# Boundary management in ICT-enabled work:
# Exploring structuration in information systems research

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# List of abbreviations

ANT Actor Network Theory

BOC Boundary Object Concept

ICT Information and Communication Technology

IS Information Systems

IT Information Technology

OD Organizational Development

PDA Personal Digital Assistant

SMT Structurational Model of Technology

SST Social Shaping of Technology

**Note:**

In this thesis, "Technology" is used in the general social context; it encompasses all forms of computing technologies. "ICT" is used to refer specifically to mobile technologies such as laptops, mobile phones and smartphones (Sørensen & Pica 2005).

# Abstract

ICTs have enabled increased mobility and created a new era of workplace connectivity. Due to changes in work organization, global operations, increased mobility, and the new opportunities they are creating; work requires more coordination, more travel and a higher frequency of boundary spanning. ICTs have infiltrated into the personal life of individuals, while similarly, having an increasing impact on how organizations manage their workers' work-life balance. This research investigates the work boundary negotiation process in ICT-enabled work.

Using an in-depth case study supplemented with visual data, this thesis studies the case of Sigma, an international consulting firm, that serves clients located in a large geographical area. It explores how consultants exhibiting mobile work practices, use ICTs to negotiate work boundaries. It draws on the structurational model of technology and complements it with the boundary object construct. The utilisation of this combined approach allows further understanding of work boundary negotiation.

The research reveals that some ICTs as technological artefacts are boundary objects bridging between different groups of actors, crossing work boundaries, and allowing actors to negotiate their work boundaries while challenging traditional boundaries. Thus, allowing consultants to use their ICTs (specifically their smartphone) to negotiate their work boundaries on a need to basis. The boundary negotiation process (as revealed by the structuration process) is the means by which consultants try to make the most out of existing social structures – in this case specifically domination – in their organizational context. The ICT becomes a source of power and is mainly used to manifest domination over available resources. Consultants use them to maintain control over their life, increase their legitimacy and convey that they are professional experts. ICTs allow consultants to continuously redefine their work boundaries which become dynamic, fluid and contextual; the research reaffirms the sociotechnical nature of work boundaries.

The thesis also develops a conceptual model of work boundary negotiation that conceptually illustrates how boundary negotiation is the outcome of the structuration process and the negotiation of existing structures of domination, legitimation and signification.

## Declaration

No portion of the work referred to in the thesis has been submitted in support of an application for another degree or qualification of this or any other university or other institute of learning.

## Copyright Statement

***I am dedicating this thesis to***

*My parents Roda and Riad for their endless love, support and encouragements,*

*My beloved brother Nicolas, who left this world before fulfilling his aspirations.*

*May God bless his soul.*

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# About the Author

Randa Salamoun-Sioufi graduated with an MSc in Information Systems from l'Ecole des Hautes Etudes Commerciales (HEC), Montréal in 1995 after a BCom in Finance from McGill University. Following graduation, Randa garnered IS experience in numerous industries through her employment in the banking sector and multiple assignments as a management consultant. Randa joined the Olayan School of Business (OSB) at the American University of Beirut (AUB) in 2003 as a full-time faculty where she continues to teach IS core and elective courses.

During her part-time PhD study, in which she enrolled in 2004, Randa continued to develop new course and teaching material, experimenting with non-conventional teaching approaches. Randa shared her teaching experience in workshops and seminars. She also attended a number of workshops and seminars on teaching and learning at the OSB and the AUB.

Randa has presented her research (joint papers with Dr Anita Greenhill) at the Fifth International Critical Management Studies conference (Manchester, July 2007) and at the Academy of Management – Organizational Communication & Information Systems paper mentoring workshop (Beirut, June 2010). Randa presented an individual paper at the Seventh International Critical Management Studies Conference (Naples, July 2011).

# Chapter 1– Introduction to the research

This research studies the negotiation of boundaries by consultants and it assesses the role of mobile information and communication technologies (ICTs) – such as the laptop, the mobile phone and the smartphone – in this negotiation process. The increasing acquisition of ICTs by individuals and organizations raises many questions about the future of work practices. The use of such ubiquitous ICTs impacts both the work of the organisation and the individual. This exploratory research presents an analysis of the structuration process observed during the use of ICTs, also known as boundary-spanning ubiquitous ICTs. The case studied in this research focuses on management consultants in a tier-1 consultancy company with a worldwide presence.

This chapter proceeds in the following manner, section 1.1 presents the background of the research and section 1.2 presents the research goal and the research question. Section 1.3 introduces an overview of the research approach and methodology and presents the research site. This chapter concludes, in section 1.4, with an outline of the thesis.

