense, there is limited space to exercise power through material inscription. Hence, as will be discussed later, I respond to symbolic interactionism by paying attention to meaning creation and negotiation and the fact that these human activities are to be understood in relation to longer time periods and imbalanced resource distribution.

Sociotechnical Conditioning: A Social Worlds Perspective

Till now, I have discussed how two noted STS-originated concepts can be used to help us to study the issue of non-use and boost the theoretical basis required for explaining the dynamics of this issue: that is, SCOT’s relevant social group and ANT’s material scripts (see Table 5-1).

<table>
<thead>
<tr>
<th>Relevance</th>
<th>Critique</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCOT</td>
<td>Non-Users also as RSG (Relevant Social Group).</td>
</tr>
<tr>
<td>ANT</td>
<td>Scripts Define Non-Users</td>
</tr>
</tbody>
</table>

Table 5-1: Existing Conceptual Lens to Understand Non-Users

While attractive, it seems both notions are analytically very close to the technical object, and the point of departure for them is the ‘object world’. In effect, if the setting of the study is technologically sparse, or the starting point is the set of actions and practices that are highly associated with technology use, rather than with the production-related actor or the artefact, these two notions may not be fully useful in providing an appropriate account for the dynamics of technology non-use. If an ecology of technological objects is
shaped over time, we need to investigate the historical happenings through which specific forms of sociotechnical actions are generated.

So, how might we better understand non-use in relation to its wider cultural, moral, and legal contexts, especially if the significance of the technological object itself in accomplishing the targeted task is not primary, or modification of the technical features of the object is practically or economically impossible? Recalling sociotechnical studies conducted by Star (1990) and Garrety (1997), it seems that the Social Worlds Perspective (SWP) can offer a concrete basis here.

Rooted in the work of John Dewey and George Herbert Mead (e.g. Mead 1917; John Dewey 1934), a group of scholars trained in the Chicago School of Sociology and under the tradition of Symbolic Interactionism, developed Social Worlds Theory to understand the formation of collective action such as it occurs in art, medicine, and any other social phenomenon. For Strauss and Becker (e.g. Strauss 1978a; Becker 1982), two of its leading advocates, social worlds are ‘groups with shared commitments to certain activities, sharing resources of many kinds to achieve their goals and building shared ideologies about how to go about their business’ (Clarke and Star 2008, p.115). Since its conception in Chicago, the term has been used ‘sporadically, sometime descriptively . . . rarely conceptually’ (Strauss 1978a, p.119), and perhaps this lack of theoretic robustness encouraged Strauss and his fellows to advance that term in a way that can be better applied and developed in various contexts of sociological inquiry. In doing so, the notion of ‘negotiation’ seemed to have enough capacity to act, pivotally, to communicate the very argument of the social worlds perspective (Strauss et al. 1963; Strauss 1993).

**From Negotiating to Ordering**

Concentrating on negotiating practices and their ordering effects, social scientists would then be able to examine patterned negotiations among social actors to understand, follow, document, and map changes in ‘the social’ without falling into a ‘structural-functionalist’ view on agency and structure (Maines 1982). By encouraging the researcher to see the individual actors who are associated with others (and other non-human actors) and considering the fact that all work settings and organisational contingencies make sense to varying degrees for each actor, the process of ‘negotiation’ seem to have the potential to account for all relevant organisational elements (Maines and Charlton 1985).
One of the ongoing questions for sociological studies is to understand the very relationship between change and order and the overall process involved in this relationship. Within the broader idea of social worlds there are vocabularies that attempt to respond to this sociological inquiry. In the domain of collective action, like the case observed in this chapter, this order is a sort of ‘structural arrangement’ that produces similarity in the collective action, and the change is a kind of ‘organisational looseness’ that allows individuality and dynamism (Maines and Charlton 1985).

The analytical concentration on negotiation provides us with an opportunity to resolve the paradoxical relations between change and order in the domain of sociotechnical interactions in any given collective social setting: a society, a city, an organisation, or even a local neighbourhood community. However, this is not to claim that all aspects of a given social order are entirely open for negotiation at any given time, but instead it argues that stability of any kind itself is product of and constructed through past negotiations. This highlights the fact that any aspect of social structure can affect the individual action only at distance and through the mediating role of proximate negotiation context. According to (Maines and Charlton 1985, p.302):

The most fundamental analytic thrust of the negotiation order perspective is its continual probing of the relation of negotiation processes to social orders. It is designed and is best utilized as a way of thinking systematically about social orders . . . rather than the dynamics internal to some particular episode of negotiation.

As is highlighted above, the negotiation here refers to those arenas in which the processes of negotiation relate to its order-making effects. Such a holistic and recursive view on negotiation generates a ‘meso-structural conceptual framework’. This framework provides social scientists with a new ontological (and epistemological) realm in which they can see how social actions and larger structural arrangements are inclusively interlocked together, and concrete meanings are generated for social orders (Maines 1982; Maines and Charlton 1985)52.

Beyond these ‘generic benefits’ of such negotiation-oriented social ordering idea that helps a systematic social worlds analysis, there are also other particular research-specific

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52 According to Main (1982), such meso-level conceptual framework allows us to see that within such meso-structural realm, ‘macro’ structural arrangements are actually enacted and during the processes of continual enactment, they would become adjusted into meaningful patterns of ‘micro’ interaction.
drivers that prompt me to adopt this theory as a point of departure: Firstly, in terms of STS contributions inspired by the social worlds perspective, most of these works are attributable to Strauss and his line of inquiry (Demerath 2005). Secondly, as the broader context of my research is the voluntary organisation, highlighting the importance of negotiating practices and content is a better operationalisation of social worlds exploration because the ‘organisational’ level of human interaction and negotiation is underlined and articulated (Fine 1984; Copp 2005). Thirdly, this particular idea is helpful in accommodating different kinds of individual actors and in stimulating the study to identify and analytically connect ‘proximate’ aspects of a study setting to associated interactions and outcomes (Dokko et al. 2012), and this third dimension responds to multiple-setting nature of my research design.

**Conditioning: Changes in Lines of Sociotechnical Activity**

One key to unlocking the nature and working of this meso-structural domain is the notion of ‘condition’ (Hall and Spencer-Hall 1982; Maines 1982). In the context of the social worlds perspective, the notion of condition should not be understood as the ‘fixity of structure’ (Maines 1982, p.257); rather conditions are generative and their processual natures are essential in maintaining the line of activity (Maines 1982). In communicating the core objective of this chapter, which is to explore the shaping of technology non-use as form of sociotechnical practice, the next section will provide more details regarding the particular notion of conditions and its analytic capacity to explain such sociotechnical shaping. I will briefly review how the SWP-related notion of conditions is useful in operationalising the key essence of the social worlds perspective while studying technology non-use in mundane sociotechnical settings like a swimming association.

Following the line of reasoning mentioned above in relation to the importance of the ‘in-between’ placement of the negotiation context, the ‘meso-level’ domains are thus the spaces in which a researcher can understand how institutional arrangements of social orders are created, but such arrangements must only be theorised in relation to the ways by which they are enacted, i.e. through social interaction processes. The dialectic character of these negotiated social orders pushes social researchers to rediscover the unity of subject-object, human, and social phenomena. This particular realm of symbolic interactionism ‘creates the material conditions of social existence’ (Maines 1982, p.275). That is, the conditions that are dialectically produced when interactions ‘meet’ particular
structural arrangements themselves enact those arrangements, on the one hand, and on
the other hand, ready the stage for future actions.

Given this reading of the notion of condition, the meso-domain analysis thus underscores
that while the seemingly-fixed structures are enacted through processes of interaction,
such interactions themselves become ‘conditional’ in those processes. The negotiated
order theory encourages students of organising to study the nature of organisation as
resting within such ‘adjustive processes’ carried out through conditional processes rather
than through more formal and visible structures (Maines 1977). This notion of condition
is also useful to understand why not every set of negotiations will result in significant
outcomes, i.e. changes in the relevant structural context c.f. (Hall and Spencer-Hall 1982).
The key is to not conflate concepts of outcome and consequence as the same. To avoid
the confusion between consequences and outcomes of a particular set of negotiations,
(Maines and Charlton 1985) suggests that consequence would be better understood in
terms of conditions:

That is, when it is empirically demonstrated that the outcome of a given set
of negotiations resulted in no change, it is then concluded that there were no
consequences. If, however, consequences are regarded as conditions, then it
becomes easier to envision those consequences (i.e., no change) as perhaps
creating the conditions for future negotiations (p. 300).

In this conceptualisation, social structures created by humans are temporal orders, and
their relevance could be brief or lasting. Longer relevance is shaped if a wider range of
settings are involved in the enactment of social structure and hence it means that some
specific structures play a role as more or less durable aspects of negotiated orders. This
notion of ‘temporally defined relevance’ also suggests that some structures will disappear
if there is no situational use value, but they will be acted on as a ‘condition of action’. This
perspective places the central attention on the line of activity and that line, processually,
renders structures that shape the conditions for keeping or altering the action (Maines
1982).

Sociotechnical Condition in Non-Use Practice

Negotiated sociotechnical orders, or meso-structures, are the realm in which we can relate
the interactional activities to structural orders to understand change and stability in a
specific social order. The overall interest of this research is to find out how technology
non-use is shaped as a kind of practice. Moving the point of departure from the scope of ‘object’ closer to the world of ‘actor’, negotiated order theory allows us to highlight the social and material conditions by which a particular type of action, say non-use of technology, comes into being. The question should be now on moments through which a stage becomes ready for performing non-use; how power is exercised and under which circumstances. The STW-originated view on social ordering helps me to understand how the consequences of negotiation and sociotechnical interactions can be seen as a sort of condition, and furthermore, how the accumulation of such conditions might generate a visible change-like outcome; that is, in turning a non-use to use, or other way round.

Meetings are especially critical moments in which conditions are negotiated and reframed. Such intentionally planned occasions, or ‘staged intersections’ in (Garrety 1998)’s term, are ‘one-shot or short-term’ (Clarke and Star 2008) events and occasions where people from multiple social worlds are purposefully brought together. While the particular configuration of relevant actors in such events is unlikely to be exactly repeatable in the same way, even with the same participants, exertion of power in such one-time-only intersections are significant, and hence these events can be substantially consequential for future collective, communicative matters; they also influence and shape ‘actions in distant social situations’ (p. 403).

From a political point of view, such staged and planned intersections are critical to understanding the dynamics of a given arena and the relationships among diverse social worlds. However, there are other one-time-only events which I call ‘accidental intersections’ that signify the importance of associating with and dissociating from social worlds beyond formal, visible organisational mechanisms such as recruitment. As Strauss reminds us, there is a process of ‘socialisation’ (Strauss 1978a). According to him, the entrance to a social world is not de novo involving an ‘orbiting process’ where multiple memberships is likely.

To summarise, the notion of ‘condition’ is adopted here because of the following issues:

- It responds to the meso-structural interests in analysing any given social order where ‘recursivity’ between social actions and their distant social structures happens.

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53 See this section as it shares the notion of marginality and multiple membership similar to Star, and non-use is a practice in which people can keep or modify their memberships and hence choose some sort of exclusion.
- It rejects a static and mechanical formation of contextual and structural variables and highlights their crucial processual nature.
- It is a kind of social space (and ontology) into which the immediate consequences of every social and material interaction, major or minor, are transformed.
- Changes in existing socio-material orders are triggered and developed by cumulative and relative consequences held and reposted in the space of conditions.
- Beyond everyday social activities, there are some one-time-only events and occasions in which ‘conditions’ can facilitate the existing geographies of social worlds and sub worlds: staged intersections and accidental intersections. The outsiders–insiders boundaries are usually redefined and affected as a result of these events (i.e. realised vs. fundamental conditions).
- Staged intersections are the one-time events planned to bring together actors from different social worlds. It is a realm of political struggles and power is exercised based on the distribution of resources (e.g. money and time, skill) across all intersecting social worlds.
- Accidental intersections are one-time events in which actors come to know about ‘other’ possible memberships and the (dis-)advantages of joining new social worlds. Such intersections provide human actors the opportunity to reflect back on themselves (reflexive-ness) and this affects their entering, staying, or leaving a set of social worlds.

A Quick Note on the Method

It is useful to emphasise that the significance of a moment of development and use is due to its being a relational entity in which the technology itself is a critical factor. For instance, whereas information technologies can be more easily designed as modular and flexible, the ‘more rigid’ pharmaceutical technologies say, because of extensive regulation requirements, leave very limited choices for the end-user if they wish to re-inscribe their use (c.f. Kate Weiner 2016).

Even within the worlds of information technologies, the moments of developing and using a simple website vary when the core platform is based on a Content Management System or a Dashboard-like online website builder.

Nonhuman actors and actants structurally condition the interactions within the situation through their specific properties and requirements—the demands they place on humans who want to or are forced to deal with them. Their obduracies must be routinely taken into account by other actors (Clarke 2003, p.561)

Clarke here pushes the researcher to use a kind of theoretical sampling to find out which non-humans (objects or even an ideology) really matter in in the observed situation.
Non-Use Stories in a Voluntary-based Swimming System

Community-based sport organisations, in most Western (and European) countries, represent an ideologically supported, practically-affordable model of voluntary-based development and management of amateur sport systems that in turn feed elite sport programmes. Using selected stories from the Scotland-based swimming context, in this section, I provide empirical materials in which ‘conditions’ of non-use and use can be analysed and then show how they support the conceptualisation of technology non-use as form of sociotechnical practice in a mundane setting. To better understand how volunteer work in this specific context is accomplished, a brief and strategically-crafted (strategic in relation to the chapter-specific object of study, i.e. non-use) picture of volunteering activities, volunteer work, and their organisation is provided in the appendix 4.

In what follows, through a couple of specific cases, which are elaborated with illustrative data when relevant, the mechanisms and configurability of ‘sociotechnical conditions’ for use and non-use are described and mapped out. Following that, in the next section, a further conceptualisation of the narrated stories will be offered in order to put these non-use stories within the theoretical argument of technology non-use and exclusion in the particular context of mundane organisations like volunteering and then outline theoretically-relevant lessons for other work settings.

The Formation of Technology in Voluntary-based Swimming

Running a swimming club involves a variety of activities associated with the core performance itself (i.e. swimming) and administrative aspects (i.e. the organisation itself). While in exceptional cases volunteers can do work in the performance domain, normally (paid or semi-paid) coaches deal with performance and parents or other volunteers handle the administrative needs. Any club or team could be fully operated by parents or its tasks can be divided between them and ‘owners’. In addition, there is a class of clubs, such as some University-associated clubs, that are mainly managed by their swimmers (i.e. students). Conventionally, some people sit at the interface between performance and administration to facilitate the flow of information and consistency in the work.

Similar to other ‘work settings’, many technological projects have been initiated and developed to serve the informational and coordinative needs of this particular market.
While most of these technological solutions are small-scale, developed by ex-swimmers or other interested tech-savvy people, there are also some commercialised software packages available in the marketplace. While the practices of performance in swimming have traditionally been varied in each regional territory, the increasingly competition-oriented programmes and the need for cross-regional collaborations have also provided enough complexity to warrant the use of generic computer solutions. As a major player in the market, Hy-Tek Ltd, an American company with worldwide reach has dominated the market and provides solutions for various aspects of, and different kinds of pool-related sport activities. Nonetheless, the adoption and implementation of Hy-Tek in well-established contexts such as the UK which has its own long-running ‘swimming approach’ is more complicated. This point is reflected in a response to my email from the Hy-Tek core developer.

Our software product to manage and run swim meets and track meets has been on the market for over twenty years. We have a market share of 90+ % in North America, Australia, and New Zealand. In the UK, we have less presence because of legacy software that was started a long time ago there. (eMail by Charlie Hodgson, 31/02/2013)

How do British clubs manage their performance and administrative needs? Is there any significant difference across the country? If there is any, how has this shaped and how might this affect the functioning of technological tools in this context? Answers to these questions provide a socio-historical step towards understanding localised, small-scale sociotechnical actions and potential non-usage.

**Adopting Non-Local Software Packages: American Hy-Tek in Scotland**

England largely relies on its own volunteer-owned and developed computer system, called SportSystems. In the UK, while the ‘performance’ practices and rules are similar across the whole country, both Scotland and Wales currently use Hy-Tek for their meet-related needs, and their meets are standardised around the American Hy-Tek. How has such regional variation been generated? How does this affect the work practices in Scottish clubs? A long-time member of the Scottish swimming community explains as follows:

The only reason Scotland uses Hy-Tek almost exclusively is that SportSystems was truly, truly awful and outdated in the early ‘90s. At that time, whilst Hy-Tek was Access based and compatible with all of our

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54 For the full story, see the next chapter.
Windows operating systems, SportSystems meet management system was DOS based and painful. Scotland, driven by the volunteers of course, made the move over purely as the result of that and clubs were supported by Scottish Swimming to buy Hy-Tek Meet Management systems. Scottish Swimming paid half the cost of a club’s Team Manager and Districts paid the rest. The changeover was driven really by the desire to have clubs and teams manage themselves better but once you have Hy-Tek Team Manager, entering meets run on Hy-Tek Meet Manager is so easy it is a no brainer and everyone uses it. Besides, what we had been using was so awful that we were all delighted. The guys at SportSystems have done a great job putting their product back on track without a doubt but Hy-Tek is so easy to use that when you have the product you don’t need to be dependent on anyone else and Scottish people like that, especially if the people you are dependent on are English.\(^{55}\)

While this quote suggests that the key driver for the nation-wide adoption of the Hy-Tek system was to support and enhance internal processes of Scottish clubs, my further fieldwork and interviews revealed the other side of the story: The initial idea for a Scotland-wide national adoption and implementation of Hy-Tek was largely shaped by the fact that in Scottish swimming, a few of the core volunteer actors sought a simplified, local, manageable, and independent computerised competition system. That is, Hy-Tek could help them to organise what was felt as a pressing mess and burden in their existing meet management processes. Having a Hy-Tek-based standardised platform could release a large amount of administrative time that volunteers were expending to organise the expanding local meets. By that time, the meet-related data, electronically or physically, needed to be sorted and sometimes converted to become ready for a particular meet. Apart from these practical concerns, as was also pointed in the above quote, this sociotechnical move was stimulated and made possible by the benefits of marginality or ‘multiple (nation-wide) personality’.\(^{56}\) Scotland has held two versions of nationality, and this particular technology-driven infrastructural shift provided them with a practical and socially advantageous solution, with the freedom to re-engineer the whole process and maintain a Scotland-specific records database alongside the British system.

Over time, Hy-Tek has been adopted by larger numbers of local clubs and consequently the flow of data and meet management became more centralised, and standardised, with

\(^{55}\) [http://www.swimmingforum.co.uk/sport-systems-v-hy-tek-t2611.html at 05/05/15](http://www.swimmingforum.co.uk/sport-systems-v-hy-tek-t2611.html at 05/05/15)

\(^{56}\) See (Star 1990)
the ability to back up the data, all tangible benefits for SASA. The following figure illustrates the ‘high-level data flow’ shaped around Hy-Tek (see Figure 5-1).

![High-Level Data Flow in Swimming Meet Management](image)

**Figure 5-1: High-Level Data Flow in Swimming Meet Management**

The Scottish Hy-Tek project has progressively pushed local clubs and their districts to cease using any other forms of swimming software packages such as SportSystems or any form of homemade, mostly Excel-based, computerised solutions. This change-over process has been reinforced, initially, through financial support from the association and, ultimately, by the introduction of the Hy-Tek Team Manager Lite version. This free, downloadable version functioned, first, as a ‘demo environment’ for prospective Hy-Tek customers to evaluate and experience, and secondly, as a ‘free product’, facilitating clubs with their entries and offers to host a meet. The latter functionalities, however, have led to and expanding the use of Hy-Tek for more even local and smaller meets with the result that it has become a necessary part of the process. Henceforward, the line below has been added in many Meet Information/Programme Sheets:

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Over time, in Scotland, Hy-Tek has become the Standard Software System to use for eligibility in participating meets. The following figure, for instance, shows how this shift has also appeared in SASA documents (Figure 5-2). In the 2006 policy document, the ‘where Hy-Tek is in use’ suggests the fact that the system is expanding whereas the 2012 document has a more determinative and confident tone in regard to Hy-Tek.

Some smaller clubs might minimally use Hy-Tek just for their ‘meet entries’ purposes, however, there are some larger clubs which have sought to move forward and deeply incorporate Hy-Tek Team Manager in their internal operations. In the next section, I will explore the adoption and working of Team Manager in a very successful Scottish club, Water125, which has used the package for more than fifteen years.

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58 Taken from 2015 Scottish National Open Swimming Championships Meet Information
Water125, a nonprofit, membership-based, volunteer-supported swimming club has around 20 staff members and volunteers, over 300 swimmers, and nearly 650 members in total. The club is managed through three main operational areas of coaching, training, and competition which are all supported by a number of other administrative sections such as membership management, fundraising, and treasury. At the core of club organisational mechanism, a mixture of paid and volunteer staff, i.e. the Management Committee, work together to deliver the required service and support for the entire club; the roles of the committee members are the training supervisor, the coaching manager, treasurer, the communication manager, secretary, and so forth.

As for training and coaching, the club has designed various hierarchically-ordered squads in terms of the swimmer’s age and their competency. Each individual squad has a paid, part-time coach. While s/he is theoretically responsible for every performance and administrative tasks, his/her work is largely supported by volunteers from among the parents or around the club who carry out the administrative jobs such as disseminating information, finding shared suitable times, renewing memberships, and collecting money.

In short, beyond the work of the ‘Management Committee’ and the professional ‘Coaching Team’, the club’s everyday operations are widely supported by various volunteering-resources, mostly swimmers’ parents. Volunteers may accept some occasional jobs such as timekeeping or marshalling swimmers, or they can get involved in more formal positions like pool-hiring and fund-raising activities. Those volunteers who are in more long-term jobs usually have some kind of direct and constant communication with the Committee and other paid staff members.

In terms of organisational IT infrastructure, the club currently owns and relies on a website, two PCs, two laptops, a number of electronic spreadsheets that flow through emails, the SAGE accounting software package, and Hy-Tek as their core business software. As Water125 is a relatively large club that runs internal competitions as well as hosts District-level meets, it also bought the ‘Meet Manager’ application which is separate but interrelated with Team Manager. The club also has the ‘Business Manager’ component.
application but since it is not in use, it has never been updated (and so the club has saved money!). According to the company website\(^5^9\), Hy-Tek Team Manager:

> is designed to **completely automate** the administration and performance tracking for teams at all levels of competition. Organize your team with less stress and more resources at the tips of your fins. (Accessed 07/05/2015; emphasis added).

However, not surprisingly, Team Manager has not been that successful in delivering its ‘complete automation’ in many clubs including Water125. Hy-Tek, as shown in the following figure, offers a functionality for each individual coach to log in to the system and make the relevant changes needed for their own specific squad. For instance, when there is an upcoming meet, coaches must determine the eligibility (and suitability) of each swimmer to participate in the advertised sessions and events, a repetitive and exhausting task. Hence, coaches need to first produce their own specific list based on a swimmer’s capability and progress and then log in to the club’s Team Manager software and allocate their own squad’s available swimmers for the upcoming competition event. The club has provided coaches with a copy of Hy-Tek and they have created certain usernames and passwords that are shared and reused by different coaches. For all but about 10 squads there are only four accounts since the package subscription fee is determined based on total number of accounts.

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While, ‘on paper’, Hy-Tek applications, in particular Team Manager, are supposed to eliminate the rekeying of data entries and develop a single, centralised, club-level platform. ‘In reality’, there are various informal systems and workarounds, which change time to time, to deal with the ‘generic’ and Water125-specific inadequacies of Hy-Tek software. One particular challenge associated with the existing design of Hy-Tek that creates some usability difficulties is the fact that the system will withhold access to other users (e.g. coaches) when one particular user is working on the data. This technical issue is further elaborated when key people in the club have been asked for a comment:

When it comes to allocating each squad’s swimmers to appropriate sessions for the upcoming events, Water125’s coaches (or their volunteer assistants) claim that as Hy-Tek doesn’t let them to get logged-in anytime they are free, they cannot wait and randomly try when the system becomes free; when Hy-Tek is being used by another person, it works for the other users just in read-only mode and it practically means nobody is able to do change anything until that person first complete his or her job (Interview with Hamish and Flora on 21 Feb 2012).

Since Water125 is relatively large, this seems a significant constraint in reassigning and distributing the work among and between staff members. This ‘technological’ difficulty, however, seems to be dealt with through an informal collaboration between Flora and her husband, Hamish. Flora is life-long member who serves as Swimming Convenor on the Management Committee (Interview by Nelson on 19 Sep 2011). While she is paid by the club, her contribution and involvement is far beyond her role description. ‘She is everything in Water125’ (Interview with the STO Convenor on 2 May 2013). Hamish, Flora’s husband and her life-long fellow swimmer coaches a squad as a volunteer, and also helps Flora in her Water125-related tasks, in particular those that need to be done using Hy-Tek. They have reshaped one of their house’s rooms to utilise as a kind of home office (see Figure 5-4).

![Flora and Hamish are Sorting-out and Entering Information on Hy-Tek](image)
A PC with large monitor has been set up (left) for Flora, and an additional table is provided for Hamish’s laptop. A ‘very good’ broadband connection was also bought. The home-office is full of Water125-related paperworks like printed sheets and reports.

The coaches send swimmers’ information and their eligibility to Flora, and then she puts them together, conducts double-checks, and produces a final, sometimes paper-based, sometimes Excel-based sheet. When these sheets are ready, Hamish will sit close to Flora and will enter ‘final’ data on behalf of coaches into Hy-Tek (see Figure 6).

Some people in the club believe the main reason for this informal, ‘highly painful’ system comes from the dysfunctionality of Hy-Tek software that prevents simultaneous multiple logins. Hence, they think the club needs to buy and move to a new platform such as TeamUnify. This package software, while new to the market, offers a range of cloud-based functionalities including simultaneous logins and seems to be more supportive and promising for team-oriented and collaborative work. However, some others say that the main problems are in fact protracted and incorrect working practices and ‘the current system is fine until the club plans to increase the number of swimmers and expand its business’ (Nelson’s Interview with the Treasure on 5 Sep 2011). There are some voices that suggest the Flora-and-Hamish passion and their free time provides other users the additional justification to not use Hy-TeK (Interview on 23 Oct 2013). In addition, the

Figure 5-5: The Actual Use of Hy-Tek
shaping of this manual system has substantially increased and nurtured the centrality of Flora and her core role across the club’s settings.

In summary, Hy-Tek is not used very much, and many tasks, which in theory could be done by the system, are carried out manually and through other informal systems. Despite challenges associated with Hy-Tek inadequacies, it does not seem that the club will abandon Hy-Tek and switch to another platform. This is also reflected in an evaluative report generated by a group of technical volunteers to look at the club’s existing IT systems for possible further improvements:

The more radical option is to select, procure and install a new software system (in particular the one developed by TeamUnify, which has met with favourable responses). There appears to be appetite within [Water125] to radically overhaul the IT systems and administrative tasks. Moreover, a new highly efficient and ambitious system sits well with the ethos and direction of the club, which is itself ambitious and looking to be at the forefront of all swimming developments.

In terms of some of the negative features surrounding TeamUnify.... If the more radical option (option 3) is undertaken, this could entail quite radical restructuring in terms of current work practices (it would also require a significant retraining of staff). This is not an insignificant task. Whilst the current situation is highly labour intensive, it currently works. Over time people have built up practices to maintain the functioning of the existing systems. (Water125 IT Option; an Internal Document).

In fact, in an organisational setting such as Water125, the high turnover of volunteers and the nature and distribution of the task leave limited options for changing an established existing organisational path. This ‘hard-to-change-ness’ also gains further justification through restricted budgets and lack of possibility for any long-term training plans. Flora and Hy-Tek share a similar organisational feature: they create a working environment in which the minimum viable functionality is adequately secured and straightforwardly maintained. So, does this suggest that any change in established path-dependency is impossible or extremely difficult? In the next section, I will report the story in which an existing organisational practice is reshaped.
Swimming clubs, as specific forms of small ‘organisations’, are highly encouraged to exploit the opportunities embedded in the new forms of Internet-based technologies that work on the notion of Web 2.0. These technologies have particular relevance for third sector (smaller) organisations as these technologies are, financially, more cost-effective and, organisationally, easier to use. These benefits have been made possible since much of the technical work has been black-boxed and shifted to the ‘developer side’. In Water125, supported by the general interest in refreshing IT platforms and work practices, people have started looking at the Web 2.0-based improvement potentialities. In this section, I retell a story that shows the challenges and dynamics of personal experimentation with Web 2.0-oriented solutions for performing volunteering tasks. This is about a successful, but long-term, transformation in the way that a Senior Technical Official handles the work of collecting time-availability information and finalising the officials list.

As contemporary swimming is highly competition-oriented, clubs and districts run large numbers of swimming meets on a regular basis. Running a meet requires a large number of officials and timekeepers, predominantly conducted by parent volunteers. To facilitate and coordinate the supply of officials, many clubs appoint one of their officials as a ‘Senior Technical Official’ (STO or Officials Coordinator at English Clubs) whose job is to keep the official database updated and make sure for each internal or external meet the club supplies enough timekeepers and technical officials. Julia, who owns and manages a recruitment company, has been recently asked by the Water125 committee to volunteer as an STO. She is taking the role from Hal, the previous STO. While Hal had been doing the job for a relatively long time, he is now taking a break since his son cannot swim for a while; such ‘sudden and unexpected departures’ are typical for most voluntary kinds of work in which the parent’s involvement is highly dependent on a child’s participation and situation. When I contacted Hal asking for a chat regarding his personal experiences and thoughts about IT in Water125, he replied as follows:

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60 See (Garud et al. 2010) for his discussion on the notion of condition.
61 The other story draws a picture of a failed, internal attempt to use Dropbox to ease the complicated work of hiring and arranging pools. The final story describes how a squad administrator managed to use Google Doc powered forms to reduce the number of emails exchanges in collecting children’s time availability for competitions.
I'm afraid my role coordinating the timekeepers and judges for [Water125] has not involved any IT to speak of, except for emails requesting help from people. I do not deal with the timekeeping equipment at all and until [Mr. Y] got involved with the club's website recently it was pretty basic and out of date and I had no involvement in it.

I am also taking a break from involvement from the club because my son has had a major back operation and won't be swimming for a while. Because of this I am trying not to think about swimming as it is a bit depressing. Hopefully [Mr. Y] has given you the names of some other people at the club who may have utilised IT more in their roles (eMail, 27th April 2013).

This short extract verbalises the typical story of email-based work patterns in which, one pivotal person, depending on the particular responsibility, uses email for both communication and information processing purposes. My further investigation, however, revealed that the main technology Hal had been using was his ‘mobile phone’. Julia describes the situation in detail:

The person I took over is a delightful gentleman but he is VERY relaxed . . . very enthusiastic . . . can go into consensus . . . delightful person. He has three children and they all have been swimmers and he know everyone. He could pick up the telephone and he could have a chat because of the time issue and also because he have been in contact with parents for years. . . . NOTHING written down at all. ALL IS HIS MOBILEPHONE. So no spreadsheets, so anything like no contact list. He had nothing like that (Interview on 22 Apr 2013).

Hal’s telephone-based work processes are mainly supported by his extensive involvement in the club as well as his available time; his mobile-phone had been at the core of his STO work and its organisation. Also, on demand, he could use others’ spreadsheets and organised files for his own personal duties. For example, the club’s membership convenor had sent him the list of already registered swimmers which also included an extra attachment with the name of parents and their contact information.

When Julia took over the role, on one hand, she had been left with a highly manual STO system. On the other hand, this allowed her to think about new and perhaps more IT-enabled solutions. At that time, there was a major interest in the club, initiated by one of its life members, to reengineer work processes at Water125 (described in the previous chapter) and to find more modern, automated, technologically supported systems. This coincidence provided Julia with the chance to be introduced to the meeting co-ordination site Doodle and to potentially incorporate this platform in the redesigned club website. Hence, the email-and-phone-based system was immediately replaced with a Doodle-based
new system. The responses from the end-users (parents) were positive and this enhanced the image of Julia in the Committee and the whole club. She herself describes the process of change-over as follows:

The Doodle was promoted via the Club Administrators and response was immediate. Most volunteers have linked directly to the poll however a few have e-mailed me directly with changes which I then amended on the poll. I have found that by using the poll it has provided numbers well in advance however an insufficient number of Judges committed initially. I addressed this by sending one e-mail to all Judges requesting their support and received a response very quickly. This may have been as a result of the visibility of other volunteers and peer pressure. So far, for this type of in-house event the Doodle has saved me time, encouraged volunteers to volunteer when they see the names of their colleagues and provided a way of targeting the type of volunteer needed (19th September 2013).

While the adoption of the new system by parents was relatively quick and ‘hassle-free’, there were some issues which needed more work and training. Parents whose use of the new system was the first experience using Doodle expressed different views and issues. One parent, for instance, could not access Doodle from work since there were some restrictions that her company had for accessing such platforms. Another did not support the idea of integrating Doodle links to the website since she could not reach the link because the website was not mobile-friendly yet and this forced her to remember to go home and use her laptop.

Most of them found the email-and-Doodle combination a better choice than the website-and-Doodle one since this allowed them to bypass website-related problems, and it provided them with a kind of ‘email as reminder’. However, they expressed that replacing ‘so many’ emails with a single email from STO was the main benefit of Doodle; however, having this single email in the Inbox was useful. One mother told me that her time-saving, powered by the new system, had made her determined to push her daughter’s squad admin to start using Doodle rather than email.

Since Hal’s withdrawal was temporary, and Julia was covering his role until he could make up his mind regarding his future involvement in the STO job, Julia had a very limited time to experiment and develop the Doodle-based system. She managed to run, develop, and modify the new system for a couple of times before the club heard from Hal about his interest to come back. At the briefing session called ‘Officials Briefing Session’, the STO or Officials Co-ordinator and all officials (parent volunteers) come together to learn and
review the generic and specific points required for each individual competition. I attended the one in which Julia was arranging details, but was supposed to hand the role back over to Hal. While Hal’s extremely limited use of the ‘technological’ system was a challenge for Julia at the beginning, this story is a typical one in such organisations.

Discussion: The Sociotechnical Conditioning of Non-Use

Up till now, it has been shown that to better understand and explain non-use, we need to shift the analytical focus on practices which itself means developing a relational view. Inspired by the discussion advocated by Pinch (2010a), I seek to make connect some common, particular characteristics of the mundane sociotechnical networks (e.g. a community-based sport system) to conditions contributing and facilitating technological non-use. This would be useful in constructing a kind of sensitising factors to explore similar relevant conditions. For instance, in many community-based contexts, such as the observed case here, there is a great interest in socialising and having ‘just conversations’ (where there is no particular work-related objective associated).

Such conversation is a kind of social norm. When it comes to the adoption and use of technology, both the manner and level of technological mediation is affected by similar values and norms; that is, technological practices should respond to more than organisational issues in these value-intensive contexts (c.f. Seshadri and Carstenson 2007; Shafrir and Yuan 2012). In this regard, three types of conditions are extracted from the empirical stories by drawing on the framework adopted in this chapter (i.e. sociotechnical conditioning). These three thematic conditions are as follows: the ecological, the conceptual, and the technological.

As mentioned earlier, such analytical distinctive extraction does not submit exactly the same, corresponding ontological ones. In fact, by looking at the narrated tales, each condition type provides us with a new and significant view of the sociohistorically-shaped sociotechnical practice.

Firstly, the technological conditions speak of means of materially-enabled actions and their configurational possibilities that are in hand at the point of accomplishing activities.

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62 This conceptualisation of mundane sociotechnical settings is different from similar projects that discuss the complexities of mundane and simple objects in the sense that the point of departure is the setting itself (c.f. Latour 1992; Michael 2003).
Secondly, the conceptual conditions refer to the cultural and moral codes that are not normally inscribed in any form of material object, and they become visible or make themselves visible when new systems of work are imagined or introduced. Finally, the ecological conditions capture those conditioning and mediating processes through which specific relational effects among and across various elements of the constructed social environment, and working relations and communication between different humans and non-humans in different social worlds are formed.

The emerging sociology of technology non-use, as depicted in the following figure, further signifies that the technological conditions and the conceptual conditions perpetuate each other (arrow 1). Also, both the technological and conceptual conditions affect and are affected by the ecological conditions (arrows 2 and 3).

While all these three types of conditions are important in the understanding of non-use in low-tech contexts, the ecological conditions seem to provide an additional insight. According to Strauss (1978), the processual nature of Social Worlds Perspective suggests that changes in conditions of action are never-ending and hence new ways of accomplishing tasks, new types of participating actors, and new modes of memberships evolve. The notion of ecological evolution underlines the sociohistorical elements of technology use and non-use without neglecting the importance of local and temporal contingencies of sociotechnical practice.

![Figure 5-6: Non-Use Conditions in Mundane Sociotechnical Settings](image-url)
Conceptual Conditions

There are some mental frames in various forms of moral and cultural codes which exist in the collective or individual minds of human actors participating in the same or related social worlds. Technological solutions and the ways in which such codes and frames are inscribed into practice are determinative in adopting that particular solution. The nature of administering and running swimming clubs follow a paradoxical model. On one hand, the ‘sport’ side of swimming is becoming more global and more regulations have created an opportunity for worldwide technological solutions such as the American Hy-Tek or TeamUnify. On the other hand, the voluntary structure of swimming ‘management’ requires flexibility and openess to local cultural sensitivities.

Since these two professional and administrative sides are indispensable and inseparable, a special paradoxical-like situation for the use of technological solutions is shaped. In other words, the technology (i.e. Hy-Tek) has contributed to the globalisation and standardisation of the sport itself but at the same time, that kind of technology has largely failed to globalise and homogenise the management of the sport. While there are attempts to anticipate and materialise all use conditions and then inscribe the preferred codes and specific actions into the developing technological object, when it comes to the second side of swimming sport, i.e. voluntary-based administration, its fluid and open nature makes the materialisation of conditions highly impossible. This is because of the processual nature of those ‘conceptual’ conditions that only become visible at the intersection between the sociohistorical context and the techno-local ‘one-off’ issue (Garrety 1997).

For instance, while in the United States it is common and acceptable to consider contributing the time of a parent as an alternative to cash, members of Water125 became aware of the challenges of this option when discussing a migration from Hy-Tek to TeamUnify. Buying the contribution time of a parent is debated not as a technical, organisational issue but as a moral one, and the technical option inscribed in TeamUnify is considered to be an immoral feature. However, time and space could change such conceptual conditions, i.e. codes, values and frames.

The clashes between materialised preferred actions and non-materialised conceptual conditions can be resolved by minor or major modification and negotiation and eventually
may result in reframing the moral codes. In Water125, while the standardised forms of buying time through a computerised system was not allowed at the time, the negotiations around that discussion led to non-adoption and non-use of TeamUnify. Later that idea was ‘translated’ into local and less-technical solutions that keep the ‘human’ concerns primary: A public report to all parents in some squads is now being sent through email to let all related parents know how much time is offered to the club.

**Technological Conditions**

There are some sociotechnical conditions that are directly related to the *material* elements of any technological system. At the intersection between such elements and the other nontechnical elements, new forms of action might be produced. In other words, when the two worlds of the technological and social come together, new forms and means of coordinating actions are anticipated. In the selected case, I similarly observed how the materiality of some technologies had contributed in conditioning a non-use phenomenon. For instance, the limited effort by SportSystems developers at the earlier stage of software development to respond to Scotland’s special needs provided the Scottish technology team enough motivation and justification to mix and match different elements of local adaptation and the ‘national’ recruitment of Hy-Tek. As concepts of negotiating and conditioning suggest, this non-use outcome of SportSystems has its roots in the accumulative results of the micro-actions over time triggered by its limited functionality but sustained by the extended works of the technical volunteers.

Technological conditioning is also an indicator of the role of the other emerging and neighbouring technologies around the non-used technology. In the context of in-use technologies, recent studies, particularly in the field of Information Systems, argue that we might lose many relevant insights by only concentrating on the single technological object and its specific scripts or readers (Carroll 2008; Kane and Alavi 2008). This view can also be extended to better understand technological non-use. Even the role of mundane and less-technological objects (c.f. Dourish et al. 2010) such as papers and noticeboards should be considered in a successful technological non-use. For instance, as discussed in the case of Flora’s non-use of the Hy-Tek meet management module, the combination of physical papers and computer Excel sheets and the capacity for developing a unique colour-code system all together contributed in conditioning for sustained non-use.
Previous studies have shown how coordination at the sector level can result in a working sociotechnical platform since different organisational players have relative freedom to develop and use their own technological solutions (Chiasson and Davidson 2005; Sawyer et al. 2014). The empirical insights from this observation suggest that we could see similar phenomena (digital and non-digital) in the context of voluntary-based collective actions. That is, since there is a lack of organisational enforcement, the use or non-use of pertinent technologies is relatively dependent on a proximate technological assemblage that can be replaced or seen as supplementary.

**Ecological Conditions**

These types of conditions enable us to think about the relativist characteristic of negotiated social orders while in turn they provide a tool and vocabulary to explain the implications of such features. The boundaries between members and organisational environments are defined around the ecological resources shared among them. According to social worlds thinking, we are able to define the ultimate community-related conditions under which shared meaning and resources are provided by the material and social environment for the members. The special benefit of the social worlds perspective is its subjectivist manifestation of resource dependencies (Strauss 1993). Ecological conditions are those conditions that are the result of the co-existence of technological and conceptual elements as well as organisational and institutional ones. These conditions are produced by pre-existing sociotechnical actions and produce new and constrain old domains of actions.

For instance, the lack of ‘technological’ ease of use of the Hy-Tek synchronising option for Flora, the unclear ‘work’ responsibilities of the coaches, and Hamish’s willingness to try out alternative solutions all created an ecology for non-use. That is, within this ecology, enough resources and well-established meanings were at hand to let people produce and sustain a non-use phenomenon over time.

The notion of ecological conditions here is an ontological not a metaphorical one. These ecological conditions exist as things and the relations between the participating actors to the locations that matter for them are constituted and delimited by such conditions (c.f. Abbott 2005). It should be mentioned that the usage of the term ecological is a way to escape from theoretical challenges imposed by the notion of ‘universal/global’.
Such vocabulary is useful in the particular context of mundane low-tech activities since while they capture socio-historical events, actions and processes, they still allow thinking about local and temporal actions and reject any generalised, inscribed, and idealised solutions. We can now speak about ‘the universality’ rather than the universal and the ways in which such universalities are successfully accomplished and sustained within a particular ecology.

Conclusion

Technological objects are designed to help people in the achievement of some purpose. The majority of technology-oriented studies are concerned with the use and adoption of such solutions. However, the few critical studies on the relationship between technology and society have already called for the need to include and understand those who are outsiders to a particular sociotechnical realm, i.e. technological non-users.

Wyatt, for example, suggests that we need to pay particular attention to the drivers and intentions of technological non-use (c.f. Wyatt 2003, 2014b). For her, the most critical point is the appreciation that non-use can be also a choice. On the other hand, scholars like Akrich and Woolgar argue that non-users, similar to users, can be engineered in the inscription or configuration process in which preferred forms of action and use are managed. Till now, non-users are mainly understood as socially or technologically distant from a central, concrete technology (and the relevant sociotechnical network associated with that technology). However, the empirical insights from the studied voluntary sport context suggest that some non-users may be also at the centre of the observed sociotechnical world. Non-use here allows some people to somehow preserve their identity and organisational power.

The world of swimming management is constituted from two interrelated sociotechnical sub-worlds: the professional and administrative sides. In the studied case, the professional side is largely standardised while the administrative part is locally specific. While more advanced technologies are being utilised in the professional sub-world, there are considerable instances of technological non-use in the administrative body. This chapter shows how technological non-use can be an activity that is necessary to precipitate some given interactional events in the administrative body. Here, a cluster of interrelated conditions produced and maintained that technological non-use, which is itself a
condition and supported by other conditions. Non-use is a sustained response to an ecology of work in a voluntary-based organisation.

Hence, it seems that we need an extension to our vocabularies to describe non-use phenomena. I suggest three conditions under which the non-use phenomenon is shaped and should be examined: conceptual conditions that underline the cognitive and mental realities (c.f. Wyatt 2003), technological conditions that highlight the infrastructural and material realities (c.f. Akrich 1992), and ecological conditions. The notion of ecological conditions refers to those conditioning processes through which differing sociotechnical realms are brought into a seamless functionality. Furthermore, the idea of ecological conditioning responds to the issue of stability and co-existence where the relational effect among the actors, human or non-human, are in principle loose and fluid.

The concept of ‘sociotechnical conditions’ developed here is an alternative to the concepts of ‘consequences’ and ‘outcomes’ in standard theories of social science and technology studies in which the relation between the technological and the social is understood as the end result. Two key characteristics of ‘sociotechnical conditions’ are critical in the application of this lens: First, such conditions should be understood as processual, realised entities that change over time. Second, these conditions do not sustain themselves and they always need to be continually enacted.

Finally, we consider, based on these characteristics, that since the notion of technological non-use is multidimensional and temporal, we might see the empirical functioning of all these conditions at the same time.

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63 A further aspect of this argument is mentioned in chapter number where I develop this important feature of the observed case in relation to the notion of infrastructure.
6. Volunteering in-the-Making: Imbricated Trajectories\textsuperscript{64} and the Social Process of Persistence

Introduction

In this chapter, I seek to even more complicate an already complex concept, i.e. volunteering. I discuss that endeavours in volunteering-related theory development have either ignored or simplified the actual position of technological artefacts in their argumentation, in particular when it comes to the sector’s organisational persistence. Through the line of reasoning presented here, my hope is to convince the reader that the focus on objects and devices (i.e. material dimension) would enable us to add novel insights to our ‘volunteering theories’ that may result in better understanding the very notion of volunteer work and its dynamics. Now, let me first narrate the plot of concern:

Volunteering, as a social practice, constitutes the foundation of voluntary-based organisations and associations\textsuperscript{65}. It is widely believed that the modern world for these organisational and associational entities (and effectively the volunteering itself) is progressively turbulent. At the core of this argument is that the natural tendency of the sector towards informality and looseness\textsuperscript{66} is being challenged by pressures that are more professional, commercial, and marketable. While some have warned that such exogenous transformations may ‘have a serious implication for the vibrancy and robustness of what is increasingly accepted as a cornerstone of “civil society”’ (McDonald & Warburton 2003, p. 382), others have taken more active positions, looking for ways to understand and manage such inevitable transformation processes (e.g. Nichols 2011) and seeking to establish a resilient platform for the existence of these associational entities.

These intellectual and practical endeavours are extensively linked to the interest of organisational persistence and development in the sector and how to maintain ‘operational endurance’ of such social collectives, in particular for longer timeframes. Since then, many attempts have been made to generate lists of recommendations, for example, looking for ‘sustainable models’ of organisational capacity and structure (c.f.

\textsuperscript{64} See Star, S. L. (1997) ‘Anselm Strauss: An Appreciation’ Sociological Research Online, vol. 2, no. 1, \texttt{http://www.socresonline.org.uk/2/1/1.html} \textsuperscript{65} (Jackson and Donovan 1999) discusses that the ‘associations’ are less formal type of ‘organisations’ (p. xii). \textsuperscript{66} For fuller discussion on the complex and paradoxical relationship between VSOs and Informality see (Böröcz 2000)
Weerawardena et al. (2010). One of those recommendations is to exploit the substantial potential benefits that exist in technological innovations, particularly in regard with the organisational sustainability concerns (Kase et al. 2010).

Highlighting the organisational and material aspects, I look at the unfolding, coordination, and development of various processes in such entities over time, i.e. the biographical shaping and sociomaterial configuration of voluntary associations. The ‘internal and external’ elements of voluntary association such as members’ engagement, governing bodies’ decision-making, stakeholders’ relations, and, of course, technological innovations are all moving at different rates of evolution. This gives rise to question on how and through which activities may these internal and external elements be ‘managed’ while a functioning ‘mismatched rhythms’ continue respected and also the ‘organisational persistence’ can be secured? Hence, the interrelated research questions for this chapter are as follow:

- How are various sociotechnical processes coordinated in a voluntary association’s evolution?
- What work and which tools and practices can contribute to its organisational persistence?

In this chapter, relying upon the sociological concept of ‘trajectories’ (c.f. Corbin and Strauss 1991; Riemann and Schütze 1991) and by extending an infrastructuralist reading of that (Neumann and Star. 1996; c.f. Star and Bowker 1997; Timmermans 1998), I seek for a better positioning of material objects and work processes in the dynamic, messy, and loosely-coupled context of volunteering. Nevertheless, there might be a doubt of ‘theoretical applicability’ here: One might question how the notion of (Information) Infrastructure can sit beside the low-tech context of volunteering work; especially the context in which low-tech and high-tech exist and are co-evolved together. For example, ‘email’ is widely used to support the actual work of many people while Hy-Tek is at the centre of competition managements.

To understand the relevance of an infrastructuralist approach in this context, let’s first imagine doing volunteering work at a community sport organisation: For some tasks, people use different email exchanges and the emails’ attachments act as a ‘cloud-based’ storage where a swimming club coach and a volunteer parent update that one-off or temporal ‘database’ by, repeatedly, giving new names to their ‘collaborative-like’ file with mostly confusing names which need some off-the-pool discussion to let the other know.
what’s what. For instance, {POOL-HIRE_List.docx} is the newer version of {POOL-HIRE_List-Upadated_10Sep2012.doc}; note that the parent still uses word 2003 so the coach should remember to convert {*docx} files every single time, or the parent needs to use her husband’s work-laptop if available (Fieldnotes on 11 Jan 2014).

Also, when ‘email-mediated’ communication exchanges lack ways to compel or even manage people so they respond in an appropriate time, no matter whether the request is a normal one or ‘urgent’, a prompting phone call or face-to-face ‘smile’ is very much needed to fix (and repair) the ‘problems of and breaks in’ digital communications (Interview on 23 Oct 2014).

Moreover and beyond this technologically-mediated activities, pens and papers are still everywhere, at offices, homes, and at poolsides. Thanks to iPads, some people now may have ‘digitalised’ their notes, but, you can hardly find the core (and usually older) volunteers sharing those work-related notes electronically, simply because they have not yet found a ‘patient’ person to sit with them and show them how to do it (Interview on 16 Dec 2013).

Altogether, can we really find an infrastructure of any kind in such ‘technologically’ poor and messy environment? Even so, is there really any analytical and practical value?

The short answer is yes! There is of course a complex, relatively large-scale but taken-for-granted working infrastructure which collectively functions in the background and supports hundreds of clubs, although perhaps loosely connected, in making and sustaining a national platform for swimming sport. The fuller answer is the objective of this chapter, but before going ahead I would like to raise another question: If such voluntary-based networked sociotechnical systems exist, who are (or perhaps is!) in charge of them? Or, who has the power and authority to control both the nature and scope of the change processes in such voluntary-based associations?

This reveals how an underdeveloped critical aspect in voluntary associations, the constitution of organisational persistence, can be conceptualised by looking at the socially negotiated and materially mediated accomplishing activities in a community-based sport system.
Organisational Studies of Volunteer Work: Persistence

Why study ‘the work’ in voluntary contexts? In what way can the ‘survival and persistence’ of voluntary entities be of significance? One possible answer is in the socio-cultural and economic values embedded in the ‘act of volunteering’ and the existence of ‘institutional platforms’ which support these works (Weerawardena et al. 2010; Wilson 2012). These social practices and their associated institutions are building blocks of a healthy civil society. So, given the pressing challenges of a ‘turbulent environment’ we need to better understand how these associations operate.