## 1.1 Background of the research

This research aims to understand the role of ICTs in the delineation of work boundaries. With the aim of specifically understanding how individuals act on ICTs to negotiate these work boundaries. The definition of boundary as a demarcation (refer to the inventory of boundary conceptualizations in Yan & Louis 1999) separates one entity from another and the separation is necessary for the existence of each entity; a demarcation is similar to a system boundary. It "implies a discontinuity" which "constitutes a differentiation of technology, territory, or time, or of some combination of

these" (Miller and Rice 1967, p7 in Yan & Louis 1999). Applying this definition to the boundary of work requires the identification of the technology, territory or time associated to work and those associated to non-work. Keeping in mind that a demarcation between those two sets is necessary for the existence of each. The understanding of the work boundary negotiation process is significant and necessary due to a number of changes in the technological and the organizational landscapes; ICTs, new work organizations and the changing nature of work are leading individuals to cross more boundaries more frequently for work. This boundary spanning is blurring boundaries (Hernes & Paulsen 2003) requiring more individuals to negotiate their boundaries.

Technology is changing (Chen & Nath 2005; Lyytinen & Yoo 2002a) and it is becoming ubiquitous and pervasive. Mobile technologies refer to all information and communication technologies (ICTs) that can be carried around by users and include laptops, mobile phones and smartphones (Sørensen & Pica 2005). ICTs have been fundamental in enabling increased mobility and creating a new era of workplace connectivity (Schlosser 2002). They have infiltrated the lives of an increasing number of individuals and are now part of most organizations. This large number of individuals adopting ICTs is only expected to continue growing (Chen & Nath 2008). Research recognizes that the mobile aspect of these technologies impacts the individual by blurring boundaries (Cousins & Robey 2005; Golden & Geisler 2007; Kakihara & Sørensen 2004), introducing a conflict between work and non-work (Cousins & Robey 2005; Kakihara & Sørensen 2004; Mazmanian, Orlikowski & Yates 2006), and promoting an addiction to technology (Schlosser 2002; Singh & Wood-Harper 2010; Townsend & Batchelor 2008), among others. ICTs such as laptops, mobile phones and smartphones allow anytime/anywhere computing and are characterised by their ability

to cross boundaries. The use of ICTs leads to the transgression of boundaries, they allow "spaces" traditionally used for living, leisure or transit – such as homes, cafés and taxis – to be redefined as workspace. It is therefore important for both individuals and organizations to understand how the boundary negotiation process takes place. As more individuals will carry boundary spanning ICTs that enables them to cross their own work boundaries, their co-workers work boundaries and their organization's boundaries, more and more individuals will need to manage and negotiate their work boundaries.

Work "refers to activities oriented toward producing goods and services for […] pay" (Reskin 2001, p. 3261). It is an activity that defines who individuals are, it shapes their wellbeing and influences their chances of social mobility, A growing number of individuals are putting in very long work weeks. Working and gaining money also influences status and prestige (Mirchandani 2008; Reskin 2001). Work is understood by Mirchandini (1998) as two overlapping boundaries of payment and location; location being a predefined place in which work should be performed. However, the use of ICTs allows tasks – such as writing a report – that were traditionally fixed to a physical location – an office – to become mobile (Hislop & Axtell 2007) as they can be performed anywhere – using a laptop for example. Hislop (2007) describes mobility as a characteristic of the contemporary epoch where geographical distance is less of a barrier to communication and information sharing and everything is becoming mobile including goods, people and information. Mobility is providing new opportunities to organizations yet exposing individuals employed by these organizations to more boundary blurring; this reaffirms the point made above regarding the need for individuals to negotiate their boundaries and the need to understand these negotiations from a research perspective.

Organizations are increasingly becoming global in their operations (Hislop & Axtell 2007). The nature of the work is migrating from manufacturing to service jobs with an increase in highly skilled mobile knowledge jobs (Singh & Wood-Harper 2010). In their strategies, organizations seek to be more flexible (Hislop & Axtell 2007) and 'agile', 'thinking like small enterprises but acting like large organizations' to insure their survival in an increasingly competitive environment. All these organizational changes can lead more individuals employed in these organizations to work with others and be dependent on each other to perform their work, some are even required to travel frequently from one location to the other to perform work and meet clients around the world. This increasing need for work coordination leads to a high frequency of boundary spanning as well as cross-boundary coordination. These are enabled by ICTs which contribute to the modification of individual and organizational work practices. This leads to the ubiquity of technology in daily practices.

Drawing on Miller and Rice (1967, p7 in Yan & Louis 1999) definition, boundary crossing implies crossing the demarcation between work and non-work, and blurring the boundaries of work imply that the "differentiation of technology, territory, or time, or of some combination of these" they are referring to, fades away. Boundaries allow organizations to ensure an internal ordering (Hernes 2003) and guide individuals in how they carry out their work in specific situations, they constitute frames of reference. The maintenance of boundaries is important to maintain order, rationality and predictability within an organisation (Hernes 2003). Indeed, for management, boundaries draw the limits of accountability, reliability and efficiency all necessary for a stable organisation carrying out work tasks in an orderly and predictable manner.