Community and Organisational Sociology

Beyond institutional-like rationales, another motive for studying volunteer ‘work’ and associations originates from the broader interest in the sociology of community. In a wider conception of the term ‘community’, this line of sociological inquiry seeks to find out how human relations bind persons together to shape any form of social unit such as groups or associations (Goe and Noonan 2006). Communities have been therefore seen as one of the recent forms of evolving organisational structures (Brown and Duguid 1991). When it comes to the context of volunteerism, this sociological lens shifts the research emphasis to the ‘organisational dynamics’ of volunteering beyond its either psychological or political dimensions (Wilderom and Miner 1991; Bonikowski and McPherson 2006). That is, the individual members, their organisational activities and relations, and the multilayered contexts come together to develop our understanding about the very hybrid nature of volunteerism and the organising activities connected to those ‘works’ (c.f Einolf and Chambré 2011; Smith 2014). At the core of this inquiry is the embeddedness of ‘the work’ and ‘organising thinking’ about volunteering. To prevent potential confusion, it worth noting that volunteer ‘work’, especially in the context of this chapter, is well-connected to the notion of ‘volunteerism’ which is in principle different from ‘voluntarism’. While the latter is concerned with the statutory and motivational nature of ‘the action’ per se, the former considers the shaping and sustaining organisational and associational forms on which these collective actions run.

Despite its significance, with a few notable exceptions (e.g. Seibel 1996; Kelley et al. 2005), studies of volunteer work and voluntary agencies remain an underdeveloped topic in organisational studies and community sociology. The dominant perspective on
volunteerism research is based on a macro or micro level in which the unit of analysis is either individual volunteers or the societal value of volunteering as whole, so ‘organisational studies’ of the phenomena are scarce (Kreutzer and Jäger 2010). Traditionally, what can make the context of ‘volunteering’ an interesting domain for organisational scientists are the conceptual opportunities that stem from the contexts’ particularities. In fact, volunteer work and its associational ‘shaping’ together can create an empirical and theoretical space in which an essential and exceptional ‘social solidarities’ are constructed and new forms of human collectives emerge (Hustinx et al. 2010). Also, novel organisational mechanisms could unfold in response to specific problem-solving strategies developed in this setting (Seibel 1996), and exclusive (internal) organisational issues could arise given the (external) unique political order which manifest such entities (Knöke and Wood 1981). For instance, topics such as ‘work-life balance’ can gain more critical development if incorporated with volunteering-related cases (Voydanoff 2001; Dempsey and Sanders 2010). Or, unpacking the ‘meaning of work’ in the voluntary and nonprofit context provides insights into organisational communication research (Broadfoot et al. 2008) and enriches the notions of identity and commitment in organisation science (McAllum 2014).

Organisational Persistence

Another organisational theory aspect of volunteerism is the ways in which voluntary-based entities exist and continue their programme delivery. Supported by practical concerns, there are a number of studies that seek to both conceptualise and secure the ways in which such social collectives and their operations are constantly reconstructed. However, this ‘critical’ aspect of voluntary organisations still remain ‘fragmented and relatively under developed’ (Weerawardena et al. 2010, p.347). Overlapping concepts of sustainability (Weerawardena et al. 2010; Hung and Ong 2012), stability (McDonald and Warburton 2003), and survival (Jackson and Donovan 1999; Wollebaek 2009) are examples of such concerns. However, to capture and encapsulate the essence of these studies, this chapter suggests that the term ‘organisational persistence’ can afford to do such.

Persistence, albeit in its broader sense, highlights the long-term existence and operationality. The Oxford Dictionary defines persistence as ‘the fact of continuing in an opinion or course of action in spite of difficulty or opposition’ or ‘the continued or prolonged existence of
something’ (Oxford-Dictionary 2010). Translating this in the context of the chapter, a persistent voluntary organisation has been able to continue its operations despite challenging and/or opposing forces and therefore the ‘volunteer work’ is ensured to have a kind of ‘organisational platform’ to be performed. A particular VSO to be consistent in performing its core activities, durable during the course of radical change, and sustained over time, needs to have ‘committed’ members, in short ‘commitment produces persistence’ (Cress et al. 1997, p.63).

Relational and Dynamic Approaches to Volunteer Work

Relational and dynamic approaches to volunteering have generally contributed to the theory of voluntary associations and their organisational persistence in particular. They view voluntary associations in its collective texture rather than mere collections of individual behaviours and seek to ‘capture the dynamic relationships between members, organizations, and the broader social context’ (Bonikowski and McPherson 2006, p.207). To better understand the complexity of volunteer work and to ‘link’ the process of volunteering to its context, we need to situate the various micro, local and individual aspects of volunteering in a dynamic relationship with the ‘nested systems’ in which these activities are performed and the actual phenomenon unfolds (Hustinx et al. 2010). Two notable examples of such approaches are ‘network-based analyses’ and ‘ecological models’. They both have played a significant role in shifting the volunteerism researcher’s attention from discrete nodes and social-attribution-inspired understanding of volunteer work to the ‘relational’ and ‘dynamic’ essence of volunteering in which complex organising activities and interconnect-ness sit at the core of theorisation (Boles 1985).

Commitment-Expertise Dilemma

According to Weerawardena and colleagues, the very much debated issues of efficiency reflected in the topic of ‘money-mission’ balance, can find their origins in the core subject of needing ‘to build a sustainable organizations that can continue deliver social value via the pursuit of its social mission’ (2010; p. 347). Using (Dartington 1992)’s language, the contradictory issue of ‘money-mission’ is a representative episode of ‘commitment-expertise’ conflict. Building upon his argument, it can be argued that voluntary organisations, because of their ontological nature, seek people with enthusiasm and societal concern: the ‘commitment’ dimension. On the other hand, ‘expertise’ and
specialist knowledge are also essential dimensions in the performance of any kind of work, including volunteering. Each of these two dimensions can supply some of the overall competence needed to manage these organisations. While this might be tensional in nature, as the organisation’s capacity develops, a balanced integration may be generated and sustained between commitment and expertise, mission and money, subjectivity and objectivity. Two key points are worth stressing here: VSOs constantly make such a ‘commitment-expertise’ balance; and secondly, there is a path in which this balancing process is configured. This organisational path is the key skeleton to understand the contradictory character of such organisations and how this ontological tension shape the relevant organising practices (Koschmann and Laster 2011; Sanders 2012). This conception not only placed emphasis on the community as a physical territory but also extended it to encompass a system of social units (e.g., organizations, groups) through which specific human populations secure the resources needed to sustain their survival.

One approach to the study of organizational dynamics was initiated by McPherson's (1983) article on the ecology of affiliation. Drawing heavily on the evolutionary logic in bioecology, McPherson argues for a general theory of voluntary association that does not rely on assumptions about individual or group motivations. Building on the work of human ecologists, he instead seeks to capture the system-level processes that shape the behaviour of voluntary associations. This inherently relational and dynamic approach views associations as interdependent entities that compete with one another for members. The characteristics of the ecological system have important implications for the growth, persistence, transformation, and decline of individual associations.

A Pragmatic and Infrastructural Perspective on Volunteerism

As mentioned in the previous section, at the organisational level, there is a path in which voluntary-based collectives develop, negotiate, and configure various elements of organisational commitment and professional expertise. In search of a sociological lens to study this organisational path in relation to volunteering work, I am inspired by the work of pragmatic sociologist, Anselm Leonard Strauss, especially his analytical framework of ‘trajectory’ (Corbin and Strauss 1991). This framework has been evolved through an extensive research programme by Strauss and his colleagues, especially with Corbin. Reading through their work, their use of trajectory fundamentally differs from an Economic conceptualisation of the term in which there is an ‘inner’ logic of progress.
The central contribution of the trajectory framework is to highlight the course of managing long-standing issues such as chronic illness and its cumulative efforts and effects. As already submitted by (Timmermans 1998), I concentrate on the overlooked, but significant, material grounds of the biographical configuration of a social practice (i.e. volunteering) and its associated social organisation (i.e. voluntary association). Such framing goes beyond just observable and prescribed performances to also study unspoken and emergent activities. Using the insights from the evolving notion of infrastructural entities (Star and Ruhleder 1996), I advance the argument to map and conceptualise the concept of infrastructural trajectories to show how these sociomaterial assemblages are constituted and maintained through the dynamic arrangement of various trajectories, namely, commitment, expertise and material objects. This idea of re-examining classical sociological approaches under the light of the ‘material world’ has been similarly applied to study the local constitution of social interactions (c.f. Pinch 2010b; Darr and Pinch 2013).

Foundations of Trajectory Framework

( Herbert Blumer 1986), the symbolic interactionist teacher of Strauss, asserts that ‘People—that is, acting units—do not act towards culture, social structure or the like: they act toward situations’ (1986: p. 88). Social organisations, therefore, influence and shape the situation in which individual actors act. Given this rationale, in performing a particular work, even apparently stable patterns of social interactions, are constantly played-out and reconstructed through the ongoing process of interpretation and negotiation (Strauss et al. 1963). To capture the ontological feature of ‘adjustivity and negotiativity’ in any configuration of human collectivity (Maines and Charlton 1985, p.273), the concept of ‘trajectory’ calls the social scientists for studying the fuller course of and inertia dynamics of collective work; ‘That is, phenomena, do not just automatically unfold nor are they straightforwardly determined by social, economic, political, cultural, or other circumstances; rather they are in part shaped by interactions of connected actors’ (Strauss 1993, p.54). Clarifying the ‘central concept’ in his interactionist theory of action, the trajectory concept precisely refers to two: firstly, ‘the course of any experienced phenomenon as it evolves over time’, secondly, ‘the actions and interactions contributing to its evolution’ (ibid, p. 53-54: emphasis added). This conceptual model seeks to offer a
language for the ways in which at least two diverse processes mutually intertwine and become inseparable in such a way that forms ‘one’ thick chain (Star and Bowker 1997).

In response to an appropriate approach towards studying the complex shaping of voluntary associations and also their organisational persistence, this concept enables me to conceptualise (in)stability through the enacting agency of volunteer work and the active role of related interactions. To illustrate this notion, an example from the context of nursing seems very helpful. In accomplishing a patient care, a complex social organisation will be shaped to assemble, coordinate, and configure all necessary steps to conduct the care work. However, these steps are not only medical or professional, there are also extensive invisible organisational ones. Trajectories involve various actions performed in all relevant steps. Accordingly, these trajectories steer ‘division of labour’ and ‘resource distribution’ among all participating actors in a process of care (Corbin and Strauss 1991).

According to (Timmermans 1998), it cannot be defined in advance who (i.e. human) or what (i.e. non-human) is acting; hence the interesting task for the social scientist is to follow trajectories to find out the conditions under which ‘agency-sharing’ takes place. As rooted in the pragmatism, his reading of trajectory framework ‘privileges the act instead of the actor’ (p. 428). However, he continues that the ‘[t]he phenomenon at the center of the trajectory does not unfold through an “internal logic” (inherent to the phenomenon itself) but instead is shaped and managed through the actions and interactions with others’ (p. 429). The central feature of a trajectory lies in the collective, accomplishing work and such work, by various actors, makes that trajectory ‘visible’ for the observer.

Mutual Tuning of Sociomaterial Trajectories

Do material objects have any role or effect in shaping social phenomena? Inspired by the recent sociological interests in the agency of non-humans in human affairs and also by extending the concept of trajectory, (Timmermans 1998) has married up medical sociology to science and technology studies (STS) to examine whether the two worlds of medical work and technoscientific practice can be linked. Accordingly, the potential benefit of bridging two sociological traditions would be at least to fill the infrastructural and conceptual gaps that still exist between local work and social practice and to theorise the way in which the work-practice relationships are crafted and sustained (Star 1995).
At the core of Timmermans’s argument is to encourage the STS researchers to continue studying sociotechnical facts and objects even after their closure as well as the idea of extending the agency to attribute both human and non-human actors. While the nature and quality of ‘ontological extension’ of human agency has been extensively debated (Latour 1993; Law 1993; Kling et al. 2003; Pinch 2010a), the ‘bottom line’ is to acknowledge that non-human agents can be considered as actors and countless human-object mutual interactions can occur in a ‘non-human saturated world’ (Pinch 2010a, p.87). Timmermans’s particular contribution to Strauss’s framework is to include ‘material objects’ alongside with humans as we examine the participating actors in an investigated trajectory in which a particular phenomenon unfolds through collective work; hence each particular object, human actions too, has a history and a lifecourse.

Timmermans notes four ways in which ‘trajectories’ come into existence: by, first, spinning-off from an existing trajectory, second, merging between existing trajectories, third, a changing of the trajectories’ scale, fourth, appropriating an existing trajectory. However, he argues most trajectories do not simply end. From a particular actor’s viewpoint, one trajectory ‘can’ die, expectedly or unexpectedly, but that might actually persist in a ‘dormant’. It can then reappear after a period or get transformed at a turning point. His argument reminds us of the ‘consequences as conditions’ idea (Maines and Charlton 1985; Corbin and Strauss 1996). According to this idea, any set of action or performance necessarily has consequences, even if it does not immediately result in any observable change. Yet, those invisible consequences become and create the conditions for future actions and interactions. Timmermans highlights, as interactions are generative to trajectories, that there is an intersecting arena in which ‘multiple’ trajectories co-exist. The bulk of activity resides in keeping each trajectory on its expected and controllable track; hence a mutual tuning develops to manage the dynamics of trajectories: ‘They are shaped by others and shape others in turn; they define and are defined by, they align and are aligned vis-à-vis other trajectories’ (p. 433).

These multiple sociomaterial trajectories are based on the actions performed by non-humans and humans. However, a methodological choice remains for the researcher to consider: to define ‘which trajectory should be followed’ which could generate insights into the central research problem. As with Strauss, Timmermans suggests concentrating on what has been unexamined by other social scientists and been neglected across
dominant approaches. To me, this instruction of ‘study the unstudied’ helps to embrace the *mundanity* of ‘material grounds’ in volunteerism. In addition and in line with the general pursuit in STS studies (c.f. Latour 1994; Law and Mol 1995; Law 2008), I will show and discuss that the material objects and their ‘configurational polities’ (Sahay et al. 2009) are the places in which *controversies* emerge. So, the material aspects of multiple trajectories in a voluntary-based phenomenon can satisfy the methodological interests of both Organisational Sociology and STS.

**Constitutive Volunteering and Infrastructural Trajectories**

Originating in medical work research, (Riemann and Schütze 1991) argues that the central contribution of ‘trajectory framework’ to sociological theorisation is its unique quality to grasp the extreme ‘contingencies involved in working with people who go through and endure something that cannot be totally controlled or even managed but merely shaped by different participants in the unfolding drama’ (p. 334). To highlight the ‘limited controllability’, I argue that volunteerism is very much similar to the suffering and disorderly process of illness management. In particular, the ‘high turnover’ culture and ‘structural uncertainty’ (Pearce 1993) contribute to the fragile ordering of VSOs. Thus, the quest for making such organisations less chaotic has been always of critical concern. In relation to this, one of the most challenging and ‘hot’ topics in volunteerism research, as pinpointed above, is the issue of professionalisation (Seippel 2002; c.f. Ganesh and McAllum 2011), underpinned and manifested through the commitment-expertise tensions (Dartington 1992). The nature and degree of professionalisation depend on both dimensions of social commitment and specialised knowledge in volunteer work management.

While some STS scholars have already examined this topic (Star and Griesemer 1989; Latour 1990), there is no explicit usage of the volunteerism discipline’s language and concerns in STS-like studies. Star and Griesemer, examined how ‘amateurs’ and ‘professionals’ in a museum managed to resolve the institutional tension between coordination and heterogeneousity in performing a collective work. I found the theory of multiple trajectories helpful in understanding the relation between various process of volunteerism and professionalism. This STS-enriched theory maps the process of becoming and maintaining boundary activities and highlights our active participation in maintaining and changing interactional structures.
A Quick Note on the Method

The empirical stories which I use in this particular chapter are selectively extracted from the extended project of my doctoral studies aimed to unpack the unfolding of volunteering activities in regard to technological objects in the Scottish Swimming Association. When the idea of infrastructure lens emerged\textsuperscript{67}, the first skeleton of the argument was shaped. However, over the period between September 2013 and June 2014, new series of ‘narrative interviews’ (Czarniawska 2001) and on-site, directed observations have been conducted to bring the developing stories near to their everyday sense and also to enrich that initial argument. Similarly, already collected narratives and photographs were reviewed and reinterpreted in the light of this ‘infrastructural thinking’. The particular aim of this chapter is to find out and classify the critical elements of the social process of volunteer work which itself constitutes a foundation for a persistent associational organisation in the selected case.

Syntagmatic Line

Initially, each of the narratives was collected and made sense of independently; however, they were then linked based on the similarities found in their core trajectories. Hence, the final story here is better understood as an ‘outcome-embedded’ construction rather than a conventional ‘ending-embedded’; for this chapter’s general story ‘each episode is determined by the outcome of the previous one’ (Czarniawska 2004b, p.81). That is, each of the intersecting trajectories follows a kind of ‘syntagmatic line’ (Latour 1990) in which various human and material actors are contained and connected. This way of thinking about the constructed story enables me to identify how ‘mutual tuning’ takes place.

Although the primary, unstructured empirical narratives and data were not generated with the current ‘infrastructural lens’ in mind, they were generally influenced by recent versions of the sociology of translations which supports joint conceptualisation of materiality and collective signifying practices without the risk of ‘idealism’ (c.f. Czarniawska 2009; Pinch 2010a). In fact, all narratives, even the original ones, were collected in the spirit of materiality, through questions such as ‘Can you tell me which tools or technologies you use in your training workshops?’

\textsuperscript{67} At the Innovation in Information Infrastructure Workshop 2012, Edinburgh followed by a discussion at the ECIS 2013.
Strategic and Multi-Sited Ethnography

For the analysis, with the idea of identifying the ‘master narrative’ (STAR 1999, p.385), significant moments, performances, actions and interactions were selected and categorised into themes based on their capacity to make the critical narratives of trajectories visible. As suggested by a number of ethnographies (c.f. Timmermans and Tavory 2007; Neyland 2008; Pollock and Williams 2010), there should be a careful and strategic oscillation between existing theoretical concepts and in-the-making empirical stories. Having this in mind and by reading through each master narrative supplemented by other forms of empirical data, I looked for the course of any experienced phenomenon as it evolved over time and relevant material and human actions and interactions that contributed to and affected its evolution. Then, these intersecting multiple trajectories were abstracted from their original and specific trajectories: Three types of trajectory were derived as the ‘parent’ trajectories which not only were evident in all sites, but also interconnected those sites to each other. They types are: professional, commitment, and material.

In multi-sited versions of ethnographic inquiries such as this study, as (Hine 2007) reminds us, generating adequate and surprising narratives which can offer new insights should embrace the ‘multiplicity’ and ‘ambivalence’ aspects: while the multiplicity aspect emphasises the escalating role of ‘technological objects’ in finding the inherent diversity, the temporalities also emerge because of the collective work, ‘in parallel and serially’ (Neumann and Star. 1996, p.237); the ambivalence dimension encourages us to remain open about ‘relevant locations’ to study. Thus, the concept of ‘trajectory’ can embed and incorporate material objects. Moreover, over time, the overall argument has evolved to extract and cultivate those interactions that are critical in connecting and sustaining different locales that altogether make a nonreturnable ‘cumulative mess trajectory’ (Strauss et al. 1997). In the next section, I describe the details of the examined master narrative, i.e. a swimming competition management system, as portrayed through a selection of relevant vignettes and locales.
Empirical Stories

Reading Three Selected Master Narratives

**Vignette1:** Howard, a ten-years-old swimmer, pushes the touch-pad in the ‘hired-by-the-district’ Swimming Pool while Jackie, the swimming technical official, is watching the rule-accordance and also taking ‘backup’ time with a stopwatch. If touch-pads receive at least 2 kilos of pressure, they will be activated and ‘the journey of the data starts’. This small piece of data, if confirmed by the Meet Management Team, can change the swimmer’s ‘entire progress path’; it could be argued that it becomes his or her ‘swimming identity’ but also may affect their ‘entire life’ in certain respects. The ‘official time’, when posted on the website, can be seen by ‘everybody’, even in ‘Singapore’, and will remain there ‘forever’, even if they ‘quit’ swimming (Field-notes and Interviews). Swimming has now taken over many swimmers’ identity; it teaches (ex-) swimmers how to ‘handle every competitive situation in life’ (Swimming World Website) [Fieldnotes, Dec 2013]

**Vignette2:** It is 8:00 pm in the night before the ‘swim meet day’. The Meet Manager, Jack, arrives at the hired-by-the-district Swimming Pool and starts setting up the ‘meet management desk’ at the ‘Timing Booth’ (eg small cabin): wiring, changing tables, connecting printers and so on. Raphael, the AOE administrator, also puts together touch-pads, the ARES21 Interface, batteries, and other things. Laptops will be ‘cranked up’ next morning when he has to come in earlier (7:30 am), for the final test. On the ‘meet days’, lasting usually between one and three days, already registered swimmers, usually accompanied by their parents, must first confirm their attendance at the ‘Registration Desk’. Here also, parents or coaches, if wishing to film or photograph or record any event, have to ask for the ‘Yellow Pass’ card. Alistair, the Swimming Technical Officials master convenor, arranges a meeting with all officials, relatively large in number, at a ‘silent’ pool-corner or at a ‘private’ large room if available; the meeting makes a ‘socialising’ space and provides officials with final reminders such as health, and safety and also ‘pool-specific’ local issues. Stewart joins Raphael to assist him in processing the data which come through ARES21: when a touch-pad is pushed by a swimmer, it will be activated and send the data to ARES21 then to Raphael and Stewart’s computers and then to the large Screenboards placed around the pool as well as the laptop of Jack’s assistance, Sofia to make it globally visible. She uses Hy-Tek Meet Manager software to produce the final results to be ‘uploaded’ on the website by Jack [Fieldnotes, Feb 2014]

**Vignette3:** While looking at the Virtual Scoreboard and receiving the latest versions of each event, the ‘Announcer Team’ increases the competition atmosphere. Two large scoreboards at each pool-end display the notices and results as well as flashes randomly: they are controlled jointly by the ‘AOE Team’ and a pool’s member.

These narratives depict parts of the ‘swimming competition’ master trajectory that unfolded in the Scottish Amateur Swimming Association (SASA). SASA, or Scottish
Swimming, is the research setting in which volunteering-related sociomaterial trajectories have been examined. Like many other sports settings, the very nature of swimming sport in Scotland over the last century, has gradually transformed from one designed around ‘leisure’ to a ‘competitive’ activity (Bilsborough 1988).

Hence, the notion of the ‘swim meet’ now is at the heart of this kind of sport. That is, swimming competition shapes the distribution and development of resources and skills. On the other hand, this sport has been traditionally managed and sustained as a form of ‘community sports system’ (Cuskelly et al. 2006). Thus, there have been, and still are, limited commercial and governmental traces in the whole profile of the association; however, the association as whole has been effectively reshaped to accommodate the competition at its heart: some major relationships have been reconfigured; new positions and roles have been constructed; and technological innovations have been developed. With limited pre-plans in mind, these all have one in common: ‘competitive-ness’ in the making.

In accord with the fact that ‘competition’ sits at the centre of SASA, I will correspondingly map and explain this association in relation to its evolving competitive nature. To sensitize and to capture the dynamics of SASA in order to identify its biographical shaping and sociomaterial configuration, I will make a horizontal and vertical ‘cut’ to the SASA competition system: The former results in three ‘eras’ in the system development path while the latter sketches interconnected ‘pieces’ of its current configuration.

Eras of the SASA Development

Manual Handling and Limited Localised Meets: (~1884-1990)

Since its establishment in 1884 through the late 1990s, there had been few changes in the ways in which SASA managed and coordinated the relationships between clubs, in particular regarding regional and national swimming meets. During this period, a ‘card-based system’ was in operation for running and organising swim meets. The Association used to send a monthly newsletter, through the post, to all registered clubs. The club’s secretary would go through ‘advertised’ meets to choose which one is suitable for them, mostly based on their distance from the club.
When a meet was agreed upon among ‘key’ decision-makers, the head coach would make a list of all ‘keen and eligible’ kids; a large amount of, usually face-to-face, coordination between coach and secretary was necessary to identify the best and fittest allocation. Next, using that list, the secretary completed and submitted one card for each kid for each swim, based on their best personal time; this information was kept separately in another paper-based ‘database’ such as a notebook created and held by the club. When all cards were ready, they would be posted to the organiser, i.e. competition secretary. Then, the process would start at his or her home. One of the ‘pre-computerisation’ competition organisers explains that those received cards were:

… from dozens to hundreds (laughter); I was competition secretary and in my living room I used to give all these cards in and then, em, I just put them at the pile and separated the boys and the girls until I got to the cut-off date. Only, em, entry information, you know, entries must be submitted by midnight on January the seventy, this is the seventy, Jan 17, after midnight to date, because some people, you wouldn't necessary get them in the post, somebody would ring the doorbell at 9 o'clock at night, said Carlyon, I didn't get this in a post early enough, am I OK to hand this in? Yeah that's OK up to midnight so you get the entries in and in the following day what I then do, as cards, and I would JUST look at the event number, right?, and I would sort all the cards into the event. A huge task [Interview, 7 Jan 2014]

The image below shows two cards used at that time for a typical meet. ‘Blue’ cards were used for boys while ‘Pink’ for girls. This provided a ‘visual’ tool for the organiser to manage the warming and also the actual swimming times by simply looking at who is ‘carrying cards’ (see Figure 6-1). The initial version of these coloured cards, had two systems of measurement: yards and meters; however, over time, when all pools had been refurbished to just meter measurements, cards were reprinted and the ‘meter-or-yard’ option completely vanished (i.e., meter was now the only measuring system). During this ‘yard-to-meter’ change, sometimes, to run an official meet in a yard-based pool, a group of volunteers were required to hold a ‘rope’ as the ‘virtual wall’ to signal to swimmers the ending point of a race.
Likewise, since transportation was not as easy as now and ‘last-minute’ submissions and adjustments required ‘verbal contacts’, there was a very strong sense of ‘locality’ for meets at those times. Clubs ‘had not been generally interested in faraway venues (Interviews with Archiver and Seiner STO Convenor on 13 Dec 2013 and 11 Jan 2014 respectively)’. Meets were also relatively small in size: A typical meet could happen on one or two evenings in a chosen weekend. For the majority of meets, an exact ‘selection process’ was in place to reduce the ‘submitted requests’ in order to make sure that responsible individuals could handle all stages of an ongoing meet. One technical individual states that:

For instance, around 1960, it could take up to six months to get everything get organised for a single meet; I remember that at that time there was no email, [there was] just post, post, mail (louder), telephones and [sometimes] faxes at most (Interview with a UK-wide Technical Adviser on 13 Dec 2013).

Except for a few adjustments, the legacy and well-established practices developed around the card-based competition management system were strong and hard to change.
However, one of the major and growing issues was still the extreme workload and limited flexibility associated with paper cards.

*Semi-Computerised Management and Larger Spreading Meets: (~1990-1998)*

The need for an ‘extensive’ change had been incubating for a while; swimming enthusiasts and officials around Scotland had a feeling that it was time for change; they ‘needed larger meets . . . things had been changed and competition was playing a bigger role in swimming programmes’. Indeed, the southern neighbour, England, was experimenting with a similar change in their meet managements. In the early 1980s, the first ‘major’ technological project began to ‘modernise’ the management of a swim meet in England. The UK-oriented meet organisation software called ‘SportSystems came to the market in 1981. This project, while originally designed for the English swimming clubs, could be potentially used in the rest of the UK. However, there was ‘no’ Scottish resolution to adopt that developing software system. By 1990, Scotland had just a few ‘one-off’ and largely unarranged, but successful, local experiences of using computers to manage swim meets. Computers were used at a few club-level meets (albeit for large clubs with more than 100 members) and of course for ‘national/regional’ meets. For instance, a parent volunteer, Jack, had written a ‘small’ programme to sort out the accepted swimmers for a meet on his ‘Amstrad Colour Personal Computer’ instead of ordering ‘those crazy cards’ in ‘large rooms’; even harder was to find a house or office rooms to use for organising them and keeping them ‘under control’ for a couple of days. Jack describes the critical momentum and the very first step that he made to ‘computerise’ one huge club-level meet:

She came to me and said ‘can you give him [a volunteer meet secretary] a hand?’ and I said yes… so there was club championship it was held at xyz pool ... and I went to assist this guy with tens of cards and it was eye open to me because I went to his room and he had cards laid out all over the floor... the floor was just covered with cards [laughter] that one goes that heat that one goes and that heat ... first of all these rows pink ones ... these rows blue ones and I thought my God of my ... that ... that some task that.. so at the end of that particular event ... this guy said to me that I am never ever doing this again ... he said I am never ever doing that again ... so the following year Frances came to me gain and said ‘will I do it?’ and I thought to myself right! I am gonna to seek an easier way to do it so I wrote a small programme from Amstrad computer at that time… it was an Amstrad computer I had and wrote a small programme myself that what do ... that what sorting thing out ...sort out the cards... do the seeding and stuff like that ...

[Q: your job at that time?] I’m trying to think ... I was in insurance ... but I’ve might be a manager at that time
[Q: was your computer knowledge related to your work?] No ... just my hobby ... I actually won the Amstrad in a competition ... a sales drive ... I had developed something on my own ... I mean what I developed was pretty basic ... it was nothing elaborate ... what it did was it allowed me to enter the times or the entry times of the swimmers into the computer and it would seed them into whatever lanes ... so, in that case, you could sit with a pile of cards and go dededa dededa ... [laughter] and you didn't need to spread out on the flooring business but when the results came in, you just type the results in onto the screen and then it would declare the winners in order and print... so that was quite straightforward at that time... even though was very very basic, it was still straightforward... I never kept a copy of that ... it went out with the Amstrad when the Amstrad went it went ...

[Interview, 11 Jan 2014]

This Amstrad-powered sorting-out mechanism altered some of the existing work practices for Jack who was in charge of finalising the specific programme: for instance, the timeframe for completing the ‘heat’ allocations and the new printed format of publishing ‘results’. That experience had been ‘successfully’ repeated for a few times, and this was brought to people’s attention, mostly individuals in the East District, that Jack had invented a way to ease and shorten the preparation process.

Historically speaking, this district has been of the most influential bodies to affect SASA: One reason has been perhaps the proximity of a suitable pool for Scotland-wide national meets; i.e. Edinburgh’s Royal Commonwealth Pool. In about 1992, the East District swimming convenor, whose daughter was sharing the same club with Jack’s daughter, brought out a copy of the English swimming software, i.e. SportSystems. The district (and SASA) sought to find out whether the English software could be also used ‘smoothly’ in Scotland. Jack, a parent with similar IT experience, was nominated for this ‘evaluation job’. Ultimately, the English programme was used for the first time in Scotland for the 1992 National Age Group Meet at the Commonwealth Pool. This ‘impressive’ successful experience by Jack received considerable recognition and had put him in a position to be seen as ‘instrumental in the shift from the manual run of a meet to computerisation’. Consequently, SportSystems had found its foothold in East District and gradually in Scottish Swimming despite the fact that the practical swimming competition structure slightly varied between the two nations. To minimise the risk of forgetting to bring ‘in-advance’ printed cards, for the first time, dot-matrix ‘printers’ appeared in Scottish swimming meets at poolside with perforated roll papers; they actually were added to the ‘checklist’ of the required items for running a large (mostly national) swimming competition; there was ‘no need to write any card any more’ but its sounds of ‘drrrrrr’
(not at as loud as shouting and whistling!) made pools a bit noisier. So, while the ‘card-based’ logic was still in use, writing and sorting by hand were replaced with typing and printing.

The Pink-for-Girls and Blue-for-Boys culture was kept the same with just a small adjustment: Printed ‘pinks’ became lighter while ‘blues’ were sometimes replaced with white rolls. A simpler, second-order version of SportSystems had been obtained by clubs to ‘do entries’ by themselves and send ‘floppy disks’ instead of cards; some clubs owned a computer but others had to find access to suitable equipment. The image below shows two ‘printable’ perforated pink roll-cards; note that SportSystems is printed on the right hand side of the roll (see Figure 6-2).

![Printable Competition Cards](image)

**Figure 6-2: Printable Competition Cards**

Meanwhile, other ‘computerising activities’ were being conducted across Scotland. For instance, another ‘careful’ but sceptical experiment with the system was conducted in the North District; led by another local volunteer, Tina, who had obtained a copy from his ‘down south’ friend. When Jack and Tina started to share their ‘developing’ experiences and skills in relation to SportSystems, the ‘National Computer Team’ was born. As this team had already become visible at larger meets, it was an opportunity to be seen by others; as a result, a new knowledgeable geek (i.e. computer expert), Philip, joined them; he was in the process of writing a sophisticated competition management programme.
This voluntary-based team, which was initially formed at the intersection of swimming passion and IT skills, had become a very influential entity and ‘reference point’ in establishing and maintaining the ‘semi-computerised’ SASA competition system. Later, they even gained legitimacy to regulate some elements of the Scottish swimming competition system and reshape a couple of dominant work practices such as card-filling.


A few years before and after the millennium was the period in which substantial steps forward had been taken to reform not only the computerisation ideology but also the whole meet management system. At least two major ‘events’ and a visionary ‘idea’ were fundamental triggers to shape an even more Scottish way of organising swimming meets: a national event at the newly opened Glasgow Tollcross pool, an idea to have a national website, and the 2003 European Junior Championships at Glasgow. These three, with little to no strategic thinking, had transformed the foundation of running meets across Scotland, and of course had magnified the position of the ‘National Computer Team’ in corridors of power.

While all pools can be a place for ‘training and coaching’, only a few pools can afford large swimming ‘competitions’. However, large pools are not simply a suitable ‘physical’ place to run a large meet, but they are determinative in shaping the swimming-oriented social mobility within the community. In 1997, Tollcross Swimming Centre was built and this was a potential platform to develop public and elite swimming. Shortly after, SASA decided to hold one of its ‘national’ events there. Jack, who was in charge of printing all SportSystems-powered cards beforehand, had left those cards at home. Unlike the Commonwealth Pool, this new pool was far from the National Computer Team’s houses and going back to pick the cards up wasn’t a choice. While he, as usual, had been keeping a large number of ‘blank’ card-rolls handy, the Team couldn’t find a ‘specific’ printer compatible with SportSystems software. As time for the meet to start neared, panic was at a high and ‘cancelling’ the meet was ‘in no way’ an option. The Team eventually decided to print the ‘start sheets’ and run the meet based on these. Quick training was provided to the volunteers, coaches, and swimmers, and while ‘swimmers without time-cards were said to be feeling lost’, the innovative workaround was seen as successful. This ‘mistake’ had the Team and SASA realising that they could adjust the competition system to eliminate the cards from the process altogether; that represented a breakdown in a
paradigm that dominated the whole of the UK. To appropriate the ‘sheets’ with the special timekeepers’ needs, the Team had developed ‘macros’ and this accidental and technically enhanced innovative system was immediately adopted across Scotland. They stopped buying ‘roll cards’ from the English SportSystems Company. Hence, no longer were ‘time cards’ required\textsuperscript{68}.

More and more, the technical and managerial skills of the National Computer Team were acknowledged by the swimming community. The following speech show the significance of their activities during the computerisation process. They are extracted from AGM minutes when SASA’s life membership was being awarded to two different members of the National Computer Team.

He got involved in Meet Management in a big way in 1987, however, it was the [Water125] Club Championships where he ‘cut his teeth’ so to speak using, and not even on a computer in these days, but an Amstrad Word Processor. This was as an experiment in 1986 and it proved so successful, that in 1987, after doing such an incredible job, the previous person who did all the programmes and results etc. [2006’s AGM]

Using his professional skills, he has helped to develop meet management, and write meet management software. Sometimes he has producing a new programme or update during the course of gala… [2009’s AGM]

By 1999, there was no ‘special’ place to easily find the Scottish results. One member of East Lothian Committee Board said:

While the whole Scottish swimming sector is equivalent in size to one of the regional English swimming districts, there was a feeling that the Scottish results shouldn’t be mixed with English results. There was also an increasing appreciation by the community to take-up its own computer systems, so, the Team had found itself in a position to satisfy this ‘ego’, you know, our identity as Scottish (Interview, June 2013).

Hence, developing a Scottish website was not only a strategy to fulfil this demand, but also a necessary step in enhancing swimming management in the digital age. Establishing the website had multiple consequences on existing work practices across Scotland. First, it developed a customised national database which acts as a reference point for both training and competition purposes. Second, this web-based platform has facilitated new

\textsuperscript{68} However, in some small local meets, there is still a card-based culture that SASA tried to change; for instance, in one of Jan 2015 Meet Info Pack is written: ‘Time cards are not required. List of accepted participating swimmers will be forwarded to each club’.
forms of IT-based work processes and encouraged paperless communication where the website was seen as a hub for most interactions. Third, it was used as a means to standardise competition-related workflow across the country. These national-level standards have been gradually adopted even by small and local meets. Fourth, it has formed a basis to ‘globalise’ Scottish swimming, as the Team improved the platform to stream the results ‘live’. While the technological advances in Internet service provision were essential to this idea, the ‘live’ broadcasting has left almost no chance for the Team to be absent from any of the large meets.

Since 2003, Scotland had been using SportSystems but in its own way a cardless system. SportSystems was developed by a volunteer who had ‘a very strong mind of how a meet should be run’ (Interview with UK-wide Technical Adviser on 13 Dec 2013). This had made the software and the whole enterprise a kind of one-person company. While that software had been extensively used across the UK and there was a high level of satisfaction with it, growing disagreement between Amateur Swimming Association (ASA) and the developers reached its peak around 2002. The two major issues were the future of the software (i.e. how to secure continuity) and the changes in the current architecture of the software (i.e. how to translate and implement the new meet standards in the software). From an external point of view, the world-class American software, Hy-Tek, was trying hard to enter the UK market, especially by sending adverts and by establishing an agent in the UK. The internal conflicts and external pressures convinced ASA that they might be able to break up the naturally-formed monopoly SportSystems had by that time achieved: the software ‘was exclusively used by British Swimming for all their meets’. Hence, they provided Jack with a copy of Hy-Tek to be used in running the 2003 European Junior Championships. Jack had sent copies of the software to other Team members to ‘experiment’ with it. For both technical and personal concerns, Scotland’s Computer Team was resistant to be the first to use the new software.

However, it was thought that we had to do it eventually and this meet was seen as a good opportunity. We needed a lot of practice and effort to gain the confidence for an international event. As exploring the programme, we found ourselves more interested in the job as a Computer Team. We did some research and we found out that the software had an offspring that seemed to be a great solution for an on-going unanswered Scottish need: to make an accessible and large database of all swimming which could make working with various times easier based on the meet level and so we decided
to move to the new American system [Interview with a Technical Adviser on Dec 2013].

While the Scottish Computer Team downplays it, from the SportSystems development team’s point of view, the major driver for this infrastructural shift in Scotland was the ASA-SportSystems conflicts, which resulted in a delayed institutional adoption of the software (i.e. because of the needed move from DOS to the Windows platform). When SportSystems was busy adapting itself to recent changes in the English-only competition structure, Hy-Tek was entering the UK market. This is reflected in the explanation of the Scottish change to Hy-Tek. A man who is offering technical advices to all UK-based swimming associations said that:

Hy-Tek was purely American and its DOS version was not as good SportSystems, it was not as good because SportSystems was written for the UK market whereas Hy-Tek was written for the American market… from the user point of view, in America, they have a lot of collegiate meets, inter-club meets, dual meets, combinations meets, high school meets, and Hy-Tek was written just suit these American specialist meets, in Britain, SportSystems was written to suit the British special meets, styles, … Round about 2000, England made a change in its completion programme which required significant changes to the software which SportSystems did, but Scotland and Wales, as a country, didn’t [make] the same changes… SportSystems adopted the… SportSystems was there, but around that date, Hy-Tek brought up their Windows version. In round about 2000, now, whereas I said SportSystems was better than Hy-Tek in the DOS version, Hy-Tek Windows version was very good, AND, was certainly better than SportSystems Dos programme… No question about it … when everybody wants Windows, everybody likes Windows, and that's all changed onto … in 2003, at that event [2003 European Joiner Champs]; Scottish people did not want to use it. People around the event [as a host] did want to use it, Hy-Tek, they wanted to use SportSystems, BUT when started using it, they found the Windows version Hy-Tek was certainly better than the Dos version of SportSystems [Interview, Dec 2013]

Altogether then, the domestic need for a Scotland-based database of all swimming results and two critical aspects of functionality and fashionability offered by the ‘Windows-based’ version of Hy-Tek had convinced the Scottish Computer Team to move to that software and to start learning and adopting some ‘American’ terminologies for running a meet. The figure shows a Hy-Tek Meet Manager snapshot. Note that core concepts such as ‘Heat’ and ‘Final’ are still the same as in SportSystems (see Figure 6-3).
To advance the usage of Hy-Tek and to maximise its potential benefits for SASA, there was a need to facilitate this important change. Accordingly, the Team lobbied and advised the Association to bear half of the cost for the club-level component of the software (i.e. Team Manager). Providing such support, and given the fact that PCs were showing up more and more in volunteers’ homes, the major change-over happened across the country in a very short period of time.

**Pieces of the Existing SASA**

From a closer point of view, to make a ‘swim meet’ happen, a large group of volunteers come together in a swimming pool for a few days. However, the management and progression of swimming competition during those ‘days’ requires and is based on many other efforts beyond the ‘walls’ of swimming pools and the attendance of front-stage ‘volunteers’. There are other moments, settings, individuals, and indeed objects distributed over time and space to support that single event; there are various actions and interactions which are all actively aligned, tuned and usually ‘black-boxed’ into swimming competition management processes. In a sense, ‘running a swim meet’ is like a ‘playing a piece of music’. As (Strauss and Corbin 1990, p.164) discusses, the music listener will be ‘struck by all the variations in tone and sound’. That piece of music is composed of a...
series of notes varied in speed and volume, and even with some planned pauses. However, ‘with all of their variations and in coordinated sequences, that gives music its sense of movement, rhythm, fluidity, and continuity’. Likewise, complex temporal and spatial coordination is in place while we see a swim meet that goes smoothly. I’ve selected five different kinds of master activities that contribute to the formation of the Scottish swimming management system: running the meet itself, administrating club issues, developing technical officials, doing regulations and finance, and archiving objects and documents. The table below outlines these activities based on their site, frequency, key actors, and the critical outcome gained through each (see Table 6-1).

<table>
<thead>
<tr>
<th>Core Activity</th>
<th>The Typical Site</th>
<th>Echo Pattern</th>
<th>Core Actors</th>
<th>Critical Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Running Large Meets</td>
<td>Pool</td>
<td>Every Month</td>
<td>Multiple</td>
<td>Mixed</td>
</tr>
<tr>
<td>Administrating Club</td>
<td>Home</td>
<td>Everyday</td>
<td>Volunteer Parents</td>
<td>Grassroots</td>
</tr>
<tr>
<td>Issues</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Developing Technical</td>
<td>Room/Class</td>
<td>On Demand</td>
<td>Tutor Referee</td>
<td>Maximising the</td>
</tr>
<tr>
<td>Officials</td>
<td></td>
<td></td>
<td></td>
<td>Commitment</td>
</tr>
<tr>
<td>Professionalising</td>
<td>Company Offices</td>
<td>Everyday</td>
<td>Paid Staff</td>
<td>Advocacy</td>
</tr>
<tr>
<td>Swimming Affairs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Archiving Historic</td>
<td>Storage</td>
<td>Once a Week</td>
<td>Volunteer</td>
<td>Preserving the</td>
</tr>
<tr>
<td>Objects</td>
<td></td>
<td></td>
<td></td>
<td>History</td>
</tr>
</tbody>
</table>

Table 6-1: Core Activities in Different Sites of SASA

Meet Management

Swimming meets (or galas) can be seen as touchstones to test and evaluate swimmers’ performance. They provide a situation in which a swimmer can expose their competitive swimming abilities, and have an opportunity to go beyond the club’s boundary and its local best-times. There are various levels of such meets based on certain criteria such as the number of participating technical officials and the facilities used by the organiser team. Times achieved by swimmers can be used for national (British Swimming) and international purposes (such as FINA and Ligue Europeane de Natation) if that particular meet is licensed by one of the Home countries’ governing bodies, i.e. England, Scotland and Wales. They have developed their own schemes to license competitions at various levels and therefore not all competition levels are at an equivalent standard. However, to be included in the British Swimming Ranking system each meet would be
assigned a specific level\textsuperscript{69}. This is a way to mutually recognise each other and to somehow standardise the overall licensing system.

In Scotland\textsuperscript{70}, times achieved at the first two levels (Level 1: National and District Meets and Level 2: Club Accredited Meets) can be used as an entry into the British Swimming Ranking system. For a meet to be run effectively and officially, various and complex individuals, objects, and activities are bound to each other and collectively feed the process of meet management\textsuperscript{71}. National and District Swimming Committees are responsible for issuing the relevant licences for the meets organisers i.e. Level 1 and Level 2 respectively.

When the licence is issued, that particular event will be advertised on swimscotland.co.uk and through other means such as the Scottish Swimming website and newsletters. For all meet levels, there are certain minimum standards such as official seating on poolside, programme and start sheets, electronic timing or, at least, two timekeepers per lane, and results service. While for Level 1 and 2, the result service should be provided electronically, Level 3 meets can deliver the results manually within two days of the events. Also, Level 1 Competitions should satisfy some additional standards such as a full lane display scoreboard, photocopying and/or printing facility, internet access, and separate wet and dry changing facilities.

Based on Scottish regulations, for effective meet management, the referee ‘will be responsible for the proper conduct of a meet as defined by its licence, for all poolside related activities and areas (e.g. to include computer team, commentary team and competitors seating)’ and a ‘Meet Director/Manager must be appointed for all licensed meets by the Organising Body’ (ibid, p. 13). While the ‘referee as boss’ is a UK-wide code of practice, the ‘meet director/manager’ concept seems to be a sensibly Scottish idea. This was historically developed by some tech-savvy volunteers to take advantage and better use of cheaper technological choices. However, in the computerisation process of an

\textsuperscript{69} ‘The regulations and requirements in association with British Swimming Rankings’ May 2011; Accessed on www.swimming.org/ at 06/01/2015 10:40am

\textsuperscript{70} ‘Scottish Swimming Regulations for the Swimming National Discipline Committee’ Issue 5, Jan 2014; Accessed on www.scottishswimming.com at 06/01/2015 11:25am

\textsuperscript{71} As discussed earlier, such processes are not necessarily step-by-step activity flows, however. It is about connecting heterogeneous elements in a more or less stable network (c.f. Czarniawska 2004a; Hernes and Weik 2007).
existing meet role (i.e. recorder), a new other role (i.e. meet manager) was born. A senior STO administrator said that:

There is a technical official role called Recorder. It still exists. It was their job to seed the meets when they got the cards back they did a paper process to seed the meet … so there was no meet management at that time this would go back to probably mid 80s there was all paper-driven. Then computers became cheap enough and some of these recorders, Philip and Jack, and two or three others developed the electronic system to replicate the paper system … so meet management never existed and then some recorders became meet managers … as a person … they used to take the cards home and type-up on a typewriter the results and then photocopy them and send to the clubs... we still have a recorder role but they now quality assure what the results service provide... results service is what we call meet management but FINA calls it results service … [Interview, 27 Feb 2014]

While some global practices are conducted in any swimming meet worldwide, there are numerous local and domestic differences. The configuration of these similarities and differences is highly contingent on the temporal and situational actors and artefacts.

The bottom line for successful meet management is, however, the work of a hundred people mediated (and sometimes replaced) by various kind of technological objects across extended timeframes and sites. The poolside is the most visible site, but, running meets which take between one and three days with a ‘one per two months’ frequency, requires an ongoing and nonstop connection between all sort of actors, artefacts and activities that collectively contribute in running a particular meet. This see-beyond-the-event narrative is even reflected in learning and regulation materials. Thus, the ‘before/during/after’ model is developed to organise and identify various meet-associated responsibilities. For instance, technical officials are trained and assessed based on this model.

Club Administration

Clubs are the most basic social units in many Western national sporting systems which, albeit along with their volunteers, shape and sustain a platform for organised participation in various physical activities such as swimming (Cuskelly et al. 2006; Robinson and Palmer 2010). While there might be one or two paid staff (normally a coach doing some admin jobs as well), most of the Scottish swimming clubs are largely organised by volunteer parents. Even for those old and enthusiastic volunteers who offer their time and effort

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72 For example, see documents provided by Swimming Canada at https://www.swimming.ca/Clinics
(and sometimes money!) in other areas such as national or districts committees, affiliation to a particular club is something that never stops.

Local clubs are the initial ports through which they get involved in volunteering in swimming sport, but cultural and practical constructs make being-connected-to-a-club an inseparable factor in any volunteering career pathway, whether in short or longer terms. Clubs are organisations that member swimmers join to develop their swimming skills at the grassroots level, and hence, a set of organising activities are required to sustain such places. While there is a possibility that parent volunteers contribute in the core business (i.e. developing swimming skills), the majority of them occupy one or more administrative positions such as director of finance and pool hiring management.

In general, the following are the typical operations areas reflecting the administration aspect of most clubs: i) Finance and Accountancy (e.g. fees, payments, pool hires, office items, and fundraising), ii) Internal and External Communication (e.g. newsletters, liaising with governing bodies, website, technical officials, and meetings), iii) General Management (e.g. membership, events, health and safety, competition registration, and bookings). While there is still a strong reliance on manual means such as ‘hand, word of mouth, and flyer copies’ to do these jobs, there are various software packages in the market designed to electronically facilitate both core business and administration aspects of sport clubs including swimming clubs. The Team Management module of Hy-Tek is the software which is widely used across Scotland. However, some clubs use either its Business Management module or some other off-the-shelf or homemade programmes to manage their membership, finance, and communication affairs.

As with most voluntary organisations, the coming-and-going-volunteers reality generates challenges and difficulties for the consistent and smooth management of a club. In my discussions with some Scottish Swimming Limited (the Corporation) members about the possibility of a sort of IT-enabled national project to resolve club-related administration issues, one of them implicitly rejected that idea because of the lack of volunteer continuity that results in limited commitment, and commitment is needed for successful projects:

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73 Proprietary or open source applications such as Hy-Tek, TeamUnify, Athletic Director, SwimClub Manager, EasyWare Swimming, and ClubHub
I work very closely with clubs and understand the volunteer aspects of clubs ... I think what we are very conscious of is that volunteers move to the club very quickly ... so there is no strong continuity or even all the clubs actually having strong volunteering base ... you've worked with the biggest club in Scotland which is [Water125] who are very strong on volunteers so you're going to get the commitment you need from those volunteers because of the strength of that club ... for us to expect, I think, the majority of our clubs to step up with volunteers to fulfil the project that we may want to manage out, I think, the expectation would possibly not be met. So, anything that we do that would expect to volunteers to step up to, you know, ... a kind of online forum ... would be quite struggle for us to get that accepted so there is a limitation on what we can do with volunteers [Meeting’s Notes, 21 Jan 2014]

In addition to such ‘global’ characteristics of voluntary organisations, what makes parents-based voluntary clubs unusual is the fact that the background and skills of volunteer administrative staff are extremely diverse and disparate since recruitment and selection are conducted based on already existing internal choices. It is very likely that a club, of any size, uses a relatively well-designed financial system simply because of a father or mother who brought his/her own professional business skills into the club while the same club struggles with updating its website since none of the existing swimmers’ parents can do that!

The critical challenge for a successful swimming club administration is to develop a sustainable coordination system from the scattershot of tasks performed by volunteers with uneven skills and times-to-offer at their own houses. While the visible objective is to 'get a job done', there are also considerable emergent organising practices which communicate and identify the quality and process factors for conducting such activities. There is a mutually-enacted connection between the club’s strength and its volunteer commitment. Yet, this kind of commitment is made up from available time and skills and essentially depends on how and to what extent volunteers can negotiate their own work style and preferred technological tools in ‘getting that job done’. This offers a conceptual opportunity to include situational dimensions (c.f. Becker 1960; Suchman 2007) to its psychological grounds which is conventional in volunteerism research74 (e.g. Wilson 2000). So, while the governance models specifically proposed for better management of

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74 For a review discussion on two general schools of thought about organisational commitment, i.e. behavioural and attitudinal, see (Cuskelly and Boag 2001).
swimming clubs could be instructive to illustrate global principles, the daily, practical governing is highly temporal and local.

**Officials Development**

Officiating sits at the heart of sustaining organised sport competitions (Warner et al. 2013) including all aquatic disciplines. Globally increased mobilisation of competition events in swimming has resulted in more demand for enhanced officiating programmes and tools. Officiating in swimming has two major components: timekeeping and rule-monitoring, either in or around swimming competitions—rules associated with the practice of competitive swimming or the administration of a competition. By performing a set of duties and functions, officials seek to give the results produced in a swimming meet power and legitimacy to speak for its quality and performance.