This research is particularly interested in the case of consultants because they are boundary spanners (Sturdy, Schwartz & Spicer 2006). It explores boundary negotiation by consultants that work in a tier-1 consulting firm that has offices worldwide; which makes them interesting subjects for understanding boundary negotiation. Consultants are allocated to projects at the regional or international level and travel on a weekly basis to work on the clients' projects. These consultants also carry a number of ICTs to enable their work and their interactions with others while on the move. This research builds on the consultancy literature (Bloomfield & Best 1992; Fincham & Clark 2002; Sturdy 2009) as well as on the diverse boundary literature which addresses defining boundaries (Finet 1993; Hernes 2003; Yan & Louis 1999), boundaries in IS (Green 2002; Greenhill 2002; Li & Williams 2000), boundary spanning (Ancona & Caldwell 1992; Shumate & Fulk 2004), boundary management (Ashforth, Kreiner & Fugate 2000; Golden & Geisler 2007; Nippert-Eng 2003) and the boundary object concept (Carlile 2002; Star & Griesemer 1989). The interest is in how consultants balance their needs and the organization's work, rules and pressures. To explore this negotiation process, this research analyses the structuration process that takes place. This research aims to answer the following question: **How do management consultants use ICTs when negotiating work boundaries?**

The research couples Orlikowski's (1992a) structurational model of technology (SMT) – which builds on the structuration theory – as well as the boundary object concept (Star & Griesemer 1989) to complements the SMT in addressing boundaries, to explore work practices, to identify boundaries and to describe boundary negotiation within a management consultancy organization. The use of the SMT builds on two premises regarding technology, the 'duality of technology' which is a recursive notion stating that, "technology is created and changed by human action, yet it is also used by humans

to accomplish some action" (Orlikowski 1992a, p. 405) and 'interpretive flexibility' which stipulates that "the interaction of technology and organizations is a function of the different actors and socio-historical contexts implicated in its development and use" (Orlikowski 1992a, p. 405). The duality of technology is an important premise in IS that aims to solve the long standing dualism between the influence of context and that of technology. These two premises allow for the examination of the structuration process within the organisation and help reveal the structuration effects that are taking place. These will shed light on the role of technology in the negotiation process. The duality of structures complements the duality of technology as this research is interested in the negotiation process by consultants; the duality of structures will shed light on the actions of consultants and how they relate to the context of the organization. Giddens (1984) defines structures as norms, "norms figure as 'factual' boundaries of social life, to which a variety of manipulative attitudes are possible" (p. 4). Structuration is an interactive cycle and the SMT theory recognizes and integrates the importance of both the social and the technical, reason for which it was chosen to explore boundary negotiation. In the context of the present research analysing this duality will be important to explore how work boundary negotiation takes place as it will allow an understanding of the role of technology in this process. Since the SMT does not consider boundary work explicitly, the boundary object concept was drawn upon to complement the SMT. The boundary object (Star & Griesemer 1989) was developed to understand work conducted by individuals, referred to as 'agents' belonging to different social worlds. The boundary object is an adaptable concept yet is strong enough in its premise to maintain identity across organizational units. It allows members of the different social worlds or groups to interact together by bridging boundaries.

## 1.2 RESEARCH GOAL

This research aims at understanding how consultants negotiate their boundaries and what role ICTs play in these workplace negotiations. Furthermore the study explores what is happening to traditional work boundaries and whether they are replaced by new boundaries. It is hoped that the results of the research will allow users and organizations alike to better understand the consequences of ICT use in the workplace and whether there are consequences to consider when negotiating ICT adoption policies (Chen & Nath 2008). By uncovering boundary negotiation processes, this research seeks to improve the quality of professional lives in concert with the development of new technologies which are not necessarily for the better (Checkland & Holwell 1998).

This research is interested in answering the following overarching research question: ***Using the structurational model of technology, how are consultants using ICTs to negotiate work boundaries?***

This research explores how ICTs impact the management of consultants' work practices, specifically in terms of negotiating boundaries. The study focuses on a specific work context, Sigma an international consultancy organization where mobile work practices are adopted, this context enabled a detailed study of how ICTs blur the traditional boundaries of work, how new work practices are adopted, and how different uses of these ICTs are taking shape to establish and redefine new, alternative boundaries to accommodate consultants' needs. The SMT is the drawn upon theory to assess the impact of technology on the work practices.

The primary research question is supported by the following subsidiary research questions:

- How do consultants qualify as a coherent group of actors?

- How are ICTs used?

- How are work boundaries negotiated?

### 1.3 Overview of research approach and methodology, and introduction to the research site

This research will be ontologically based, on an assumption that subjective meanings and reality are constructions by individuals. In Orlikowski's words "the social world is produced and reinforced by humans through their action and interaction" (Orlikowski & Baroudi 1991, p. 14). This research follows the interpretive epistemological foundation which requires decoding the subjects' sense-making of their experience.

The case study is an adequate method for exploring the impact of ICTs on boundaries (Walsham 1995), since this research is interested in human action as well as interpretation relating to interactions with technology and case studies focus on human interpretation and meaning. A single organization is the venue for in-depth structured interviews. The unit of analysis is the individual since the focus is on the impact of ICTs on the boundaries experienced by the individual human agent.