Officiating is a critical element in any competitive swimming system. In Scotland, for instance, while there ‘are already hundreds of [swimming technical officials] across the country and with the sport continuing to grow, there are lots more opportunities to get involved’\(^75\). In the whole UK, officiating is conducted by volunteers. Officiating is perhaps the most formalised and standardised voluntary-based arena in which individuals receives a formal training and are developed for their voluntary inputs. The SASA, to be competitive and at the same time to keep its voluntary nature, has developed and actively maintains a large-scale and complex network of volunteers to accommodate and secure all human and legal requirements needed for a working national swimming sport in which competitions play a great role.

People involved in swimming officiating are called ‘Swimming Technical Officials’ (STO), whose main responsibility is to make sure that swimming competition events ‘run smoothly, safely and within the sport’s regulations’\(^76\). To fulfil all officiating requirements, a number of roles have been shaped within officiating over time. While the most basic role is timekeeping, the most complex and official position belongs to referees. Other roles include recorder, judges at different levels, and Automatic Officiating Equipment (AOE) operators.

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Welsh, English and Scottish STO programmes had worked entirely independently until the mid-2000s. Whereas qualified referees were mutually recognised among three regions, at some point, a demand to even standardise the very processes and practices in training and preparation agendas was shaped. As a Scottish STO convenor explains, the motivation and the process for such were:

To professionalise the officials’ quality from timekeeper through the referee, everyone was emm … that the referee qualification was an equivalency of standard but they wanted to make sure that the preparation of bringing people to that was the same. Second issue was retention, the need to keep officials through the programme so we moved from emm … to keep our officials involved, one of the problems was it was Scotland’s, particularly, was an exam-based process, you would learn the knowledge and then went on the poolside to qualify that you’ve learnt understanding and application. The historic system in Scotland was you couldn’t be a judge until you had the knowledge of the rules. So, you learn the rules, sat in exam, and then you would allow to go on poolside to apply those rules to the swimmers and techicals … classes before practice … in England, it was practice contempress with, at the same time, learning the knowledge and then they sat on exam ... these are all done in vocational assessment of progress model …but we became much more like England, we moved more than the English system did [Interview, 27 Feb 2014]

To operationalise that desired standardised system, a toolbox had been designed which includes a workbook for trainees (mostly parents), a package of PowerPoint slides, procedures to run training workshops, a modified video clip, and dozens of forms to monitor the practical and theoretical progress. While a UK-wide STO development model is in operation, this is not to say that there are no local differences such as some practical details in assessment processes. I’ve seen that some Scottish workshop instructors have also added some additional slides to consult some ‘Scotland-specific’ officiating aspects like the normal AOE technologies that are used in Scotland or the different practices for judging and timekeeping at the same time.

In the field, STOs work with swimming rules and times. Their task is to make sure that times generated in a particular event are accurate and in accordance with swimming rules. To enable them to carry out these tasks, a set of tools and techniques have been designed, regulated and developed. A basket of technological innovations, from stopwatches to touchpads to high-speed cameras, can be used in timekeeping and rule-monitoring. There
is a process by which some individuals’ responsibilities are being replaced with technological solutions\textsuperscript{77}. For example, consider this:

Today I attended one of the STO training workshops. The instructor, a qualified and experienced Scottish referee played an American educational video. In that video, there wasn’t any direct pointer to Touch-pads, but the video narrator said that swimmers should only touch pools’ walls with their hands. The instructor stopped the video and attempted to clarify the situation for the trainee parents. He stated: ‘Touchpads cannot understand nose/hand; it is your duty to disqualify a nose-touch’. He extended the walls in the video to the pads which are common to most Scottish events. [Fieldnotes, 21 Jan 2014]

While the act of timekeeping does necessarily need some sort of technological device, a classification has been developed to accommodate different task distributions between humans and the non-human in timekeeping practice and the regulation associated with each class: First, the fully manual in which timekeepers use papers, pens, and stopwatches to obtain times from the start to the end; second, the semi-electronic in which starting is done automatically by a computer but ending the time is carried out by pressing a button by a timekeeper (see Figure 6-4); third, the fully electronic in which both starting and ending is done by a computer. If the semi- or full electronic timekeeping system is in operation, manual timekeeping will be used as a back-up if required. Manual timekeeping is a social position which can be occupied by all volunteers, and a minimum of understanding, training and tools is required to let a volunteer get involved.

\textbf{Figure 6-4: A Sample of Backup Button (Model OIT3 by Swiss Timing)}\textsuperscript{78}

\textsuperscript{77} See ‘delegation process’ (Latour 1994)
\textsuperscript{78} Taken from http://www.avkgroup.at (Accessed 19/01/15 12:45pm)
In the field, in the process of timekeeping, the quality of specific activity (i.e. performance) is quantitatively translated into numbers. However, this quantified quality to be considered as official time needs approval from judges. Also, rule-following at poolside is watched by referees off the field. The time and location of the swimming competition field, both at the backstage and frontstage, is the venue in which swimming times are generated. However, there are other contributing places and occasions such as training workshops and regulation-reviewing meetings. So, the functionality and sustainability of officiating is the collective work of timekeepers, judges, technologists, pool-staff, and devices before-during-after and on-and-off the field.89

Archive Creation

There are some physical and non-physical materials which could support the existence of a particular community. The societal and practical benefits of community and organisational archiving have already been flagged by scholars and practitioners (Young et al. 2006; Flinn 2007; Seaman and Smith 2012; Rowlinson et al. 2013). Swimming, like other similar community-oriented sporting systems, are full of objects and stories that capture the historical and biographical evolutionary path of this specific sport.

As people offer their time and put their efforts into the community on a daily basis, some of those normal and everyday objects such as a diary and swimming card have been transformed into archive-like material which then generates a non-material (!) value. Scotland’s swimming history, especially within the last two centuries, has been in close connection with those volunteers who govern and work towards sustaining the community aspects of this sport (c.f. Reid Howie and Associates 2006; Reid 2012). The objects that are transferred to archives over longer periods of time, such as minutes, whistles, medals, and paperworks, have been randomly kept by people who either used them themselves or whose parents were using them in the everyday life of Scottish swimming.

In the Scottish districts, a history-keeping idea emerged and gradually gained wider attention with some development, that is, to organise and make sense of those distributed, individually-held archival and historical objects. At that time, while really important stuff

89 Also: Radios Regulations and Deck-AOE Referees
was kept in two boxes and held by the appointed secretary, there was no regular archiving. As an instance of common practice, the idea was generated and evolved through discussions and communications of a passionate group of volunteers, and that idea was fine-tuned and integrated in line with the wider interests of the District and national community. The overall aim is to preserve ‘what's happened in the past; future years people may want to know what did we do’ (Interview, 7 Jan 2014). In doing so, an archive team would collect all potentially interesting materials and organise and maintain them in a systematic and coordinated manner.

When the voluntary archiving group was established, the immediate challenge for the community was to find a place to keep the archive. Quick research was carried out, mainly by those volunteers who were the key drivers, to find and evaluate possible secure places which could be hired given the financial considerations of the community. Even the cheapest options were far beyond the community’s budget, in particular given the fact that the nature of the project required long-term planning.

When the idea and its space issue made its way through the community, a Scottish ex-swimmer, currently the parent of two swimmers and awaiting qualification as a referee offered to the District the use of one of the offices at his manufacturing site. His manufacturing-based business offered and secured the continuity that was required to run the archiving project: an opportunity for a place that was sustainable for an acceptable period of time, at least for the time crucially needed to accomplish the first stage of the unwritten strategic plan; that is, firstly to collect every possible object before they were lost and secondly to create an initial ordering and classification, like keeping timekeeping materials together.

Seizing the opportunity, the project was announced and verbally promoted by the community, and for the first time ‘official’ archiving in Scotland started. A number of necessary supplies were bought: office items, shelves, a laptop, and a quality scanner for digitalising the collected documents. It was arranged that the community would reimburse the cost of the transportation needed to reach the building. Also, it was agreed that the District would pay a fee to share some of the office maintenance and energy cost. The figure shows how this archiving office looks:
The appointed volunteer archivist goes to the office once a week. There is no exact ‘how-to’ for archiving. Since the new archiving office was established, more and more boxes and materials from parents and members of the swimming community were received. And an early benefit was that if some important documents were not clear, there was an opportunity to discuss and clarify them in the District-level meets when older volunteers attended.

A couple of years later, this particular innovation had been discussed in detail at the District meetings. The clauses associated with ‘archiving’ were added to the ‘bylaws’ section of the District constitution in 2013 in order to both legitimise and regulate archiving objectives and tasks in the community. Based on that, the duties for an archivist are to ‘maintain and preserve the memorabilia’ and ‘to appoint additional volunteers, as and when required’. While the body of official SASA documents such as the Constitution and Governance documents are similar and integrated across Scotland, topics such as archiving signify local and situational differences.
Swimming Professionalisation

In the international environment, we had no choice [to establish a professionally-run swimming governing body]; we want to have swimmers that are swimming for the United Kingdom of Britain and swimmers who win medals at championships. They have to have a clear progression. The government wouldn’t support us financially if paperwork and auditorial and our transparency wasn't there … However, it does cause conflict with dealing with little things. We’re trying to get a national system and a consistent approach across all levels of the sport.. [Interview with a Senior STO Convenor on, 27 Feb 2014].

The traditional community-led sport activities have witnessed a couple of transformations in their operating institutional environment. To a large extent, pressures on governmental bodies, mostly driven by the New Public Management paradigm, have been also passed down to entities which receive government financial support, either partially or extensively (Hay et al. 2001; c.f. Eikenberry and Kluver 2004). Greater transparency, accountability and other fiscal requirements have pushed voluntary and community-based sporting systems like community-based swimming to revisit and adapt their working structure and processes to accommodate those external and necessary changes. Consequently, such transformations stimulate a shift from people-oriented to rule-oriented bodies (Jackson and Donovan 1999; c.f. Hwang and Powell 2009). There are also other driving forces beyond such financial concerns. For instance, the growing market for sport industry challenges the existence of those voluntary based sport entities that were established when the leisure market was considerably underdeveloped (Nichols et al. 2005).

Swimming in Scotland has not been an exception. In 2003, the Scottish Amateur Swimming Association was incorporated as a company with limited responsibility and ‘Scottish Swimming’ was selected as its trade name for all official correspondences and marketing purposes. This was a response to the above-mentioned issues and to secure funding from state-owned sportscotland, the national agency for sport in Scotland. Established as a professional company, its purely associational nature has been changed while it still operates as a membership organisation. To keep dedicated and passionate volunteers on board, the Board-and-Council system was adopted. The quote from their ‘About’ webpage depicts this change.

Based at the National Swimming Academy on the University of Stirling campus, Scottish Swimming has fifteen professional staff, reporting to the
sport’s Board of Directors. In addition, the Council is in place to represent the needs of our clubs and members through their individual districts and manage the constitutional structure of our sport. There are also a number of committees within the sport to manage specialist areas, including the individual disciplines. In addition to these roles, we have thousands of volunteers across the country, working hard to support our sport and ensure its success at every level. [Scottish Swimming ‘About’ page, Accessed 4 Nov 2014].

While the intention was to keep a balanced and structured power distribution between the voluntary and professional parts of the organisation, it is not surprising that some conflicts and tensions emerged. For instance, having a long-term leased ‘headquarters’ is essential for the ‘stability’ of the Scottish Swimming business\textsuperscript{80}. However, from a voluntary body’s perspective this ‘physical stability’ has large social costs and makes their governance a ‘sticky’ one: The problem is that they can just see the ‘tip of the iceberg’.

Another example is the timeframe and workload needed for running swimming meets. In my observations in a couple of weekend-based competitions, some core volunteers explained to me that those ‘professional staff’ will never come to run a meet on Saturday, Sunday! ‘Now is not their working hours’ (laughter). On the other hand, the problems with volunteer-run projects is further developed in relation to the challenge of website development project by the professional, paid staff at SASA. A marketing manager explain the challenges associated with ‘proper website development’ for the SASA as a whole.

While we are not a wealthy organisation, we’re financially stable. Almost everything is free, even our website is based on a free-CMS platform. … all tools and analytic tools, usually built-in, are free … Ideally we would like people go the website as a first point of call because this is where we can best control like and also get have the richest things …for the generic user however I think is the thing that people is moving more and more … there were always being a YouTube channel and the website but the audiences on the Tweeter are totally different from the audiences go to the website … we found for example on Facebook … FB is not like people used to treat channel, FB as a channel, pretty much as a cheap extension to the website … that’s not working … FB is not like a site FB is about pictures and motions is about asking people … [job advert] people are not interested in that … what we’re trying to do with the website [Interview 20 Dec 2013].

\textsuperscript{80} See this: ‘This £5.4 million development based in the grounds of Stirling University is not far now from completion. We are well on track to move to our new headquarters in December 2001. We have also negotiated a 25-year lease for our offices, which gives Scottish Swimming long term stability within a high quality environment. Professional staff are looking forward to inspecting the new headquarters later this month and there will be more photographs to follow – watch this space!’ [emphasis added; 2 Aug 2001; retrieved by web.archive.org]
The other issue is centred in online presence and public communication. Based on positive feedback from some members of the community, the corporation has redesigned the existing website with a hope to unify and professionalise all communications in the future. However, while technical infrastructure is supportive, a critical social issue still blocks this transitional process: the minimal approach towards the corporation’s operational area. A member of the Service Team at Scottish Swimming explains:

Ideally for us, for swimming as sport, for all aquatic sport in the future, the ideal scenario would be that Scottish Swimming owns communication channels, represents everything that happens under knees that and the districts basically just supply the information to do, they are specific to the area … [however] the reality to that is that I think the districts see themselves as separate entities and they see Scottish Swimming basically as a kind of like the thing that need to have … I think they understand they cannot they wouldn’t exist without a governing body sitting on top of them ... the idea with [our] new website is to break down the walls ….we actually have the expertise to do those things and then channelling out our expertise to the districts. So, instead of them doing their own things, I would like to get the position that ask us for advice and then work with us … and the same with website, I think the idea with the website is … it is an open source platform, it can be easily adapted in smaller scale to build a district website ... when you look at the website our intention was not only to display the information in a nice format but more so to have technical ability to expand in the future [Interview, 20 Dec 2013]

Infrastructural Trajectories at SASA: Volunteering-in-the-Making

In this section I will discuss how different pieces of SASA could be analysed to better understand the performance and processes of the work in this voluntary organisation as well as how such activities generate a kind of organisational persistence. But, before starting an analytical engagement with the selected narratives, let me remind the reader that the Strauss concept of trajectory, applied in this chapter, has dual functioning. Firstly, it refers to the course of any observed chain of action, and secondly, it captures the factors contributing to the development of that particular action. Basically, both aspects are observable in all three trajectories that emerged in this empirical study. It is worth mentioning that all trajectories are imbricated (I will discuss this later in detail) and this analytically is explainable through the second dimension: Contributing ‘factors’ in each trajectory are those elements and effects that are at the centre of the ‘course’ of other trajectories. For instance, when discussing the commitment trajectories, the material trajectories are the contributing ones, shaping and intersecting with the main trajectories. But, when the material trajectories are at the centre of analysis, ‘material element’ does
represent the first dimension which is the course of action chain. Also, it is helpful to mention that all obtained trajectories are abstracted and categorised versions of actual trajectories, and this method of presentation has a trade-off: While it allows us to generalise ‘significant’ trajectories in a voluntary setting, it cannot fully illustrate the interviewed-ness of multiple trajectories. In fact, such interviewed-ness (i.e. imbrication) itself contributes to better understanding of how organisational persistence is achieved and shaped in this context.

Core Trajectories at SASA

Inspired by Star and Bowker (1997)’s visualisation of the trajectory framework, the following diagram shows how these trajectories are bound together, but are not entirely firmly coupled. Events, volunteers, regulations, practices, and relationships may largely remain albeit with gradual, mutual adjustments. Or rather, a major breakdown or sudden change may interrupt the working infrastructural platform, and such unexpected problems require extra, innovative work as well as further negotiation to reconfigure critical components and eventually provide consistency and support persistence of the association. While I will discuss that the temporalities in multiple trajectories are complex in nature, the ‘time’ element has been simplified and illustrated as linear in the following figure for the sake of visual representation. However, this practical constraint in visual drawing should be brought into the simple conceptualisation of the temporal unfolding of these three trajectories.
Commitment Trajectories

This kind of trajectory represents those activities and chains of actions through which a voluntary-based organisation-like entity such as the SASA fulfil its moral and societal values and the needs of their members. The inertia of any voluntary entity (i.e. organisational persistence) can be better understood through the lens of the work accomplished in such organisations and issues such as the units of capacity or degree of commitment actively negotiate with the conditions which themselves shape the future of volunteering work and prospective activities. The various techniques and strategies people develop to maintain a commitment path and this, in relation to other elements, creates sets of commitment trajectories. The nature of commitment for the prospective actions and the ways in which they can performed are largely shaped by the accumulation of the work that is being already performed by existing members and long-standing actions. The following quote is extracted from an interview with a parent was trying to explain how she might be able to integrate her professionally-motivated workstyle (the mergers of two trajectories) with the existing ones shaped by some other members.

They [parent volunteers] move random, changing to the different jobs … emm… and really there is a few people who are generally, mature people, who have been in swimming world for years and years and years who know everything.
As for the everyday administration of the clubs (c.f. one piece of SASA), people respond to the shapes and effects of commitment trajectories by incorporating aspects of their ‘family life’ with their ‘work life’. In fact, the commitment trajectories demand lots of additional work to balance and find a working relationship between the life and work elements of the members. The following figure shows how two volunteers re-formed one of their rooms to bring the office into their house rather than doing their job at the office. Interestingly, the office is now an ‘expensive storage’ for the organisation and this is justifiable since this room is a cheap workplace.

![Figure 6-7: Decorating a Houseroom as an ‘Office’](image)

**Professional Trajectories**

The second major type of trajectory that emerged in this study can be grouped under the label of professional trajectories. The common feature of such trajectories is that they deal with the technicality and efficiency of the work performed in such contexts. The triggers and forces affecting the process of coordinating professional practices can be both external and internal. New small projects or innovative developments by volunteers (e.g. official development of PowerPoint slides) can possibly be turned into a proper trajectory of the association. The success of such attempts, mainly internally motivated, depends on a portfolio of conditions, in particular, the associated commitment (i.e. hard-work) and the capacity of these developments to be inscribed in material textures (e.g. a piece of computer programme to bypass the limitations of SportSystems).

If the source of professionalisation is beyond the control of existing members (funding regulations by sportscotland for instance), then the reaction from the voluntary body can
manifest in three different ways. The results of professionalisation pressures to affect the existing logics of work trajectories in SASA, have produced the following types of relational effects: en-professionalisation (accepting the idea and contributing to it), re-professionalisation (taking the idea and domesticating it) and de-professionalisation (backfiring the idea). Each type, however, entails a re-configuration of the existing sociomaterial performances.

The concept of professional trajectories provides an alternative understanding about what ‘professionalisation’ means to volunteering bodies. It encourages the researcher to consider not only the path through which new practices are generated but also how the formal processes interact with mostly invisible informal routines. The key point is that whether the source of efficacy improvement is external or internal, it requires a large degree of competence, however, conflict can arise when experience-based competencies (e.g. in the people behind the swimscotland.co.uk) and profession-based competences (e.g. in the people on the communication team) interact in the process of justifying and resolving a major challenge such as making a backup database or disseminating the swimming results. Also, sometimes the new professional practices are merged into the existing commitment trajectories through the mechanism of strategic ignorance (c.f. Star 1990; Helgesson and Kjellberg 2005).

**Material Trajectories**

A ‘material trajectory’ can be defined as a set of actions and interactions involving and producing material objects that result in the evolution or maintenance of an (or some) aspect of volunteerism. Such objects represent varying degrees of mundane-ness or epochal-ness (Michael 2000). In the context of Scottish swimming, usually, more mundane technologies are used in the realm of administration while advanced technologies are better deployed at events and ‘the swimming sports’. Since there is a constant back and forth of data and information between these two realms, there is much improvisation and creative work to facilitate the travel of data and coordination.

However, the degree by which the actions involved in a specific work can be successfully articulated to achieve a particular task depend on two other related elements: *interactional alignment* and *ideological bases* (Strauss 1988). In the processes of interactional alignment, alignment of the structural relations between one specific work process and another work
process is attempted with the development of some additional interactions. The outcome of such work-related developments are mediated by the ideological and negotiated foundation of the organisation. The nature of objects-in-use and the way in which they are created, assembled, and embedded are influenced by these interactional and ideological elements.

For instance, the task of entering swimmers data before any meet is now being done through clubs in Scotland while the same task is carried out by individual swimmers in England. The ideological traces of this difference is that in Scotland, the voluntary body specifically believes that this mode for entering data provides an opportunity for final checks by the coaches, and it is practical and easier since it reduces the massive number of swimmers and dived them into some blocks of clubs. Hence, various clubs have utilised different technological platforms in relation to this Scottish style: Doodle, Google Docs, Blog and Website-based platforms are examples of such technological efforts while many of them still use telephone-and-a-sheet. The professional body, however, is determined to change this ‘old-fashioned style’, while some people have warned that such transformation would be a ‘nightmare’ for volunteers and parents. To make this change a step-by-step process, with the aid of technical volunteers from England, they initially introduced the platform change for the Masters Swimming section to help volunteers see its benefits and learn the new platform. In this case, a new material trajectory is born while some previous ones are merged or absorbed into this new one (Timmermans 1998).

The Imbricated Tuned Trajectories

As mentioned earlier, these three different trajectories are abstracted to represent a specific set of activities associated with a particular dimension of SASA. It is already recognisable to the reader from the stories and the following analysis that these trajectories are inherently interwoven. Yet, in this section, I would like to discuss one further analytical point. While these trajectories are interwoven, there are moments that the exact recognition of each becomes almost impossible to designate. This is just the line of analysis that could add to our understanding about the organisational persistence of voluntary-based organisation-like collectives. There are two terminologies that can be used to explain such phenomena: translation by ANT founders and imbrication used by (Star 2002) and (Leonardi 2010). I have selected the term imbrication for two reasons: practically-speaking the term is more straightforward and ‘lighter’ in the sense that ANT’s
translation is associated with a basket of other terms. Secondly, as already discussed by Leonardi himself, the term provides an analytical opportunity to make a functional distinction between the social (i.e. commitment and professional) and the material. As Star highlighted, such imbrication is the point that an ethnographic researcher needs to surface, yet it is a difficult task. In the moments of breakdown (e.g. when Jack left the cards at home) two things happen: The importance of this imbrication will become visible and as a consequence, new imbrications are renegotiated and shaped.

Insights for the Volunteerism Research

The concept of mutual tuning of trajectories, with special attention paid to material trajectories, is helpful in advancing the volunteerism scholarship in three ways, all related to technological objects. The first lesson is an opportunity to reposition the locus of artefacts in volunteerism research. The second potential advancement is to bring and integrate the embedded role of artefacts into two unique characteristics of the sector. Third, this chapter introduces the notion of volunteer infrastructure and its benefits if the researchers shift their attention towards the actual practices associated with volunteering work.

Artefacts at the Centre

Members (volunteers) work to sustain a social order (the community). Objects are part of the volunteer work performed by people. This chapter attempts to rethink the position of objects in relation to their contributing role in developing communities. The current literature suggests that the phenomena of volunteering are constituted and subsequently understood through the three elements of: individual actors, proximate relational situation, and larger context. In this line of reasoning, the role of material artefacts such as technological objects are seen as significant to each element. This chapter, however, posits that material artefacts are actually part of the constitutive forces and elements that shape volunteerism. In other words, the sustainability of a particular community and the above-discussed understanding of volunteering-in-the-making are accomplished and affected by an ever-changing ‘geography of responsibilities’ among social and material actors within that community.
Considering the role of material trajectories, it becomes obvious that they can stand between the other two types of trajectories and through such a connecting agency contribute in the consolidation of the ontological tensions of the sector. This way of conceptualising IT may help us with an additional account to better understand and connect the two inherent features of the sector.

Firstly, the concept of low-performance-long-persistence (c.f. Seibel 1996) and, secondly, the contradictory nature of IT (c.f. Sanders 2012). While the dominant view is instrumental to efficiency-management, this new conceptualisation can provide a basis for keeping the tensional space needed for such organisations. To better understand the notion of material trajectories we must conceptually distinguish two levels of analysis: Some material trajectories do occur at the level of the organisational realm (e.g. particular software) while there are other trajectories which are merged into or absorbed by at the institutional level (such as advances in smartphones).

### From Volunteer Activities to Volunteer Infrastructure

Wilson (2000) distinguishes two types of volunteers: associational (sustaining the organisation itself) and programme (acting on behalf of the organisation). Putting technologies in their right place, this study calls for a move from ‘volunteering activities’ to ‘volunteer infrastructure’ in which two layers of infrastructure co-exist:

- **Actor-Oriented Infrastructure:** Highly standardised; Routine-like works; Few conflicts but institutional
• *Activity-Oriented Infrastructure*: Loosely standardised; Action-like works; Many conflicts but everyday

This idea that there are two levels of working infrastructure helps us to provide an additional clarification on how this sector functions paradoxically in many ways (see Table 6-2). For instance, the question of bureaucracy or democracy in the management of such organisations can be explained in relation to the orientation of the infrastructure associated with that particular work domain.

<table>
<thead>
<tr>
<th>Infra Types</th>
<th>Standardisation Strategy</th>
<th>Artefacts Position</th>
<th>Work Performed</th>
<th>Power Distribution</th>
<th>Conflict Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actor-Oriented</td>
<td>High/ Single-Point</td>
<td>Specific/ Generative</td>
<td>Routine-like Process</td>
<td>Cardinal</td>
<td>Serious/ Institutional</td>
</tr>
<tr>
<td>Activity-Oriented</td>
<td>Low/ Clean-up</td>
<td>Generic/ Facilitative</td>
<td>Action-like Outcome</td>
<td>Democratic</td>
<td>Minor/ Everyday</td>
</tr>
</tbody>
</table>

Table 6-2: Two Layers of Volunteer Infrastructure

Calling on Star (1999), the emerging notion of volunteer infrastructure can be understood in relation to key characteristics of sociotechnical infrastructures. In the discussion chapter, I will return to this point and examine aspects of such conceptualisation in detail and in relation to the whole objective of the doctoral project. The following table attempts to respond to Star’s key elements in the community-based volunteerism.

<table>
<thead>
<tr>
<th>Characteristic Property</th>
<th>Applied Example</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Embeddedness</strong></td>
<td>Community members just ‘communicate’ with each other using whatever devices they have already.</td>
</tr>
<tr>
<td>Infrastructure is sunk into and inside of other structures, social arrangements, and technologies. People do not necessarily distinguish the several coordinated aspects of infrastructure.</td>
<td></td>
</tr>
<tr>
<td><strong>Transparency</strong></td>
<td>While fundraisers will know how to locally reach donors, new digital platforms are less transparent to them.</td>
</tr>
<tr>
<td>Infrastructure is transparent to use, in the sense that it does not have to be reinvented each time or assembled for each task, but invisibly supports those tasks.</td>
<td></td>
</tr>
<tr>
<td><strong>Reach or scope</strong></td>
<td>A local community meeting depends on the size and availability of Council-provided places.</td>
</tr>
<tr>
<td>This may be either spatial or temporal—infrastructure has reach beyond a single event or one-site practice.</td>
<td></td>
</tr>
<tr>
<td><strong>Learned as part of membership</strong></td>
<td></td>
</tr>
</tbody>
</table>

Technological Innovations in Voluntary Organisations
The taken-for-grantedness of artefacts and organizational arrangements is a sine qua non of membership in a community of practice ... Strangers and outsiders encounter infrastructure as a target object to be learnt about. New participants acquire naturalized familiarity with its objects, as they become members.

While the organisational structure might not be written somewhere, who’s who in the community is obvious for those who have been in it for a long time. Also, there is an extensive flow of ‘abbreviations’ in daily talk.

<table>
<thead>
<tr>
<th>Becomes visible upon breakdown</th>
<th>When a coordinator cannot reach his/her emails or their mobile-phone is lost, there might be a collapse in the flow of self-contained individual tasks.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The normally invisible quality of working infrastructure becomes visible when it breaks: The server is down, the bridge washes out, there is a power blackout. Even when there are back-up mechanisms or procedures, their existence further highlights the now-invisible infrastructure.</td>
<td></td>
</tr>
</tbody>
</table>

Table 6-3: Characteristic of Volunteer Infrastructure

Conclusion

The driving motivation is to find out what does it mean to speak about the volunteer and the voluntary entity beyond its legal situation. At the everyday level, is there any ‘difference’ between a business employee and nonprofit volunteer? Strauss’ concept of trajectory is adopted as a useful notion for understanding volunteering activities, when seen as a kind of social practice, since it considers mission and value intentions functioning alongside unanticipated events, leading to the possibility of various pathways toward multiple future potential outcomes, none of which is distinctive given the current circumstance. The social process of voluntary association has been the central concern of this chapter. The application of a pragmatist infrastructural approach to the study of VA dynamics, and in particular the analytic illustration of the material trajectories unfolded in the evolving VA, highlight the significance of sociomaterial processes when it comes to studying the temporality of third sector organisations. The trajectories articulated here provide a basic unit of analysis in the sociology of voluntary associations, and they suggest a way to map the shaping of such communities from the biographical point of view. A particular trajectory unfolds through a set of actions and interactions, but it also mutually communicates with other trajectories. This chapter also has shared some potential benefits of conducting an organisational study in volunteerism research, and in particular the need to address the complex relationships between material objects and organising practices (Leonardi and Barley 2008).
Hence, this chapter suggests that organisational persistence, if desirable, is also an ongoing sociomaterial accomplishment and that human negotiation and technical mediation are at the heart of such accomplishing activities. As discussed under the concept of trajectory, any disturbance in contextual conditions such as adopting technological innovation can result in the collapse of the existing social order or at least trigger new extra work to ‘sustain’ the already functioning order. Therefore, encouraging and sometimes pushing the voluntary sector to adopt more and more technological innovations or even speed up its use of those systems can be counterproductive to the technologically-designed development path.

As Star (1999: p. 382) points out, ‘nobody is really in charge of infrastructure’. Hence, the range and interests of the principal actors argues that one can only enact gradual changes, narrow them to only a part of the working infrastructure (i.e. the voluntary association), as other parts are actively organised by others. This argument therefore brings into question the models in which ‘managers’ or ‘key stakeholders’ are assumed to hold strong position in making changes or creating stability. They are, of course, part of the working volunteer infrastructure and can ‘act’ towards the evolutional course. This development trajectory is shaped consequently through a constant struggle between the various actors with their diverse needs, motivations, and tools to make or resist any change. While the already established sociomaterial practices (i.e. installed base) are critical barriers in reshaping working infrastructures, it is impossible to predict the actual trajectory of change because, effectively, there is no dominant control or power.

While there may be some sort of paid work agreements, volunteers represent a substantial share of the organisational employees in most voluntary associations (Harris 1998; Kreutzer and Jäger 2010). Trajectory-inspired studies concentrate on the sequential organisation of work processes and grasp the dynamics of different kinds of work to map the total ‘arc of work’. ‘All this has required the development of a comprehensive perspective that radically differs from the outlook of single practitioners doing what they have to do here and now’ (Riemann and Schütze 1991, p.334 emphasis added). This kind of perspective encourages considering various actors and extended settings.

This chapter also responds to the growing interest in advancing the not-fully-realised scholarship on voluntary associations, in particular the two ‘enduring questions’ extracted
by (Tschirhart and Gazley 2014, p.9S): ‘What explains establishment, growth, survival, and performance of associations?’ and ‘Organizational challenges?’
7. Volunteerism Meets Infrastructuralism: Towards a Sociology of ‘Relaxed’ Infrastructures

Aim and Structure

This chapter endeavours to bring infrastructuralism and volunteerism research streams together to make a contribution to the emerging field of Community Informatics. Bringing two streams of research together needs a reason, an agenda, and a facilitator. The necessity for this integration became apparent over the course of this two-year ethnographic study to understand how people and technologies interrelate in a community-based sport association. In mapping out the relationships, a methodological template was initially developed to define and capture the most ‘relevant sociotechnical interactions’. Then, summarised findings from the case study were presented based on the template. On this foundation, the empirical stories could be told in light of Volunteerism and Infrastructuralism. In the volunteerism stream, the emphasis is on the role of the proximate backdrops in which such interactions are given meanings and relevance. Infrastructuralism shows how the changing lens, zooming in and out between micro-relevance and pervasive enabling sociotechnical resources, is critical in making those interactions possible. Each research stream provides valuable insights for capturing and connecting the relevant interactions. However, linking the insights together within the messy setting of observed community sport became complicated. As well, the actual identification and management of some of the relevant interactions was problematic since it was hard to keep some of those interactions in focus. This chapter, then, offers the notion of ‘relaxed infrastructures’ as a conceptual facilitator to deal with these challenges. The relaxed nature of such homegrown community-based assemblages implies that there are layers of leniency and irreversibility that are woven together. There are arenas within which standardisation is failed and efficiency is limited; however, for some practical as well as moral reasons, such challenges are collectively ignored.

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81 This chapter serves as the concluding discussion for the whole thesis. It brings elements of the other empirical and conceptual chapters together to reflect on the overall objective of the doctoral research; that is, to advance our understanding about the interactions between and among people and technologies in the messy and pluralistic settings of voluntary organisations. However, to make the storyline of the overall argument more straightforward and focused, all references to the specific parts of other chapter have been footnoted rather than referenced directly in the text.
Introduction

What do people in voluntary organisations do with technologies in a Knowledge Society? Or, how are the social and the technological enacted and related in what we might think of as a complex assemblage of technology and people? Without a doubt, any set of answers to such questions will have significant implications for scholars interested in organisational and sociological theory as well as for practitioners and policymakers. At the macro level, scholars have indicated that the present policies and studies suffer from only marginal encounters with the specifications of non-research-intensive sectors in the modern knowledge-based economy, and hence the roles of technological advancements in low-tech, labour-intensive settings is overlooked (Tunzelmann and Acha 2005; Hirsch-Kreinsen and Jacobson 2008). The realisation that such shortcomings exist in the particular context of volunteer, nonprofit, and community work has given rise to the emerging field of Community Informatics (Gurstein 2007; Stillman and Linger 2009). However, even the existing and limited practical and academic knowledge in this regard, under this label or otherwise, seems to lack focus and coherence. For instance, scholars hold different views about the appropriate point of reference in the process of adjusting technology into organisational context of volunteer work82 (c.f. Burt and Taylor 2000; Hackler and Saxton 2007). One reading of this tense picture is that these definitional and institutional variations have resulted in limited and mismatched views. Such accounts shed light on part of the story. Yet, this chapter does not aim, at least directly, to examine final answers to this problem. Instead, it attempts to step back and reflect on the methodological and theoretical path through which we might conduct similar studies to seek convincing answers.

This concluding chapter presents our understanding of the role of technological affairs in a community-based sport assemblage, introducing an analytical approach that might be useful for future studies. Specifically, this chapter suggests that the methodological struggle to keep the object of study (i.e., the patterns and relations of sociotechnical interactions in the observed case) in focus can be reinterpreted as an ontological consideration. That is, this particular type of object (including relations amongst different actors) changes constantly and subtly, and hence it becomes impossible to pin down a stable networked connection among the internal parts and relational connections. Using

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82 For a full review of this intellectual division, see the first empirical chapter.
insights gleaned from a focus on the various sociotechnical layers of performing volunteer work in a Scottish sports organisation, my hope is to convince the reader that the empirical exploration of such objects requires some modification in existing theoretical concepts to help us better understand how the context actually matters and how it is reshaped by technological affairs in the context of volunteer and community work. Therefore, one overarching research question has been constructed to channel empirical and conceptual endeavours in order to understand the actual sociotechnical dynamics of volunteer work: “How do information technologies interrelate with human activities in volunteer-involving organisations?” We also need to determine those sociotechnical interactions that are constitutive to the domain of volunteer-led service provision and the ways such interactions occur and unfold.

Methodological Template: ‘Relevant’ Interactions?

Technology studies in voluntary and nonprofit organisations, and the broader field of technology-oriented scholarship, have already discussed at length that contextual conditions play a significant role in shaping the patterns, dynamics, and consequences of technology use and development as well as the organisation of the work (Berlinger and Te’eni 1999; Avgerou 2001; Saidel and Cour 2003). Given this, let me first re-examine the above-mentioned research question with a minor revision and pose the following question: What is the relevance of voluntary settings for the interactions between people and technologies (or vice versa)? This reflects a common research theme in many parallel academic investigations and practical consultancies. That is, that context matters, for example in finding out how the particular contexts of volunteer, community, and nonprofit work might be reconfigured when people accomplish their activities with (or in the absence of) technologies. Or, what are the proximate implications of specific characteristics of this particular context, such as multiple interested parties, complex goals, and mission-business dualities (c.f. Jonsson and Zakrisson 2005), when it comes to elucidating the relationships between technology and people. As a result, it becomes inevitable for Community Informatics researchers to understand and articulate those

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83 I am aware of the difference between these three terms. However, in this chapter, I use them interchangeably since the emphasis is on their shared difference from corporate and professional work. (Hall et al. 2003; Hustinx et al. 2010; c.f. Wright 2013). For fuller discussion refer to chapter 2 on the nature of volunteering.
elements and issues that make such contexts a particular area of study. It is argued in this research project, that we need to concentrate on context-in-the-making if the aim is to truly understand how technology works within volunteering activities.

While the volunteerism literature does not offer any grand or holistic theory of volunteer work, there is a rich body of knowledge that helps us in clarifying the very nature, experience, and social organisation of volunteering and community work (Hustinx et al. 2010; Wilson 2012). Therefore, the body of volunteerism research can supply the methodological probe for capturing those sociotechnical interactions that are adherent to local conditions and discourses.

Scholars in the field of technology and organising recently argued that many of these relevant sociotechnical interactions are embedded in everyday life, beyond the scope of research, and hence their exact identification requires sophisticated strategies that enable us to constantly and iteratively inspect both the local circumstances and discourses and the larger institutional textures in which those interactions occurs (Czarniawska 2004a; Nicolini 2009; Pollock and Williams 2009). Also, there is a growing argument for the necessity of engaging with a portfolio of technologies to fully understand how technological objects are assembled to make new action possibilities (Carroll 2008; Kane and Alavi 2008; Sawyer et al. 2014). These considerations are strongly pursued in infrastructural studies that show how actions become possible at extended timeframes and in locales in which larger number of social roles and material objects are involved (Monteiro et al. 2012).

So, the combination of volunteerism and infrastructuralism studies provides a methodological template of sorts that stays close to the lived experiences of interactions as well as the broader ecology of them. To enrich the quality of this template, it is necessary to clarify the context and object of the study in the particular setting of this ethnographic research. It would be clear for the reader that the notion of community is key for the purpose of this research. So, in the following, the importance of community and its different understandings in technology-related studies is briefly reviewed to clarify how community might be conceptualised and used in this chapter.

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84 Please refer to chapter 1 (i.e. Introduction).
The combined term “community infrastructures” has been mentioned in the literature, but in an implicitly different manner (e.g. Ribes and Finholt 2008; Carroll and Rosson 2013). To simplify the picture, two major usages of the term is re-examined here: First ‘the community’ has been seen as the target for technological activities whereas in the second it is understood as a mediating space or layer within sociotechnical development projects. Each usage is associated with a number of analytical implications for the argument developed in this chapter.

Technology Attends Community Affairs

There is a stream of action-oriented research (Carroll and Rosson 2013) that is concerned with the practical benefits and contributions of technological advances for improving community lives. Its core is to rethink the notion of social capital, which has already been well explored in community studies, in the light of technological innovations. For instance, the idea of ‘sociotechnical capital opportunities’ attempts to provide a list of potential technological affordances and constraints for fostering and extending social capital (Resnick 2001). Community life settings are vital hubs for social relations and associations, and these relations entail periods of ‘proximity and dislocation’. IT can play an advocating function in making the transition from one period to the other more seamless and smooth (Huysman and Wulf 2005).

While there are no sharp definitions of the term community, these studies have a special emphasis on, to use (Clark 1973), the right and matter-ness of spatial and environmental aspects to understand the very communal life in which social ties here are much more ‘through and multiplexes’ rather than being merely selective, specific-kind ties. The ‘neighbourhood’ character of communal life (c.f. Carroll and Rosson 2013) suggests the possibility of physical engineering. Furthermore, the impact of such physicality offers a counterbalance for future studies and theorisations. That is, the realm of ‘virtual and online communities’ has been one-sidedly highlighted in existing computer designs and studies (c.f. Huysman and Wulf 2005). In closing such gaps, there is one additional pragmatic and moral challenge for community informatics researchers, and that is the practice and theory of inclusion in community life settings that emerges from their democratic makeup (Carroll and Rosson 2007). To conclude, in such efforts, technology
has been predominantly assessed as a kind of servant for fostering sociotechnical assemblages.

*Community Mediates Sociotechnical Development*

For some scholars, while endorsing the notion that sociotechnical networks are made to serve a community’s activities, the focus is on viewing the reverse impacts and asking how the work of community members, and their ‘representative practices’, shape and mediates the development trajectories of those sociotechnical networks (Ribes and Finholt 2008). This way of thinking has a major implication on research, that is, to shift from the definition of community to the use of community (Ribes and Finholt 2008). One simple but functional reading of this approach is to see ‘the community’ as a kind of conceptual space through which the softer issues of sociotechnical development are enacted, mediated, and configured; to use Lee et al.’s (2006) conception, community can be seen as the ‘human infrastructure’ of complex infrastructures.

In this line of reasoning, community infrastructure will thus mean rather different things from the above-mentioned understanding based on social capital. Here, there is not necessarily a sense of locality or geography. The emphasis is on community-building as well as providing resources for that community and its core activities (Ribes and Baker 2007). Or, the community is one specific form of social structure in which social networks of any kind provide an arena for social relationships (Clark 1973) that influence the process of community-building itself and serve infrastructure alike. In short, community in this line of study is effectively used and realised as a representing and mediating factor in advancing sociotechnical assemblages.

*Defining ‘Community and Technology’ in the Voluntary Service Domain*

The empirical domain on which this chapter is based is a community-based sport association, Scottish Swimming (SASA). This association does operate in a certain geographical territory (i.e. within Scottish Borders), but is highly distributed and not very proximate on everyday activities (i.e. competitions and the annual meeting gathering are unique opportunities to meet all members beyond those who are in the proximate context). The technical platform is designed, built, managed, and maintained primarily by their own (mostly volunteer) members. In this particular swimming-related context, what brings its member together is an interest in this sport, its practice, and its societal
contribution. Swimming, in particular in the UK, is not only a popular and reputed practice but it also embodies interesting aspects of historical civic engagement and cooperation.

Like in many similar sport communities, at the core of such assemblages are the cultivation of traditions, members’ fulfilment, and programmes provision (Thiel and Mayer 2009), and community relations, social activities, and technical practices are all critical in empowering community members to grow their own infrastructure in order to serve their own community (Karasti and Baker 2008). The ‘community-based infrastructure’ of SASA shares some, but not all, of the aspects of geographical, structural, and representational approaches.

Consistent with the nature of community sports and by recalling (Clark 1973)’s classic idea of ‘community as sentiment’ that combines elements of psychology and sociology, it seems the following can be presented as a satisfactory working definition for this chapter:

- A homegrown, voluntary service-oriented community-based sociotechnical assemblage is one in which a technical, social and organisational platform is built and managed by the members of a geographically-linked community to serve that community where the ongoing process of development and maintenance affects both the psychological and sociological sense of community among those members.

Methodological Template for Relevant Sociotechnical Interactions

The original question was framed by the relevance of sociotechnical interactions. For this particular research, this significant issue guides us in positioning community-based sport in terms of core relevant (sociotechnical) interactions that constitute the community as an assemblage entity. Volunteerism reminds us that the relevance of sociotechnical interactions should be recognised in relation to the context and process of volunteer work, that is, in relation to the backdrop and direction for activities as well as affordances and constraints for membership and impact. Infrastructuralism, on the other hand, reminds us that the relevance of sociotechnical interactions should be understood in relation to their role in constituting the community’s communication patterns and abilities to learn new processes. That is, to make actions possible and let them travel in space and time.
Taking together these insights from these two streams of volunteerism and infrastructuralism, remembering the clarification made for the notion of community in sociotechnical studies, and considering the specifications of the particular context of community sport, the following three types of interactions are extracted as the most relevant categories for analysing and explaining the shaping of the observed community-based sociotechnical assemblage.

<table>
<thead>
<tr>
<th>Description</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Service” Interactions</td>
<td>They are related to the production, consumption and feedback of the core activity, i.e. developing swimming in Scotland</td>
</tr>
<tr>
<td></td>
<td>Competitions, Classes</td>
</tr>
<tr>
<td>“Identity” Interactions</td>
<td>These interactions shape a sense of collectivity and cohesion and significance among the members. They entail both meanings and feelings.</td>
</tr>
<tr>
<td></td>
<td>Meetings, Archives</td>
</tr>
<tr>
<td>“Ecological” Interactions</td>
<td>They highlight the institutional linkages, public appearance, resource security, internal balancing, and external communications.</td>
</tr>
<tr>
<td></td>
<td>Newsletters, Sponsorships</td>
</tr>
</tbody>
</table>

Table 7-1: Key Interaction Categories in the Observed Case

Empirical Insights: ‘IT-ness' Inside a Community-based Sport

The above-mentioned three relevant interaction types were used to map out the relationships between people, technologies, and the accomplishment of work in the context of SASA. In this section, a brief introduction to the observed case is firstly presented. Afterwards, I review three main realms in which sociotechnical interactions are assembled and connected; these realms have been empirically generated from studying the SASA case when the relations among the relevant interactions and associated technologies and people were being mapped out. As stated before, the point of analysis in this chapter is the sociotechnical interactions and how the work is shaped and accomplished by and through them.

The Case: Scottish Amateur Swimming Association

The Scottish Amateur Swimming Association (SASA) is part of the larger British Swimming organisation (ASA). However, it is administrated independently for the majority of local (and sometimes nonlocal) matters. SASA is formed from four geographically-oriented districts. In total, more than 160 clubs are affiliated with this association, and it serves around 12,000 members. The size of affiliated clubs varies between 10 and 300 swimmers. The whole sector heavily relies on the work of ‘volunteers’. Since the business of swimming training is an extremely demanding activity,
there is a great need for parents’ involvement and swimmers’ commitment, and these in effect make the sport and its organisation highly disciplined.

Three Realms of Assembling at the SASA

During the empirical ethnographic attempts for (a) shadowing a technology development project, (b) analysing technological non-use and (c) rethinking organisational persistence it became clear that there are at least three major ways through which sociotechnical interactions are conducted and assembled together. These three ways, labelled as assembling realms, are interrelated and became visible through a specific research design. Interactions happen in history but they are also formative in the sense that the results of each interaction can shape the occurrence of the subsequent interactions of any kind—material, individual, institutional and social—in both the immediate and distant future. The researcher is more concerned with ‘what is happening’ rather than ‘by whom’. This is not to suggest that individual or organisational actors are of no importance but it means the epistemological and methodological priority is given to the interactions and then to the ‘interactor’ (Kling et al. 2003). For instance, if a mother receives a last-minute cancelation of a training class via a mobile text, and then she confirms she received the message and calls the father to tell him not to take their children to the pool, a number of devices and humans are involved in various interactions: noticing, confirming, and calling.

*Realm of Assembling #1: Conditioning and the ‘Consequences’ of Interactions*

The first realm through which interactions in the community-based swimming organisation occurred and somehow were managed was conditioning. This theme was

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85 Each constitutes one empirical chapter as discussed earlier.
mainly extracted by looking at and mapping those interactions which fall under the
categories of service and ecological types. The context of voluntary effort is constituted
by various and different people who offer varying degrees of time, skill, and commitment.
In the particular case of grassroots swimming, a large amount of the work is done by
volunteer parents who are interested and sometime encouraged to turning their silent and
less effective time at the poolside to doing something more than stand on the side-lines
to benefit the community and club. However, it is very common to find a few parents or
an ex-swimmer that, while still a volunteer (or semi-paid) staff, are engaged in duties and
jobs perhaps more stressful and demanding in comparison to conventional positions in
large cooperation organisations given the level of their knowledge and official training.
Yet, this pressure and massive responsibility also results in more power.

Every chain and cycle of service or ecological interaction follows a temporarily structured
pattern in assembling the elements of work. Such patterns are in fact the results of
ongoing renegotiation and previous interactions. For instance, making a list of potential
swimmers for a competition involves a set of particular activities. Certain data and
information needs to be gathered, put together, and finally used in generating the final
(but-still-open –to-change) list of particular squads. However, the steps and means by
which data collection and synthesising are made are largely a matter of personal choice
and preference. The analysed interviews and observations suggest that some of such
patterns are fundamentally governed and arranged by long-time, associational volunteers
even though there is no formal document or instruction. In this study, it became visible
that attempts by new volunteers or action researchers to initiate change in some specific
work patterns turned to be problematic.

Interestingly, even if the area of desired change interfaces even minimally with work
patterns of these powerful volunteers, the successful implementation of that change
would turn out to be understandably contingent on additional work, negotiation or
duplication. In fact, the path-dependency which is being already sustained by powerful
volunteers need some invisible work to be re-aligned and re-created. However, it was
observed that such re-alignment could be done by work or non-work related efforts,
ranging from constructing local interoperabilities to causing a collective socio-
organisational pressure based on deeply-rooted values.
The other insight associated with the theme of conditioning is the potential for growing functional tension between the established, association people who generously devote their time, and the new members who tackle any ‘skills famine’ with their own particular expertise. Since the majority of the jobs done by sports volunteers are labour-intensive (demanding significant time), and do not need specialised forms of knowledge and training, the more time one person offers and devotes to the organisation, the more conditioning power he may get in return.

This power is subsequently used to shape the pattern of assembling sociotechnical interactions to accomplish the relevant task. However, based on some of the generated narratives it can be also suggested that in the context of voluntary ‘collective’ work, time and skill both compete with and influence each other. The empirical data reveal observable patterns of potential competition between those offering ‘more time’ and ‘higher skills’, especially customisable technological skills which are evidently scant in this context.

The table below shows four combinations of time and skill that emerged from this study. One of these combinations, that is, people with lots of time to spend in the club and who have a high-level of IT skills to offer, is functionally rare since this grouping requires a larger amount of money to be invested which is hardly possible in this context.

The other three are conceptually useful in explaining the nature of the above-mentioned tension and the way those tensions are coped with. People located in Cell 2 (i.e., those that are better in IT skills but are not much involved in the everyday life of a club) attempt to introduce new IT projects. By contrast, people with a lower level of IT skills but who spend extensive time in the club (Cell 3) are usually resistant to any IT-based change.

People with limited time and skill (Cell 1) follow the ‘consolidated’ decision: either this established result comes from a ‘successful deal’ between people in Cell 2 and Cell 3 or from the winning Cell. In case of continuing disagreement, there are three parameters that identify which Cell (2 or 3) could be the final winner: the ‘learnability’ of the proposed system (solution), the ‘modularity’ of the work associated with the innovation, and the ‘clarity’ of the justification.
Table 7-2: IT-related Time-Skills Dynamics in a Small Club

It is worth noting that the notion of ‘spent time’ is itself complex. It is not only a matter of the ‘amount’ of time a person spends, but also a matter of the ‘quality’ of that time (the specific implications of that spent time). Furthermore, when it comes to understand the relevance of continuity of the time spent on a task, the particular situation in which that task is conducted determines which is more important: uninterrupted time or an aggregate accumulation. In short, while the availability of quality IT skills may be vital in developing and using an IT application, this factor could be mediated (supported or limited) by other elements. More importantly, the final arrangement is the product of combined spent time and offered expertise.