The research site is an international management consulting firm. Senior consultants in the firm fly from one client site to the other working on projects, spending four days a week away from their home country. The site was chosen because consultants demonstrate mobile work practices. Furthermore the work of these consultants is supported and enabled by the ubiquitous ICTs provided by the firm; consultants are technologically-enabled with laptops, and mobile phones. Those with managerial positions are also provided with BlackBerry smartphones, other consultants are free to

acquire smartphones themselves. Consequently consultants need to frequently negotiate their work boundaries.

## 1.4 STRUCTURE OF THIS THESIS

Chapter 2 presents a review of the literature and grounds the study in the IS area of research. The chapter addresses the relationship between technology and organizations in IS with a focus on the structurational model of technology (SMT), the background theory for this research. The chapter also introduces the consultancy literature, boundaries, ICTs in relation to work and mobility as well as those in the area of boundary management; it seeks to review the literature associated with the consultants' work and the relationship of ICTs to space constructs and to boundaries. The chapter identifies a lack of theorization on work boundary negotiation and particularly in the case of consultants.

Chapter 3 presents a methodological discussion as well as the method that is drawn upon to examine the research site and frames this research in the domain of information systems research. The chapter introduces the research goals, develops the research approach followed by the methodology, and provides details on the case study method used and the data collection process – interviews coupled with photographic evidence. It describes this process, the instruments and the procedures. It then presents the operationalization of the research and describes the data analysis approach.

Chapter 4 presents the research site in detail. It is built from the general to the detail allowing the reader to be fully immersed in the case under study. It introduces the various elements that relate to the three components in the SMT, it describes respondents' daily interactions and it describes the various ICTs used by respondents on

a daily basis. Finally it describes the institutional properties of the organization. This chapter uses thick descriptions and photographic evidence.

Chapter 5 is the analysis chapter, it analyses and discusses the structuration process observed at the research site and presents the work boundary negotiation processes at Sigma. It presents a conceptual model of work boundary negotiation. It answers and discusses each of the research questions by drawing on the analysis chapter. It concludes by discussing the added-value of the SMT, the BOC and their joint adoption.

Chapter 6 concludes the thesis. It presents the main findings of the research and highlights the research contribution. It also identifies the limitations of the work and outlines possibilities of future research.

# Chapter 2 – Review of the literature[1]

This chapter provides the background knowledge on which the research is built and introduces the main concepts related to the components of the research. The focus of this research is to explore how consultants using information and communication technologies (ICTs) negotiate their work boundaries. The research is particularly interested in consultants who work in multiple locations to meet project requirements and deadlines. The literature review presented in this chapter aims at understanding existing research including, the work on consultants, the defining of boundaries and constructs relating to boundaries such as boundary-spanning, boundary objects, and explorations about ICTs and their relationship to boundaries. Examining existing literature will situate the research and allow to identify areas that need further research. A conceptual analysis approach (Dunleavy 2003) is adopted to review the literature. This approach builds on the theoretical components of the research (Knopf 2006) and elucidates the motivation for the research question.

To achieve the above, this chapter proceeds in the following order. It begins by examining existing research within the IS field in section 2.1. Section 2.2 introduces the structuration theory. Section 2.3 explores the relationship between technology and organizations in IS theory. Given these relationships, section 2.4 extends the structuration theory and introduces the structurational model of technology (SMT) theory. The literature about consultant is then presented in section 2.5. Section 2.6 introduces the literature on boundaries and introduces two conceptual boundary constructs. Section 2.7 describes ICTs. Section 2.8 discusses the relationship between ICTs, work and boundaries, followed by the discussion of boundary management in

[1] Earlier versions of this chapter were published as Salamoun-Sioufi & Greenhill (2007) and Salamoun-Sioufi (2011).

section 2.9. All of these research themes are then drawn upon to develop the research question presented in section 2.10. Section 2.11 concludes.

## 2.1 THE IS FIELD AND THIS RESEARCH

There has been a long standing debate about the identity of the IS field and there is still no agreement with regards to its core or its boundary (Hirschheim & Klein 2012). Some have attempted to develop a research area for the field (Gorry & Scott Morton 1971; Lucas 1975; Nolan & Wetherbe 1980). Benbasat and Zmud (2003) suggested a framework as well as rules of inclusion and rules of exclusion positioning the information technology (IT) artefact as the core of IS. They define the IT artefact as "the application of IT to enable or support some task(s) embedded within a structure(s) that itself is embedded within a context(s)" (p. 186) and the IS discipline as encompassing all of the constructs directly related to the IT artefact. Later following their article Alter (2003b) addressed the scope of the discipline. The differences in their models are more about semantics and approach (core versus boundary) than about diverging views (Saunders & Wu 2003).

For those who believe that such a framework is not necessary (see for instance Lyytinen 2004), other issues are brought forward such as relevance and lack of rigidity as IS research is broad in its themes (Keen 1991). The IS discipline defines itself and positions its research topics within the organizational environment (Alter 2003b; Benbasat & Zmud 2003; Gorry & Scott Morton 1971; Ives, Hamilton & Davis 1980; Nolan & Wetherbe 1980). One of the concerns of IS is the availability of accessible information to actors in the organization (Checkland & Holwell 1998, pp. 59-60). The AIS special interest groups include SIGHCI which defines itself as interested in "issues related to the history, reference disciplines, theories, practice, methodologies and

techniques, new developments and applications of the interaction between humans, information technologies and tasks, especially in the business, managerial, organizational, and cultural contexts" (*Special interest group on human-computer interaction*). The activity of the organization has no importance on defining whether the research should be included or excluded from IS. IS is interdisciplinary and it should remain (Galliers 2006). In a definition of IS including human actors, Galliers and Land (1987) write that IS is interested in topics beyond technology and includes behavioural and organizational considerations. Avgerou et al. wrote

> The field of information systems (IS) studies phenomena associated with the utilisation of information and communication technologies. (1999, p. 136)

And Avison and Elliott added

> The IS discipline is in essence an applied social science pertaining to the use and impact of technology (2006, p. 8)

Boland and Hirshheim (1985) define the IS field as being

> [A] combination of two primary fields: computer science and management, with a host of supporting disciplines (…) IS is concerned not only with the development of new information technologies but also with questions such as: how they can best be applied, how they should be managed, and what their wider implications are. (Boland and Hirshheim 1985 p.vii in Checkland & Holwell 1998, p. 10).

Despite the varied definitions of IS, the research in this thesis is positioned in the IS area as it seeks to understand the relationship between technology and the organization. Namely this research seeks to determine the role of ICTs in the negotiation of work boundaries. ICTs and their implications are part of the IS field based on the definitions presented above (Avgerou, Siemer & Bjørn-Andersen 1999, p. 136; Benbasat & Zmud 1999; Boland and Hirshheim, 1985 p.vii in Checkland & Holwell 1998, p. 10).

## 2.2 STRUCTURATION THEORY, A CONCEPTUALIZATION OF THE RELATIONSHIP BETWEEN SOCIETY AND INDIVIDUALS

Understanding the structuration theory is a prerequisite to introducing the SMT and assessing its adequacy in the context of this research. This section introduces structuration theory a conceptualization of the relationship between society and individuals. Subsection 2.2.1 describes its origins and presents its principles; subsection 2.2.2 describes its relation to IS, presents its main critiques and introduces its adaptations. Subsection 2.2.3 presents an overview of alternate conceptualizations.

### 2.2.1 Origins and principles of structuration

Following Ury, Bourdieu and Bhaskar, Giddens (1984) have drawn on Berger and Luckmann's concept of the mutual constitution of society and individuals (Jones & Karsten 2008, p. 121) to develop the structuration theory, suggesting that agency and structure are mutually interacting elements leading to many critiques from both camps. Structuration is Giddens' answer to a long standing debate that concerns the dominance of agency versus the dominance of structure (Jones 1999; Rose, Jones & Truex 2005). Structuration represents a significant development in European sociology in the late 70's (Jones 1999). Traditionally determinism was adopted (Rose, Jones & Truex 2005), technological determinism is when technology is viewed to cause change, an effect in an organization that absorbs the effect without resistance; social determinism presented technology as the result of human intention, design and action.

The structuration theory is not specific to information systems (Jones 1999), it is a general theory of social organization which highlights the interplay between the individual and society and the dynamic aspect of this process. It represents an ontology of society, an account of "what sort of things are out there in the world, not what is happening to, or between, them" (Craib 1992 p.108 in Jones & Karsten 2008).

Structuration is currently applied to the analysis of organizations as well as the analysis of inter-organizational networks (Sydow 1998). Giddens is the most widely cited contemporary social theorist (Bryand and Jary 2001, p.43 in Jones & Karsten 2008)

Giddens (1984) proposed the structuration theory as an answer to the debate on agency and structure. Structuration is a social phenomenon, a product of human action based on the subjective interpretation of the world versus action shaped by the influence of objective social structures breaking the dualism between action and structure. Later, Giddens' numerous writings provided him with many opportunities to fine-tune and clarify his position as well as to respond to critics (Jones 1999). The following paragraphs introduce the main principles of the theory.

Giddens (1984) identified three dimensions of structures signification, domination and legitimation that interact through three modalities the interpretive schemes, the facilities (resources) and the norms with human interaction of communication, power and sanction (p.29). The duality of structures refers to the recursive nature of social life, the fact that social life is created and recreated in social practices, it is an on-going process. Another aspect of structures is that structures are not material and exist only through human action, they are memory traces (Giddens 1984). Three important elements are structures, systems and structuration. Structures are defined as "rules and resources, or sets of transformation relations, organized as properties of social systems" (p.25) however they are not static. Resources are either allocative and acting on objects or authoritative and acting on people (p.33). Systems are the "reproduced relations between actors or collectivities, organized as regular social practices" (p.25). Structuration is the "conditions governing the continuity or transmutation of structures, and therefore the reproduction of social systems" (p.25).