Realm of Assembling #2: Drifting and the ‘Possibilities’ of Interactions

The second realm in which sociotechnical interactions are assembled in achieving a particular goal is what I call ‘drifting’. At the core of this theme is that implementing any sort of change in the particular context of volunteer work is apt to result in something different from what was planned and programmed due to various factors such the need to manage relationships between short-term and long-term volunteers as well as escalating tensions between ideological and practical concerns. In short, the plans and goals at the outset drift from the original intention. The main empirical narratives supporting this theme were generated over the course of shadowing a technological upgrade in a successful swimming club. Those data suggest that drifting happened when the ‘new’ had to deal with the ‘old’ in the process of accommodating the new. Not surprisingly, this process did not go through a designed or initial path. New possibilities were revealed or even generated during the change process, and the drifting resulted.

People discover new technical, institutional, or organisational affordances over the course of projects and programmes. Local tactics are adopted to deal with ‘in situ’ challenges,
barriers, and uncertainties. This contributes to the transformation of the designed volunteer activities. In fact, such discoveries or inventions flow from the intended courses of actions, and they are associated with the limited and vague understanding of volunteers regarding contextual conditions, organisational politics, or even technical constraints in doing a straightforward task. Additionally, volunteering, for most of the people involved, is not their core concern; so, in the observed case there were many instances where parents gave up their allocated responsibilities after a short time when they could not form a clear picture of the scope and particularities related to the task or the entire work. If such vagueness remains, it is less likely that side-line volunteers will attempt to clarify or discuss problems they are dealing with. The most likely reaction and tactic is to either simply quit or find ways of working around the limitation or challenge. The consequence of such workarounds or micro-innovations is drifting from the initial path. In this study, the drifting phenomenon was empirically observed in three areas: the orientation to and particularities of the project, the obligations and relations among involved members, and the configuration and dynamics of the external environment of the project. Again, the main sources of the drift were the conflicts that emerged from the intersection with existing practices, the sheer complexity of the innovative change, and the micro tactics that people developed to implement the innovation.

In the studied case, the main focus was on the collective action which to some extent embodies the distributed and democratic decision-making structure. In many clubs and even the entire association, when it comes to make a decision of any kind, especially for those that are more strategic in style, there is not much of a ‘centralised’ culture. Many clubs were established many years ago, and have always been fuelled by the passion of its volunteers for the development of ‘Scottish’ swimming. Such collectives are businesses in the sense that they deliver some sort of product, but at the same time they are not like ‘typical’ businesses as their value and embedded culture affect their governing mechanism. Hence, service interactions to some extent need to shift away from the dominant logic of efficiency and performance. For instance, any strategic changes in such collectives should be discussed carefully as they might affect their historically successful reputation in tackling social problems. Also, those decisions, that have a high fiscal impact need comprehensive scrutiny by the governing committees of such organisations, as they feel
that this is their responsibility and seek to ensure the future of the club: ‘There is not that much space for a mistake, if it is not your own businesses’.

Historically, it has been an organisational value to make such decisions as democratically as possible. This is not only a ‘value which represents the mission’ but also a ‘working strategy’ that reduces the risk of people who are ‘responsible’ for making decisions but who are not the organisation’s owners or stakeholders. Therefore, there is a kind of delay, associated with the structure of work, when an IT project is recommended since almost all such projects are seen as strategic.

The common belief is that business problems are key drivers for technological innovation projects. However, in this particular case, random problems as well as individually experienced issues encouraged new technological projects. In fact, the problems here were not clearly defined; only common-sense discussions associated with the ‘old system no longer works properly’ were a driver for thinking and asking for technology-based solutions. In short, if the problem is not well defined and the decision-making is distributed, the very distributed nature of the decision-making, as stated by my informants, became a ‘natural barrier’, creating an ‘inevitable discontinuity’ in the process of finalising decisions. Given the fact that there is always a competition among issues regarding which will be dealt with, those ‘non-urgent IT decisions’ gradually disappeared or were transformed.

*Realm of Assembling #3: Tuning and the ‘Courses’ of Interactions*

The third thematic realm of assembling found in this research is mutual ‘tuning’. This theme captures the relations and mechanisms that can explain how various conflicting and inconsistent interactions and works are balanced against each other and make an imbricated entity. This theme emerged particularly in the course of analysing the factors that enable or constrain volunteer work, and more importantly, how such factors are managed and sustained over longer periods of time, if at all. The SASA and its clubs, systems, policies, and so on all evolved over the last two centuries. The key question for me was to understand and map out such evolving phenomena and seek those elements that saw fewer changes. In other words, what is the source of persistence in this community, especially where it commonly felt that such loosely structured organisations suffer from lots of financial pressure and practical failure?
The tuning concept emerged by looking at the everyday practices that bring together service, identity, and ecological interactions and the trajectories they form. Volunteers (associational and side-line), swimmers, parents, previous members, government authorities (e.g. sportscotland), technology companies (e.g. Hy-Tek, TeamUnify, SportSystems), FINA (e.g. rules), British Swimming (e.g. membership structure) and many other actors and institutions contribute to this evolving phenomenon. By looking at the interactions and practices and their trajectories, it became revealed that how formal and informal, invisible and prescribed, and new and old tactics and strategies are worked out: There is an ongoing mutual tuning between different courses of actions that collectively shape a single imbricated trajectory. This trajectory is in fact the result of many other trajectories that are aligned and singularised together. The immediate result of such singularisation and imbrication is the production of a kind of organisational persistence. Put differently, organisational sustainability and a continuous work platform in the context of volunteering are achieved as the result of such imbricated trajectories. The empirical data generated in this research suggest that three main trajectories were critical and more contributed to shape the final collectively-shaped imbricated trajectory: epistemological, technical, and social. However, to better understand these trajectories, their shaping, and their relations to overall persistence, a few clarifications are needed.

Firstly, while data suggest that in many cases there are managed and sustained relations among these original trajectories, there are also critical moments through which differential power of these original trajectories came into play and a kind of chaos and uncertainty becomes unavoidable. These moments are the key spaces in which informal, invisible, and tactical works became observable to the members, and agreement was needed on new formalities and structures to deal with the conflict and observed issues. It was very common that epistemological trajectories in this case had more impact if the emerged issue was not easy to resolve.

Secondly, there were instances that suggest that one strategy for making a single imbricated trajectory is a tolerance to accept and allow for failures. This is completely in alignment with the power of epistemological trajectories that are at the core of community work and feeling. The absence of financial interests and technical measures have convinced people that performance and persistence are not necessarily connected and that passion and a positive mood and atmosphere can and should play roles in aligning
various trajectories and their internal relations beyond managerial calculations. For instance, the simplicity of a website from which to get information is more important than its secure long-term existence.

Finally, part of the tuning phenomenon is those activities that lie between the different interactional structures of the service, identity, and ecological domains. Tuning must also be taken into consideration by looking at the longer implications of conditioning and drifting, as mentioned above. While the temporal dimensions of tuning are concerned with planned, structured, and logical affairs, looking at the mechanisms inside of tuning and unpacking its biographical dimensions helped me to see the role of expectations, ad hoc decisions, love, and so on in reshaping the formal and visible. Tuning is the realm through which same-ness (i.e. constancy) is constantly reshaped to enable the SASA in being, doing and self-organising.

The Dynamics between Interactions and Assemblage

The following figure shows how the SASA community-based sociotechnical assemblages are shaped by and connected to everyday interactions through the three realms of conditioning, drifting, and tuning.

Figure 7-2: Dynamics of SASA Community-based Sociotechnical Assemblages
Volunteerism as ‘Middle-Range’ Social Activity

Does volunteerism differ from other kinds of work? What is the social organisation of volunteer work? The common, widely-evident theme within the existing literature on volunteerism and in particular on organisation theory is that volunteer activities involves paradoxicality and hybridity in their broad senses (la Cour et al. 2007; Einolf and Chambré 2011; Koschmann and Laster 2011). For instance, the very relationship between the independence of the volunteer work and the need to relate that work to a voluntary organisational setting is contradictory (Taylor and Lansley 2000). To understand the nature of such general paradoxes, we must remember that volunteer work has already been conceptualised as something that occurs ‘in the middle’ (Mitchell 1986). According to this consideration, core activities handled by volunteers are predominantly concentrated on the service itself, but volunteers’ behaviours are also shaped and constrained by the institutional policies and cultural expectations in which the service is being delivered and consumed. Such limits are of course not as extensive as in fully professional contexts, but they are more than in the embedded informal efforts. So, volunteer activities are first, ‘productive’ in the sense that they need some sort of qualification to be marketable and usable; second, ‘collective’ in the sense that they differ from informal one-on-one assistance, and third, ‘ethical’ in the sense that they are not entirely motivated by equal exchange logics (Wilson and Musick 1997).

What are the implications of this paradoxical nature of volunteer work? Can (and should) we manage and remedy them? Recent developments in the field have documented that such paradoxes and tensions are vital features of organising mechanisms in these settings, and that they should be understood as sources of innovation and pragmatic flexibility required to carry out the work (la Cour and Hojlund 2008; Koschmann and Laster 2011; Sanders and McClellan 2014). According to (la Cour and Hojlund 2008), conducting the work within this activity realm, human actors oscillate between two communication

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86 For interdependence of work see CSCW and Infra paper.
87 Such social activities are different from those happen in the context of friendship, family, or accidental encounter with a member of the public: c.f. the case of purchasing for an individual in need.
logics: interactional and organisational. Each logic dictates its own specific characteristics. Based on the interactional logic, there is a great emphasis on the situational configurations and personal judgments about the proper interactions and their chain and consequences; on the other hand, organisational logic demands the formalised and regulated programmes of interaction that are required for collective stabilisation and self-reproduction of the whole. Each logic holds a certain ‘sphere of meaning’ (la Cour and Hojlund 2008), however, it is also argued that there many events in which such meaning-related conflicts are made invisible, subordinate, and inconsequential in the interest of organisational re-formation (Sanders and McClellan 2014). In short, the idea of middle-range social activity and paradoxical operation are much more fundamental than notions such as tight or loose coupling systems; “It has to do with an inherently unstable basis of meaning-production, that implies that the voluntary activities represent the explosive unity of the difference between (situated informal) interaction and (structured formal) organization” (la Cour & Hojlund 2008, p.48, emphasis added).

Community Considerations for Volunteer Activities

So, under which (structural and contextual) conditions, can volunteer activities be performed while there is such ‘explosive unity’? Using (Omoto and Snyder 2002)’s idea of community as both context and process for volunteer labours, it seems the dual agency of community is key in enacting the a middle ground and allowing the inherent paradoxicality come into operation. To reinterpret this point, the context aspect is more about meaning production (la Cour et al. 2007) whereas the process aspect is more about collective identity and feelings (Clark 1973).

The community in its agency as context, plays two related roles. First, it affords the basic backdrop for service-oriented efforts, and second, the direction for some organised actions. As a process, the community influences the membership dynamics and is beneficial for actors involved in volunteer activities, either as service-producers or service-clients. In the specific context of sport, it is shown that the process aspect is largely shaped by four contributing factors: voluntary action, common interest, leadership opportunities, and competition (Warner and Dixon 2013). The voluntary action represents relaxed relationships with the club or community, at least at the earlier stages of socialisation. The studies in which these four factors are extracted argues that sport practice and involvement does not serendipitously make up a community. In terms of the context
aspect, (Brown 2014) warns that sport-related communities should not simply be understood as warm places; their hidden distinctive social arrangements generate some constraints on individual freedom.

The consideration of community is fundamental to understanding the very essence of volunteer work, since the activities of individual actors are embedded in the broader social contexts and systems beyond the actions themselves. This embeddedness entails the fact that many grassroots, volunteer-led service provisions are the result of communal interest and efforts to change aspects of community life by introducing new services or by altering the socio-cultural climate (Omoto and Snyder 2002). Yet, to be successful in building and maintaining community-like relationships out of shared interest and practice (e.g. sport), there is a need to provide people with opportunities to meet each other, to focus on their own interactions, and to be sure about a cooperative environment (Brown 2014), all of which seem evident in the selected case of this dissertation. In this sense, community embeds elements of interactional, organisational, and in-between encounters (Omoto and Snyder 2002; c.f. la Cour and Hojlund 2008).

Infrastructuralism Stream: The Extensiveness of Interactions

The Infrastructural Realm of Interactions

What are infrastructures? Perhaps the most common-sense understanding is that they are structures “upon which something else rides, or works, a platform of sorts” (Star and Bowker 2010, p.230). At the core of this conventional understanding is that they enable action and let some things travel. Hence, to extend things that can travel and be performed, infrastructures are re-understood as “a broad category referring to pervasive enabling resources in network form” (Bowker et al. 2010, p.98). This new conceptualisation is helpful in explaining the working relationship between localisation and globalisation. But, to fully benefit from this, a few points need to be made. First, we soon realise that infrastructures are not absolute things and can only be defined in their own specific working conditions where people are actively involved in their development and use (Star and Bowker 2010, p.230). Second, not only are they relational entities, but they are also ecological ones in a sense that they are “part of the balance between of action, tools and the built environment, inseparable from them” (STAR 1999, p.377). Third, infrastructures are, at the same time, the context for communication and learning (Star and Ruhleder 1996), that is, practice and
reflection; this duality gives them a basis to be a foundation ‘for actions’, and to be produced ‘by actions’, material or social situations alike. These points associated with broader epistemological and ontological considerations all form a growing research stream, titled as infrastructuralism in this chapter.

While infrastructure studies appear to be a boring topic in social science (STAR 1999), in recent years, this stream has gained massive attention from different communities, in particular those communities concerned with the role of technology in organising practices (Edwards et al. 2009). This special interest is a response to the shortcomings of current research into technology, people, and organisation, in particular the focus on single sites and on the short term (Pollock and Williams 2010). The effects of information technologies and computers cannot be fully captured while technology is understood as a single-standing mediator or facilitator (Kling and Scacchi 1982). Hence, infrastructural thinking is a tool that enables us to move back and forth between the micro (specific human–technology interaction) and the macro (extended locales and timeframes affecting that interaction).

Mechanisms of Sociotechnical Infrastructures

So, how is the infrastructuralism stream different from other similar attempts to resolve the issue of micro–macro? Or, what are the core working mechanisms of a particular infrastructure? It seems two concepts play a crucial role here: Installed Base and Evolution. The former deals with the genesis of such entities and the fact that they are not built from scratch (design aspect), while the latter is concerned with their actual processes and practices of advancement (development aspect). Taken together, installed base provides us with a starting point, empirically or analytically, that is helpful in following the dynamics of infrastructural evolution.

The notion of installed base implies that emerging infrastructures “must somehow integrate with an installed base that includes not only artifacts but human habits, norms and roles that may prove its most intractable elements” (Edwards et al. 2009, p.366). Linking the new to the old (i.e. creating interoperability) needs to be done partially through the realignment of the well-established network. This signifies the longitudinal nature of this process (Karasti et al. 2010) where the work involved in such process is technical as well as organisational (Edwards et al. 2007). This line of argumentation has
resulted in a recent recommendation for ‘softer’ vocabularies to explain the developmental trajectory of infrastructures.

In understanding how infrastructures develop, recent approaches call for theoretical concepts such as co-evolution, nutrition, and growth rather than construction or design (c.f. Jansen and Nielsen 2005; Karasti and Baker 2008; Edwards et al. 2009). The infrastructural growth is made possible through extension, modification, or improvement in the installed base (Hanseth and Lundberg 2001; Monteiro et al. 2012). However, the notion of growth does not imply randomised attempts. Scholars have shown that great deal of technical and social work is to standardise infrastructures and their evolution. Through processes of standardisation and classification, these sociotechnical networks become irreversible and somehow context-free in a sense that they generate similar experiences for diverse users (Hanseth et al. 1996; Monteiro et al. 2012). Standardisation also acts as the mediation site in which the two sides of technical-and-social as well as production-and-consumption come together to negotiate how the installed base is reshaped. As pointed out by (Bowker and Star 1998), standards are materially textured and hence are durable and promote durability. Since standards are embedded in the network in which they work, people who have just joined a community are unable, at first stance, to bring and actualise their own pasts into the community they are joining. In fact, these new actors “will feel pressure to reinterpret their own pasts according to the schemas available, or will exert pressure to change those schemas” (Bowker and Star 1998). This highlights that this process is not tension-free as reshaping infrastructures always creates some winners and losers. “If they are really infrastructures, they eventually make older ways of life extremely difficult to maintain” (Edwards 2010, p.12).

Homegrown Community-based Assemblages: Towards Relaxed Infrastructures

Successful Core, Layered Activities and Ignorance Work

In this section I attempt to bring insights from the empirical study and the two streams of infrastructuralism and volunteerism under the same umbrella in order to develop the notion of homegrown infrastructures. Following (Ribes 2014), by highlighting the infrastructural side of this argument my attempt is to show that the volunteer work in this particular context is made possible and easy because of two things: firstly, the existence of a core containing critical services and resources (i.e. installed base) and secondly, the
works, techniques and efforts (e.g. maintenance and repair) that are conducted to make sure that the core is kept stable, adaptable, and functional. Any successful homegrown community-based infrastructure like SASA, is operational since a critical core has been shaped and sustained over time and people. Dedicated volunteers in particular, are aware of the importance of this and attempt to foster this stability. The activities conducted in this context are then multilayered in the sense their openness is shaped by their organisational ‘distance’ from the core services and resources. The main difference between the SASA-like infrastructures and concrete infrastructures such as research-oriented or ERP-based infrastructures is the fact that while both are bottom-up and distributed in their shaping, the homegrown service-oriented assemblages require a higher degree of acceptance, tolerance, and even active work to deal with functional failures. Such acceptance and tolerance is a kind of intentional ignorance, and comes mainly from the influence of the ideological and epistemological status of such collectives. I label this as being ‘relaxed’ as echoed in some interviews like this:

The person who I’ve taken over is delightful gentleman but he was very very relaxed. Very enthusiastic, delightful gentleman. He has three children and they all have been swimmers and he knew everyone he could pick up the telephone and he could have a chat. He have been in contact with parents of the swimmers for years. Nothing written down at all. All is his mobile phone so no spreadsheets or anything. No contact list he has. Nothing.

Ignorance and Relaxed-Ness in Volunteer-led Organisation Contexts

The main source of collective ignorance and relaxed infrastructural connections originates from two areas: the ideological and pragmatic status of voluntary based organisations. The values, morals and expectations associated with these contexts are embedded in the democratic, flat structures (e.g. power relations). It has already been discussed that the personally-oriented mobilisation of resources gives such organisations an opportunity to safeguard judgements on what are appropriate activities (Seibel 1996). They are relaxed in the sense, that the society and participating members share the mentality that they should not be evaluated based on common practices of accountability and performance. Hence, voluntary and third sector organisations are capable of generating “structural and ideological settings in which both interest in failure and interest in ignorance about failure may be flourishing” (Seibel 1996, p.1011). As discussed in the tuning realm, this potentiality gains more advantage through the process of imbricating various trajectories.
and creating a collective single trajectory. Two major implications are associated with this relaxed status: redundancy and involution.

**Standardisation and Redundancy**

Standardisation is key to infrastructuralism and this is made possible by scripts. Through this process of scripting and standardising, the world is rendered alike across cultures, time, and geography. “Standards are ubiquitous but underappreciated tools for regulating and organizing social life in modernity” (Timmermans and Epstein 2010). Inscriptions are yielded a ‘concrete content’ since they are capable of representing interests but are inscribed material. However, the flexibility of this materialisation may vary, some configure the pattern of use robustly, others weakly. The robustness of standardisation hence is defined by looking at the scripts and “whether they must be followed or can be avoided, depends on the irreversibility of the actor-network they are inscribed into” (Hanseth and Monteiro 1997).

In other words, as the result of the inscription process, a distinction between the object and subject of knowledge is made. However, I argue that in voluntary settings this gap remains limited since larger distinctions, with a purpose of highly-standardised routines, could ultimately generate the opposite outcome: knowledge becomes useless or even vanishes. The strategy is to minimise the scope of standardisation projects as well as their rigidity and concrete-ness.

Alternatively, a great deal of work is done to enable people to bring with them and use as many tools and practices as possible: this generates redundancy. In fact, since these contexts exist as imperfect entities, they inevitably involve many disorders, instabilities, obscurities, and clashing agendas in their working. Hence, redundancy provides the construction of backup systems to ensure the improved continuity of their everyday organisational life. However, this flexibility can also result from challenges in those areas in which the core services and resources are sustained. As explained in the conditioning realm, the success of any change in the installed base (i.e. core) is largely contingent on the portfolio of volunteers and paid staff spending time and their technical skills.
Evolution and Involution

The existing knowledge about infrastructures and communities is rich in explaining how a collective entity evolves and expands by recombining existing relations to respond to emerging issues. Relying on the power of the installed base and its stability, such collectives turn outwards to gain more resources and territories. New standards develop and negotiations take place to ‘communicate’ with outside worlds. While the same story is still observable in relaxed infrastructures, the fact of flourishing failure encourages another form of expansion which might be called ‘inert expansion’. This implies that such assemblages turn inwards as they develop.

The anthropologist Clifford Geertz employed the term ‘involution’ to explain the increasingly intensified cultural production that may happen under certain socioeconomic circumstances (Geertz 1963). This directs the agential relations within the infrastructural entity inward. The notion of infrastructural or associational involution may be interpreted in two ways: the more common-sense understanding is in the way in which these entities became self-serving, and their expansion does not generate new agencies and capacities for actions and activities (c.f. Xiang and Lindquist 2014). However, the second reading, in parallel with first one, is to consider that they are self-referential and keep themselves as enabling (c.f Mackenzie 2006). As explained in the section on tuning, the particular socioeconomic sphere within which these assemblages are established and sustained support self-referential and minimum attention towards the environment.

Relaxed Infrastructures: A Proposition

Unlike artefact-based (c.f. Monteiro et al. 2012) or research-oriented (c.f. Ribes and Baker 2007) sociotechnical networks, the interactions in this low-tech type of infrastructure are weak and unstable, so it might be better to speak of interaction ‘flows’ rather than ‘nets of networks’ (Lindberg and Czarniawska 2006) since the actors cannot simply replace one another from inside or outside the existing assemblage. Many studies on complex, large scale, research-intensive infrastructures focus on certain settings and depict the workings of these infrastructures in scientific field sites or critical domains such as healthcare. What these diverse settings have in common is that there is always work to sustain the network of relations that constitutes the object of research. In fact, such objects will truly

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88 For a discussion on the difference between action and interaction see (LeydesdorY 2003).
(pragmatically) exist if they can develop and sustain stable, immutable relational orderings (Law and Singleton 2005).

However, low-tech, work-oriented infrastructures like the observed case is generally shaped by the collections of incrementally changing technologies, methods, and roles that all together create messiness as a pragmatic work pattern and sustainability by always being in flux, between moving and staying (c.f. Law and Singleton 2005). Such sociotechnical assemblages are in fact built by many small bits without any obliging dominant bits; for instance, there are still some clubs in this geography that use Excel and paper sheets and SASA will not exclude them because of their old-fashioned system. Rather, some extra work is carried out by other volunteer members to keep those clubs and swimmers linked to the SASA infrastructure.

In the particular context of volunteer-led service provision, the works done by the involved actors cannot be reduced to a question of either formal work, based on standardised and stabilised codes, or informal work, built on the arbitrary style of situated meaning and production. Instead, it “always has to be both, which complicates questions about possibilities for regulation, control, autonomy, integration and the opportunities for cooperation with others” (La Cour and Hojlund 2008, p.52).

**Between Leniency and Irreversibility**

One may ask why we need to consider relaxed assemblages such as Scottish Swimming as a kind of infrastructure if they are not stable and standardised? Or, how is the argument of the relaxed community infrastructure helpful in the wider field of infrastructuralism? To respond to this, I first need to repeat that the infrastructural lens is helpful in seeing the services, resources, and efforts that together make and sustain the possibility of volunteer collaborative work. However, the main difference and contribution appears by looking at the ideological and practical status of these organisations. In this section, I will attempt to clarify that having a relaxed assemblage is a relational concept and may be applied and evident in other infrastructures as well. This is my final word on relaxed infrastructures and its theoretical implication.

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89 See (Star 1990) for a discussion on how complex infrastructures exclude people in favour of productivity.
The notion of hybridity is a well-established idea among infrastructuralism (and volunteerism) researchers. But, using insights from this argument, let me add one possible dimension to this notion using the developing argument. As mentioned earlier, both concrete and relaxed infrastructures are mobile entities in the sense that they produce similar experiences and meanings for their people. However, one source of difference might be understood in terms of the manner and degree through which they become stabilised. What has been discussed here does not imply a black-and-white logic. The only point I was hoping to make is that in the observed case, and probably in similar pluralistic and loose settings, we could see more relaxed structures than concretised ones. This does not mean there is no stability. Rather, the contribution is that such assemblages might be few and perhaps be more disposable. For instance, the case of swimscotland.co.uk is a nice example of network-like concrete object but the effort to make it stable is rather different from the enrolment process suggested by Actor-Network Theory advocates. On the other hand, within the mainstream network-oriented infrastructural studies, there are of course instances and traces of fluidity. For instance, see (Ribes and Polk 2014)’s discussion on the various domains of change and stability. The following figure makes this point explicitly: that there is always a continuum for the hybrid nature of infrastructures when it comes to understanding how sets of relations are sustained.

![Figure 7-3: Relaxed Infrastructures: Between Irreversibility and Leniency](image-url)
Concluding and Reflexive Remarks

The results of this research project offer several, diverse contributions and implications which have been discussed and elaborated under four labels of theoretical contribution, practical implications, learnings from the doctoral journey and the directions for future research.

Theoretical Contributions

Among several theoretical contributions that this thesis offers in each empirically-oriented chapter, a number of specific contributions of the research are as follows:

- Firstly, it has been discussed that the overall thesis has aimed to support the developing field of Community Informatics. Empirically, this has been done by providing a quasi-ethnographic account of the relationships between technology and volunteerism. Conceptually, it has introduced and discussed how sociological conceptualisation of work as sets of accomplished tasks could be an insightful object of analysis in this particular field. Methodologically, this research stands in opposition to those common Community Informatics studies that attempt to customise IS theories and concepts for voluntary actions settings. Basically, such a process seems to be a failure from the beginning. However, it does not reject the idea that a basket of intellectual tools might be helpful but on a case-by-case basis. In short, any attempt to construct a general model of relevance could run into severe difficulty and end up with lots of trade-offs and paradoxical specifications. Furthermore, this doctoral research contributes to the CI field by calling for a critical conceptualisation of the notion of work. In this thesis, it is argued that the sociological understanding of work, i.e. sets of accomplished tasks, can generate new conceptual opportunities to understand how volunteering is reshaped in relation to information technologies. In short, working is understood as a tool to sustain a given social order and as a mean to craft relations among different human actors, technological objects and organisational issues.