Human agents or actors are knowledgeable and reflexive. They know a lot about the dynamics of the society they belong to because of their participation in it (Giddens 1979 p.250 in Jones 1999) and have the capacity to act. Yet their awareness is not complete because there are three sources of knowledge, 'practical knowledge', 'discursive knowledge' and 'unconscious sources of cognition' (Giddens 1984) and because actors do not know exactly how structures operate. So agents are not always in control (Jones & Karsten 2008) and intentional action can lead to both intended and unintended consequences. The study of agency is concerned with action and its consequence (Rose, Jones & Truex 2005).

Giddens identifies three aspects of temporality the 'durée' of daily life, the life span of the individual and the 'longue durée' of institutions (Giddens 1984, p. 35). Structuration links the temporality of the individual to that of the institution.

Structures are both enabling and constraining. Giddens considers that agents always have multiple possibilities for action and that there is always a possibility for change. This choice either reinforces existing structures or becomes a source of change and the emergence of new structures. Producing and reproducing structures leads to routinization, necessary for the "continuity of the personality of the agent" and for the institution of society (Giddens 1984, p. 60).

### 2.2.2 Structuration theory, its critique and adaptation to IS

Structuration theory has implications for all social phenomena and as "IS are social systems that rely increasingly on computer-based IT for their operation" (Hirschheim 1985 p.118 in Jones 1999), structuration is of interest to study the relationship between IS and organizations. It is also of interest because it allows for a non-dualistic account of the relationship between agency and structure (Jones & Karsten 2008), it allows to

avoid technological and social determinism (Markus & Robey 1988), provides a dynamic conceptualization of structure and facilitates the study of change (Orlikowski 2000) and a broad ranging account of social processes (Jones & Karsten 2008).

Structuration is a general theory and does not address IS directly. There is a material aspect of technology that does not fit with Giddens' definition of structures. Giddens makes only few and indirect references to IS. He refers to 'time-space distantiation' while describing that some ICTs may replace face-to-face interaction and enable social integration (Jones 1999, p. 117). Giddens does not recognize the ability of IT to make a difference (Rose, Jones & Truex 2005) (refer to the critique of structuration below).

Despite the different issues regarding IS, Jones and Karsten (2008) identified 331 IS papers using Giddens' ideas directly or via the IS adaptations, AST (DeSanctis & Poole 1994) and SMT; they report that he was mentioned in 200 other IS papers (still a small percentage of the total number of published IS papers). The study of the empirical papers indicated an interest in types of IS where social factors are recognized to be important and in development phases where agency has a wide scope.

Jones (1999) presents key IS writings relating to structuration. Writings fall into one of the four groups, applying theory to analyse IS cases, reconstructing theory to accommodate technology, using the theory as a meta-theory or adopting only some aspects of the theory.

Although the structuration theory and the work of Giddens are highly cited, they have a number of critiques, particularly in relation to technology. Jones and Orlikowski (2004) provide a critical assessment of structuration theory, identifying a number of issues. The following paragraphs elucidate on their critique under the themes of materiality, interest

in IS, theorising of agency, time, scope of applicability and attitude to empirical research. This is followed by the introduction to adaptations of the theory.

Materialism – The inability of the theory to address materiality is problematic for IS in which research is interested in the study of the relationship between IT a material artefact and organizations (Jones, Orlikowski & Munir 2004). Giddens (1984) explains that "structure is a 'virtual order' of transformative relations [… that] exists, as time-space presence, only in its instantiations in such practices and as memory traces orienting the conduct of knowledgeable human agents" (p.17). Some "forms of allocative resources (such as raw materials, land, etc.) might seem to have a 'real existence' in a way […] that structural properties […] do not […] But their 'materiality' does not affect that such phenomena become resources, […] only when incorporated within processes of structuration" (p.33). Structuration does not allow for material objects to be social structural resources in power relations (Jones 1999), they cannot have a direct influence on action. Consequently the material character of technology represents a problem for structurational IS research (Jones 1999, p. 117).

Interest in IT – The lack of specificity about technology (Monteiro and Hanseth 1995 in Jones 1999) and the lack of attention to technology (see section 2.2.2 about Structuration and IS) (Jones, Orlikowski & Munir 2004) are also problematic. Technology is not a structure nor does it embed structures, it is rather how it is used as a resource to accomplish work that constitutes a structure (Jones & Karsten 2008).

Theorizing of agency – For Giddens (1984) agency is synonymous of human action, it is the "capability to make a difference" (Rose, Jones & Truex 2005, p. 134). The theory views agency as being voluntaristic and agents are autonomous (Jones & Karsten 2008; Jones, Orlikowski & Munir 2004) with merely no limits. It does not recognize that

structures may restrict agents' choices yet feasible options to act are sometimes absent (Jones 1999). It denies agency to objects and focusses on the social (Walsham 2005).

Time – The reversibility of time as well as its treatment of the linkage between power and time-space distanciation which is only valid in contemporary industrial societies (Jones, Orlikowski & Munir 2004).

Scope of application – Limited scope of applicability due to a theorizing mainly rooted in European and American sociology (Jones, Orlikowski & Munir 2004).

Attitude to empirical research – It is an ontological theory (Jones 1999) unable to inform research (Jones, Orlikowski & Munir 2004). Giddens writes that it is not intended as a concrete research program (Giddens 1983 p.77, 1992 p.310 in Jones 1999, p. 112), however he (Giddens 1984, pp. 281-4) provides some guidelines and refers to "technically-sophisticated, hard-edged" (Giddens 1991b p.219 in Jones 1999, p. 107) research despite his post empiricist and anti-positivist stance. Later he states his preference that aspects of his writings be used parsimoniously and critically (Giddens 1991b p.213 in Jones & Karsten 2008).

To compensate for the weaknesses of structuration theory for IS research, there were two attempts to adapt the theory and take into account the technology: the adaptive structuration theory and the structurational model of technology (SMT). The adaptive structuration theory (DeSanctis & Poole 1994) proposes that structures represent the basis to plan and accomplish tasks and to incorporate these structures in the technology. The authors suggest that IT is one source of structure and that other sources of structures such as work tasks and organizational environment be also considered. Structural features of technology may be appropriated. The adaptive structuration theory

succeeded in integrating the technology, it is however in contradiction with some of Giddens' (1984) principles. The SMT (Orlikowski 1992a), another adaptation of the theory of structuration, is described in section 2.4. By drawing on the principles developed in IS and integrated by Orlikowski to compensate for Giddens weakness in his treatment of technology, it is hoped that this study will further contribute to this body of work.

### 2.2.3 Alternate conceptualizations, Actor network theory and Materiality

Structuration and actor-network theory (ANT) are the two theories that provide the most convincing explanation to resolve the long-standing debate on the relationship between technology and organizations (Rose, Jones & Truex 2005). Agency is an action that has an outcome or a consequence for instance in ANT it is theorised as what has a consequent capacity (Rose, Jones & Truex 2005). Both theories adopt different conceptualizations of agency, in structuration theory agency is exclusive to human agents, ANT adopts a principle of symmetry to agents and objects, actors and actants.

It is worth highlighting the evolution in theorising the IT-organization relationship with newer reflections on materiality. The role of materiality in organization theory is till understudied (Orlikowski 2007). When theorizing about the relationship between IT and organizations, the reflection often moves to a discussion regarding the material versus the social, it has been difficult for researchers to reconcile materiality with theories that recognize human agency (Leonardi & Barley 2008) and in other words this brings the debate back to agency versus structure. The literature on boundary objects is part of the literature that focuses on the object and its role, although the object is not necessarily physical as discussed below (refer to section 2.6.4 on boundary objects). In organization science this approach has been noticeable (Carlile 2002; Star 2010; Star & Griesemer 1989). Another literature that focuses on materiality is sociomateriality (Orlikowski

2007), Orlikowski's new line of thought and research which builds on the following premise and which has been explored by other researchers.

> Materialism is the philosophy that explains the nature of reality and the world – physical, social, cultural, etc. – in terms of matter. It asserts that reality and the universe are first and foremost material; they exist outside of human thought and ideas and are independent of the human mind. The human intellect can come to know the world of matter through experience and sense perception and can interact and shape the material world; but the world of material existence is primary. Philosophical materialism stands in opposition to the philosophy of idealism that states that ideas, thought, and mind are the essential nature of all reality and the world of matter is a reflection of mind, thought, and ideas. (Katz-Fishman, Gomes & Scott 2007)

The increasing interest in exploring the socio-materiality of IS took form in a call for papers in 2011 for a special issue of MISQ on socio-materiality of information systems and organizing.

## 2.3 THE CONCEPTUALIZATION OF THE RELATIONSHIP BETWEEN TECHNOLOGY AND ORGANIZATIONS IN IS THEORIES

Theories on the relationship between technology and organization in Information Systems (IS) are numerous. Technological determinism and the strategic imperative are two extremes on the continuum depicting this relationship (Orlikowski 1992a). These extreme positions represent an objective/subjective duality and are supported by a determinist/positivist stance and a voluntarist/interpretive stance, respectively (Pozzebon & Pinsonneault 2000).

Subsection 2.3.1 presents an overview of technological determinism, subsection 2.3.2 presents the social shaping of technology, and subsection 2.3.3 presents the process approach. This section serves to describe different conceptualizations of the relationship between technology and organizations. This presentation highlights the weaknesses of

these positions and culminates in identifying the structurational model of technology (SMT) as a suitable alternative in section 2.3.