- Secondly, this thesis contributes to the technology-oriented volunteerism studies by arguing that the position of technological objects need to be redefined in such studies. Technological objects are constitutive to the volunteering, rather than being simply a mediating, catalyst or enabling tool. Furthermore, the volunteerism
scholarship can be extended by subscribing to the invisibly vital role of objects in mediating (or even being replaced by) human activities in the communalisation processes. This subscription offers a conceptual opportunity to include situational dimensions, e.g. the intersection between volunteer's technological skills and their available free time, to the psychological grounds of commitment which is at the core of conventional volunteerism studies (see chapter 6).

- Thirdly, this research contributes to the sociotechnical infrastructure studies by developing the notion of relaxed infrastructures. It has been argued that most infrastructure-inspired studies have failed to capture those sociotechnical assemblage in which durability functions at just one level and the whole infrastructure would only sustain if mutable assemblages are allowed and accepted. In fact, at the core of the community is to ‘communalise’, that is, to organise based on shared ownership as the Oxford Dictionary suggests. The next inquiry is to engage with potentially different modes of communalising. The two essential elements of community are ‘solidarity’ and ‘significance’, that is, to have, firstly, a feeling of interdependence and secondly, a sense of fulfilment. Hence, the infrastructuralism stream may be beneficial in its sensitivity to the moods, feelings, and peripheral issues that surround infrastructural works. For instance, one key argument is elaborated in the chapter on technological non-use (chapter 4): it is argued that the technological non-use is not necessarily related to the technology and its sociotechnical aspects. Instead, the source of technological non-use can be found proximately to a key actor (volunteer).

Practical Implications

There are a number practical implications offered by this doctoral research.

- First, as discussed in the fourth chapter, technology projects in a volunteer-led organisation does not follow a liner logic. Projects, when implemented, might drift as the result of temporal and situated challenges. Hence, those who are in charge of project management in such organisation should be aware of this fact. Their role, as project manager, extends the timeframe and scope of an individual project. Since the financial and time resources are limited in this sector, they need to be prepared to redefine the core objective of the project with the aim of securing an alternative, second best result.
Second, as illustrated in the fifth chapter, the non-use of technological solutions in this sector should not simply be understood as a problem or challenge. Apart from the normative value of technological non-use, which corresponds to the flexibility and informality of the sector, there is also a practical value of technological non-use. That is, technological non-use is not a passive outcome. Rather, it could be a useful strategy by some people (key volunteers) to secure a seamless functionality of the totality of a given organisation. In short, unlike conventional wisdom (which is also supported by the literature), technology non-users are not necessarily marginalised people. They, sometimes, are powerful actors whose technological non-use force other people to become non-users.

Third, as developed in the sixth chapter, any attempt to formalise (and professionalise) volunteer-led organisations may generate some unexpected results. As argued, if the source of professionalisation is beyond the control of existing members (new changes requested by external funding bodies or governmental agencies), the results of professionalisation pressures then could be manifested accepting the idea and contributing to it, taking the idea and domesticating it, backfiring the idea. Since each response entails a re-configuration of the existing technologies, volunteer activities and relationships among volunteer and paid staff, policy-makers and regulators may need to evaluate and be prepared for further adjustments in their policies. The idea is that some new policies would contradict itself since the re-configuring responses will be triggered. In fact, Standards as concrete processes for work and satisfaction are not necessarily useful strategies for voluntary settings. These organisations may fight the technologizing by restructuring human action under standardisation. That is, the process of inscribing behaviour in their own context may fail since such organisations are out there to embrace any kind of support activities (in the form of work) for both moral and practical purposes. There is limited concern over the quality and concrete-ness (read efficiency) of those offered activities.

Learnings from the Research Process

This section aims to share with the readers the research adventure through which the academia-oriented ‘self’ of the student (as the researcher) has been co-created with so many other things over the past five years. In the beginning of his doctoral programme, he was told by various people that doing doctoral research is a long journey that needs
patience, planning, and perseverance. Celebrating my experiences, the researcher would like to add his own P in this list: perplexity. Through this reality, his doctoral studies turned into an adventure. His experiences tell him that such puzzlement was the best driver, and paradoxically the worst barrier, to the PhD life. The researcher shall also say that the most empowering aspect of doing a PhD, for him at least, was the way he struggled to handle the perplexity. The PhD has taught him, in an unpredictable and disorderly process, how to break down a big, unclear idea (i.e. the research problem) to small, relatively clear points (i.e. research contributions). This ‘learning by doing’ process would never have happened without constantly questioning and redefining my methodological and theoretical position.

Based on the background of the doctoral thesis and the story narrated in the methodology chapter, a number of reflexive learnings are shared with the readers:

- First, the doctoral research develops in its own broader context. This context involves the historical, biographical and cultural events within which, the general understating of the research, suitability of the empirical domains and tools the researcher can take with himself into the fieldwork are defined. In short, researching is a social practice and the researcher should admit there is bounded rationality.

- Second, any apparently unrelated encounter, during the course of doctoral research, should be translated and identified as relevant to the research. For instance, the random email exchange with a practitioner has shifted the direction of doctoral research. Related to the above-mentioned point, the researcher as a social actor live in different worlds. While there doctoral life has its own social world, these different social worlds intersect and influence each other.

- Third, there should be a consistent area in the whole journey of the doctoral research. While this element can be a topic or access to the specific case, for the present researcher, this element was his broad interest in studying the specific intersection between volunteering and technology. This enabled him to exercise openness towards surprises and changes while the master narrative of the doctoral story remained consistent and constant.
• Forth, the researcher found academic venues extremely important and vital in the development of his doctoral thesis as well as his academic self. Regarding this, there are two personal observations. The researcher found that smaller venues, such as workshops, have been considerably more useful, in particular for the initial stages of research. Moreover, participating in totally different intellectual communities might sometimes be a useful strategy as this, for example, has provided the researcher with an opportunity to utilise new terminologies and generalisation possibilities.

• Fifth, the researcher as a non-native speaker had experienced a challenging difficulty in his empirical fieldwork which later became a strategic solution. The management of collected empirical data is an important but difficult task in any qualitative research. The pace of happenings and conversations in fieldwork was faster than the researcher’s ability to write them down completely. Hence, over time, I developed personal codes and often wrote in his native language, Farsi, alongside with English for key words and slangs. This combination accelerated the process of his note taking. The difficulty to understand local accents and slogans and writing in Farsi both seemed to be a disadvantage at the beginning. However, it became useful in a novel way later in his research. The informants were happy to help him with his English and hence gave him opportunities to double check my notes and understandings by email or later when they had more time. This performed as cross-check and confirmation of the data.

Directions for Future Research

This research suggests that additional insights would be gained through further studies in three major directions.

• First, methodologically, the results of this thesis is constrained with the empirical materials collected ethnographically over the course of 24 months. Also, the majority of the discussion presented here is derived from the Water125 swimming club which is fairly a large sports club in comparison to other Scottish swimming club. Taking these two into consideration, new dimensions to the final argument might be added if the study extends to include smaller swimming clubs in which the problems of resources are even greater but their smaller size requires easier coordination and hence limited everyday challenges. One other
empirical limitation is associated with the nature of sports and its related volunteering activities. As mentioned in the thesis, the domain of sports is demanding in terms of the number of volunteers needed to run a session as well as the obligation for parents to be highly disciplined. It is not clear to what extent similar arguments might be generated if the study is repeated in the domain of rugby.

- Second, the conceptual lens of the doctoral thesis requires further elaboration. While it has utilised diverse but relevant analytical tools, it lacks to provide a potential argumentation if alternative perspectives are used. For instance, the role of institutional factors is narrowed to those factors which have meanings or implication for the meso-structural domain of action. Additionally, the overall developed conceptual foundation can be re-examined in relation to intra-dynamics of the chapters. For each empirically-oriented chapter, a specific conceptual lens has been already developed. The particular contribution of each conceptual lens and their analytical relationships have been then discussed in the final chapter. One possible strategy for future studies is, however, to start with this final single, comprehensive conceptual lens and then to evaluate to what extent the generated empirical data can be understood in relation to that single, clear-cut lens and which elements need changes.

- Third, the present this study enhances our understanding of changing modes of work and organisation and the role of technologies. The case presented here exemplifies a kind of context within which established organisational theories are likely to fail in informing and performing practice and knowing. Shifting modes of organising and work such as crowdsourced projects, hourly-basis jobs, ad-hoc online communities, Wikipedian culture and so on all share some vitally similar features with the context of the reported case. The typical notions of obligation and accountability do not fit within these contexts. Future studies can examine to what extent our existing theories can hold together free-floating workers, messy boundaries, and relaxed organising all in the same realm.
References


Technological Innovations in Voluntary Organisations


Technological Innovations in Voluntary Organisations


GHK (2010a) Study on Volunteering in the EU (Volunteering in Sport - UK).


Technological Innovations in Voluntary Organisations


Technological Innovations in Voluntary Organisations


Woolgar, S. (2011) Where Did All the Provocation Go. Reflections on the Fate of Laboratory Life (1979) [online], EUSPchannel on YouTube, available: https://www.youtube.com/watch?v=gPDNpLkiyk [accessed 26 Mar 2016].


### Appendix 1: Quick Market Analysis (Swimming Software Vendors)

<table>
<thead>
<tr>
<th>Vendor</th>
<th>Country</th>
<th>Quality</th>
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<tr>
<td>HyTek</td>
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<td>TeamUnify</td>
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<td>Water125</td>
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<tr>
<td>Athletic Director, Inc</td>
<td>US</td>
<td>Fair</td>
</tr>
<tr>
<td>SwimClub Manager</td>
<td>UK</td>
<td>Good</td>
</tr>
<tr>
<td>TeamUnify</td>
<td>US</td>
<td>Excellent</td>
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<tr>
<td>WinSwim</td>
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**Quick Market Analysis of the Vendors**

Yesterday, on Tuesday 17th Oct, NYLSON emailed us (Ian and me) to speed up the project, especially by starting to study vendor side. I was asked to circulate the list of vendors which I came across before. I gave it around half of a day to reorganise my stuff and the list below contains some software designed to manage Swimming Clubs; the list doesn't cover free and open source software which most of them are designed to cover requirements of a sports club (*generic programme*) including swimming ones. By reading the related websites information, forums, and related blogs, at this moment, I can say:

1. **HyTek** is one of the key players (first mover) in the market as I found many discussion and solutions around its features and problem. Also, many packages are compatible with its exported files.

2. **TeamUnify** might be next key actor in the industry as they provide wide range of innovative up-to-date solutions.

3. However, there are many other cheap simple solutions which might work better for the club if they keep using current systems. From my point of view, according to results till now, **Water125** has three options:

   A: to radically adopted new comprehensive software like TeamUnify. This decision necessarily needs to be accompanied with a IT expert.

   B: to keep working with the system and just think to buy (or use free options) of other software to meet their needs.

   C: to do not buy anything new and just to find some quick solutions to improve some working practices.

   --- I provided the country of origin as well as my quick reflection on the quality of the software from reading its features:

1. **Athletic Director, Inc**: US; Fair

   The software is developed by a person who has been involved in Swimming. **HAMISH** may understand him better because of shared background. The problem is that the software just made on Mac.

2. **SwimClub Manager**: UK; Good

   Although this package doesn't seem to be as complete as Hy-Tek, across the UK it is one of the biggest rivals. I got this from conversation within related forum. The **fee** is renewed yearly.

3. **TeamUnify**: US; Excellent

   The company is the leader in **innovative** features; in particular those are **social media-enabled** solutions.

4. **WinSwim** US; Fair
The developer has used his personal background—as a parent of children that swim— as well as his professional background—as a software designer, tester and manager—to build this simple-originated but developing software. The company tends to be innovative and to keep "value for money" commitment.

5. **EasyWare Swimming** US; Fair

It is very simple but easy-to-use software. The programme has been developed by a professional coacher. There are two COMPLETE presentations on the website introducing the packages.

6. **ClubHub** New Zealand; Good

This software seems to be fantastic! It is basically designed for the clubs which have many volunteers. There is valuable introductory video clip showing the software feature. Accounting and payment facilities are developed to be user-friendly.

7. **AquaSoft** UK; Fair

It offers different kinds of product.

**Some other related links**

1. **wp-Swim Team**

This plugin is designed to help end-user do minimum job when he/she enters the data to HyTek (and another two). I think some of **HEAD-COACH** and **SECRETARY** problems could be solved by this plugin.

2. **SwimClub**

This forum is basically about swimming issues and this page particularly is established to provide information about software issues and solutions.

3. **Swim Log**

This programme is not designed for clubs; however, Swim Log is developed to allow swimmers to keep their own records of their swimming activities and has been designed taking the input and requests from swimmers at various clubs, poolside helpers, coaches, and keen parents.
Appendix 2: Examples of Initiatives Providing IT Supports for Voluntary Organisations

<table>
<thead>
<tr>
<th>Logo</th>
<th>About</th>
<th>Domain</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="nten-logo.png" alt="NTEN" /></td>
<td>NTEN is the membership organization of nonprofit professionals who put technology to use for their causes. NTEN helps you do your job better, so you can make the world a better place.</td>
<td>Worldwide</td>
</tr>
<tr>
<td><img src="responsibleit-logo.png" alt="ResponsibleIT" /></td>
<td>ResponsibleIT CIC is a social enterprise that provides technology and IT Support, consulting and training to charities, social enterprises and other third sector organisations in London.</td>
<td>London</td>
</tr>
<tr>
<td><img src="idealware-logo.png" alt="Idealware" /></td>
<td>Idealware, a 501(c)(3) nonprofit, provides thoroughly researched, impartial and accessible resources about software to help nonprofits make smart software decisions.</td>
<td>USA</td>
</tr>
<tr>
<td><img src="lasa-logo.png" alt="Lasa" /></td>
<td>Established in 1984, we're dedicated to supporting organisations in their use of tech and the delivery of social welfare law advice to the disadvantaged communities they serve.</td>
<td>UK (England)</td>
</tr>
<tr>
<td><img src="it4communities-logo.png" alt="iT4Communities" /></td>
<td>iT4Communities is a charity supporting IT volunteering in the UK. Founded by the charitable arm of the Information Technologists' Company in 2002, in 2010 we became a programme of AbilityNet. We are</td>
<td>UK</td>
</tr>
<tr>
<td>tech4good</td>
<td></td>
<td>funded by sponsors and trust funding.</td>
</tr>
<tr>
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</tr>
<tr>
<td>The Technology4Good Awards celebrate the hard work of people of all ages who use the power of computers and the internet to make the world a better place.</td>
<td>UK</td>
<td></td>
</tr>
</tbody>
</table>
Appendix 3: Background to Water125

Water125 is one of the oldest, leading and most successful swimming clubs in the UK which based in Scotland and its main business is to run a comprehensive programme to develop swimmers. The club was established in around 1800th at a local baths but because of growing number of swimmers and members, the modern day club uses many other swimming pools all over the area to deliver training services to its swimming members. Currently, (in 2013), Water125 has around 600 members with an active membership of about 350 swimmers training. To organise and guarantee the successful training paths for its members, the club’s swimming activities (excluding water polo section) are dived into groups and squads mainly based on ability and age. The club now runs fifteen squads; twelve for competitive swimmers, two recreational squads for juniors and one master group for adult swimmers. As for competitive swimmers, the progression from one squads to the next is determined by a set of professional criteria. Beside this technical domain, other operational activities are grouped in five areas: i) Finance Team – Accountancy Procedures (e.g. membership subscriptions, coach payment, pool hire, training and meet fees, club shop and major expenditure items), ii) Internal Communication (e.g. newsletter, website and a range of meetings), iii) External Relations– Club Secretary (e.g. British Swimming and other clubs), iv) Administration - Volunteer/Professional (e.g. squad management, coach contacts, AGM and other special events), and v) Health and Safety (e.g. child protection and other policies) (Club Operations Areas with Relevant Responsible Individuals word document, revisited version on 11 Nov 2011).

The Club is managed and directed by a committee, elected at the Annual General Meeting each November, and a couple of coaching staff. The Committee Management normally meets on a monthly basis or as required to run and organise everyday activities and make decisions for strategic plans in the Club. The Committee has seven positions which one of them may get a same person in it. These positions are president, senior vice president, treasurer, club secretary, swimming convenor, head coach and fund-raising. Among them, swimming convenor and head coach are heavily involved in day-to-day activities and so they are full-time paid staff. Other members are almost honorary staff. While there is a strong level of ‘division of task’ within the Committee, like many other small organisations, it is highly possible that the boundaries of these positions get blurred.
especially in some particular cases such as unplanned pool closure which urgent decisions might be taken just one specific person. At Water125, the Committee is the key reference for any change, however, there is an assumption (and encouragement) that coaches or even parents can openly contact and raise their shorter and longer terms issues with the Club president or secretary. As with many other swimming clubs, in the UK or worldwide, Water125’s operation is considerably supported by volunteers, mostly swimmers’ parents.

Most of swimming clubs, including Water125, are non-profit and hence they rely heavily on volunteers as of their key resources in order to make sure that the club operates properly. With a limited exception, volunteers are parents of the swimmers which they offer their time to do some job for the club: the jobs could be basically ‘formal’ or ‘occasional’ which both needs a high degree of commitment. The occasional jobs such as timekeeping, marshalling swimmers and selling tickets are ‘one-off and pool-side’ and formal positions may need a large amount of ‘longer and office-like’ works.

Generally speaking, clubs are keen to accept any kind of help without emphasising the skills needed for that. This could be because of the ‘scarcity of fluctuating’ human resources or the ‘established culture’ of openness and flexibility especially among British clubs; the following two figures are extracted from other clubs website as exemplary screen-shots of typical advertisements for acquiring volunteers.

### IT Enthusiasts

Are you an IT enthusiast or someone who’d like to learn new computer skills? Then we would love to hear from you. Why not come on board and learn how to use the HY-TEK computer programmes and spreadsheet, or maybe master the mysteries of our electronic timing. Join a small team of people who work on the technical bit behind the scenes, that is so important in making the club’s galas a success. No previous experience is necessary as long as you can use a keyboard you’re qualified!

Interested? Ask for more details at the club desk, or email [email](mailto:for more details)

### Volunteering Ad by a Swimming Club

In the first figure, you can see there is a slight and indirect preference over the people who are already ‘IT enthusiastic’ (read: have IT skills), but immediately leaves the space
open for those would like to ‘learn new computer skills’. As the majority of works done by volunteers are less complex and more time-consuming, the general approach is to maximise volunteer inputs and then train them if needed.

Volunteers

The Swimming Club is run by a network of Volunteers, dedicated to support the Club in assisting with the administration, development and progression of the Club for which its members are sincerely grateful to. Without this support we really would not be able to call ourselves a Club or operate as efficiently as we do!

Volunteers do not have to be experienced or have a degree in Swimming!

Our volunteers are parents, guardians, grandparents, senior swimmers and even parents whose children have long left the club!

If you are thinking of helping out in any way, we would be very interested in hearing from you, whether you can spare time adhoc to assist with gala duties or are willing to join our Committee or train to become an Official we would like to hear from you. It is our goal to provide support and training as required and assist with attending courses and qualifications if necessary.

We appreciate that everyone has busy lives, however please do speak to our Workforce Co-ordinator to have a chat to see how you might be able to help.

Volunteering Ad by a Swimming Club

The second figure shows how the focus of the advertisement is on ‘getting involved’ rather than on ‘having skills’. There is always a call for volunteers and this is a crucial task for the committee to appreciate any interest and turn it into a ‘real work’. Also, the members of the club management should have a good level of understanding of the positions needed for the club; either they are ‘more urgent and temporal’ or ‘more strategic and long-term’. In fewer situations, club management ‘actively’ approaches parents to ask them to be involved in a specific job; for instance, if the ‘type’ of the job ‘is not that much normal’ (e.g. specific IT project) or a volunteer ‘unexpectedly’ leaves his/her job (e.g. his son quits the swimming because of serious illness). In those situations, ‘social networks and individual chats’ could massively support the lack of ‘formal invitations and on-going advertisements’.

The club’s longitudinal success comes from its constant revision of and development in the way they train and mentor their swimmers. Having an international allies and diverse portfolio of coaches, Water125 monitors (and predicts) changes in the wider environment of swimming and then ‘translates’ those changes into its training programmes in order to ensure their swimmers’ place in national and global competitions as well as ‘up-to-date’ strategies for swimmers’ development pathway. In 2009, the Club started a project to revise on its previous squad structure. Hamish, who is a nationally-appreciated and globally-successful swimmer, was in charge of this change project. He had been widely
and highly involved in the club for either administrative or professional (i.e. the business of swimming) activities. He has a great passion supported by his prolonged experience in swimming (from 17 to his current 70ish). To him, swimming is more than a sport. He has been always thinking to develop the culture of swimming and by using his strong managerial skills; he was able to act at senior manager for Scottish swimming institutions. He also taught some university courses. The ‘squad revision project’ initially proposed by Hamish and her wife Flora, who has also a great background and history in swimming. While Flora now works at Water125, Hamish left his ‘official’ engagement and he supports the club (and his ‘inseparable wife and swimming pair’ Flora) voluntarily and more informally.

The Club strategy is to offer a full set of “interdependent” services: coaching, training and competition (Interview with Hamish at Ali’s Office on 16 Nov 2011). Water125 have purchased a HyTek package with three interrelated components (systems) with a hope to the effective delivery of such services. HyTek package includes Meet Manager (to organise and run competition), Team Manager (to respond training and coaching needs), and Business Manager (to be used for more administrative jobs like finance and membership management). However, ‘the long ago designed HyTek system’ seemed to be failed in fulfilling what the Club demands in terms of accurate, on-time and complete information affairs, especially given the flows of rich but diverse data within and across the Club. The story discussed in this chapter concerns the development and journey of an idea for the acquisition of new swimming management software (TeamUnify) in the Water125. In particular, the objective of this proposed idea was to organise and integrate the confusing and time-consuming process of administrative and training activities caused by the limitation of currently in-use HyTek package.
Appendix 4: The Organisation of Volunteer Work in Swimming Sport

Here, I examine the various means by which swimming-related volunteer actors offer and distribute their time and skills that frame their volunteer work and career. I, particularly, look at the formation, expansion, management and even collapse of ‘volunteer base’ in this sector and the ways in which such base is actually made-up in practice. By exploring the day-to-day performing of work, I seek to understand how clubs, as building boxes of the sector and entry points for volunteering, create and sustain a balance between diversity and conformity in relation to their volunteer based given their own specific structure of resources. Therefore, we might have a better sense of the roles played by technologies and their possible non-use in shaping activities associated with such balance-making strategies. I investigate volunteer base at the mode of volunteer engagement as well as the process by which swimming volunteers are created.

Mode of Volunteer Engagement

Swimming, as a very-disciplined off-site school sport, needs a high level of parental commitment and involvement throughout. Hence, persistent and informative communication between parents and clubs are crucial. The frequency of the swimming classes provides a good deal of social interactions opportunities for parents: among themselves and between them and clubs. Off-pool spaces are key entry points in which, informally, volunteer workforce recruitment happens, while clubs’ newsletters and other digital platform support expanding ‘words of mouth’. These are the places in which parents are asked to support the club by ‘doing something’ or parents offer their time for ‘doing something’. In addition to these points of engagement, people may use their own social networks to ask or offer volunteering activities. Nonetheless, depending on the nature of the task and its requirements and the comfort level parents have with various modes of time-offering, a particular and individually-tailored mode of engagement is shaped.

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90 c.f. ‘Volunteering Infrastructure’ and ‘Supportive Environment for Volunteering Work’
Most of volunteering labour is needed for running and organising in-house or external competitions. Simply speaking, three ‘master’ modes are recognisable, namely co-located, distributed and associated engagements.

Firstly, the co-located mode is to utilise parents’ free-time at pool-sites by asking them to do some ‘one-off’ jobs including timekeeping, hospitality assistance, concessions (selling food and drink), and even taking photos from swimming meets. Such works need a minimal commitment and usually the relevant skills and knowledge can be quickly gained at the site itself.

Whereas the first mode is a kind of co-location volunteering, the second mode, i.e. distributed, is designed to distribute tasks and works across other times and sites beyond pool-oriented events; that is, to support the ‘behind the scene’ activities such as pool-hiring arrangements, membership management, squad administrations, and fundraising. Generally speaking, while performing these jobs leave more ‘flexible’ time-allocation for parents, the total workload and commitment is reasonably higher and pressing; hence, there is no contractual or legal obligation, however, short-notice and sudden leaves are not socially-and-morally acceptable.

The third mode, i.e. associated type, is a form of engagement in which volunteers move to the centre of organisation and their membership and role becomes extremely stabilised and hardly to re-negotiate. While almost all of the Committee positions share this characteristic, there are other works, which need substantial technical skills and competences such as website maintenance and Hy-Tek operation, holds a good level of associated-ness. In the next section, I will explore the means by which a specific parent volunteering pathway is shaped by intentional and unexpected factors and the dynamics between various modes of engagement and in-the-making volunteer base.

**Process of Volunteer Formation**

As swimming is a form of developmental and long-term athlete development which principally requires a ‘high volume and low insanity workload’ training programme and this cannot be simply achieved in short-term periods of time and hence time-commitment
is crucial in successful training\textsuperscript{91}. Given this and that fact that the market for swimming classes and development is largely composted by primary and high schoolers, the main body of volunteering labour in this particular community-based sport is predominantly formed by parents. Therefore, theoretically speaking, there is a higher chance for longer periods of volunteering and commitment as child swimmers progress in their swimming skills and competencies. Nonetheless, as discussed in the proceeding section, different modes of engagement and (associated commitment) emerges. Within this sector, there are two key organisational opportunities that influence the formation and dynamics of volunteer process: \textit{training for volunteers} and \textit{restoring by volunteers}. In the former, some investments are provided to improve the technical skill base of the involving parents while in the latter, flexibility in the content and structure of doing work is encouraged to provide parents with increased energy to start a job and stay committed.

\textsuperscript{91} Please refer to www.swimming.org