### 2.3.1 Technological determinism

IS scholarship theorizes the relationship between technology and organizations in different ways. Technological determinism is a theory that is technology-centred and built on two main premises, (1) technology develops based on its own 'internal logic', in the best and only way possible, it evolves independently of the organizational context in which it is developed or the individual developing it (Kline 2004); and (2) the use of technology impacts the organization that uses this technology in a deterministic way, its impact is predictable and occurs in any circumstance (Kline 2004). Thus the technology is treated as a 'black box' and the innovation process is linear (Edge 1995, p. 14). Proponents of technological determinism view technology as an 'objective' and 'external force' (Orlikowski 1992a, p. 399), they associate its use to positive outcomes and consequently consider that social change represents progress (MacKenzie & Wajcman 1999).

### 2.3.2 Social shaping of technology

The sociology of technology, in general, and the social shaping of technology (SST) theories, in particular, critique and challenge technological determinism (Bijker & Law 1992; Heap et al. 1995; MacKenzie & Wajcman 1999; Williams & Edge 1996). The SST theories arise in the literature as a response to technological determinism. They open the 'black box' and analyse the origin and the evolution of technology (Edge 1995, p. 14; Howcroft, Mitev & Wilson 2004) to understand how the technology was developed and how it is evolving. SST theorists reveal technology's relation to society, they consider SST to be a theory of social change (MacKenzie & Wajcman 1999).

Understanding the development and the evolution of technology requires reference to social conditions that are beyond the technology (MacKenzie & Wajcman 1999). This implies that different social and/or political contexts, and/or a different developers involved in the development of a technology, would result in the development of a different technology (Bijker & Law 1992). The use of technology, similarly, has an impact on the social, but it is not prescribed (Mackay 1995; MacKenzie & Wajcman 1999). Thus, the social impact of a technology is not a characteristic of the technology. Bijker and Law (1992) and MacKenzie and Wajcman (1999) analysed numerous cases to illustrate how social shaping took place.

The inventory of factors that shape technology and their illustration can be found in the SST literature (Bijker & Law 1992; Edge 1995; MacKenzie & Wajcman 1999; Williams & Edge 1996). They include factors such as political factors, economic factors, social factors, historical factors and culture. Considering the number of factors that shape technology, Raymond Williams coined the concept of 'symptomatic technology' stating that "technology is a symptom of social change" (Williams, 1974 in Mackay 1995, p. 41). Invention and creation of an artefact are not the result of a "sudden flash of inspiration", rather a lengthy and iterative process that is based on combining new ideas and technologies with existing ones (areas, problems, techniques) (MacKenzie & Wajcman 1999, p. 8). Existing technology is therefore an important precondition of new technology, but it is not the only force shaping new technology. Design and development are social processes (Mackay 1995) where the parties involved interact; they identify alternatives, assess the alternatives (in different ways due to differences in experience and goals), resolve potential conflicts, negotiate and compromise (Bijker & Law 1992), in an effort to reach a common decision. The above process refutes the first premise of technological determinism, technology does not

evolve according to an inner-logic, but is socially shaped. The shaping takes place during technology development when choices need to be made, and these decisions affect the trajectory of the technologies. This notion of choice is important in SST (Williams & Edge 1996) and distinguishes SST theories from technological determinism by introducing the human as a factor in the technology's constitution.

Hence, technologies are social because they are designed and developed using a social process that shapes them (Mackay 1995), they involve physical artefacts or equipment, which are created and used by people (MacKenzie & Wajcman 1999), the design of technologies involves experience, which is itself a social attribute (MacKenzie & Wajcman 1999), and they define, but do not determine, how people do things, making some paths more rational than others (Bijker & Law 1992). SST theorists use concepts from the sociology of technology to explain IS phenomena, which explanation based on the management and mainstream IS literature, is not satisfactory (Howcroft, Mitev & Wilson 2004).

### 2.3.3 Process approach to IS

Other IS theories attempting to explain the interaction between technology and organizations have only provided tools to understand part of the picture. For instance, Alter (1999; 2002; 2003b) focuses on the relationship between work practices and IS, highlighting their interrelatedness. For Alter, an IS is a tool for work and therefore priority must be given to the social aspect. Alter (2003a, p. 366) states that the focus should be on "IT-reliant work systems (…) whose efficient and/or effective operation depends on the use of IT". However, work systems are important, but not sufficient. The relationship between the two components – work system and IS – is bidirectional, focussing on one would lead to ignoring how it is affected by the other. Therefore it is also important to focus on the IT artefact.

The question that lies behind these theories is how IS and organizations relate. The answer depends on the epistemological position. A critical attitude focuses on the impact of IS on internal power, and user roles, and thus builds its theory on the relationship between IS and work practices. It is important to think of a sociotechnical system, to take into account both the technical and the social (Garrity 2001).

## 2.4 THE STRUCTURATIONAL MODEL OF TECHNOLOGY (SMT)

Given the interest in structuration and the critiques of structuration in relation to IS, the following paragraphs explore the SMT, a structuration model of technology proposed by Orlikowski (1992a). Subsection 2.4.1 describes the origin of the SMT and its contribution, subsection 2.4.2 follows with a description of each of its three components as well as how they interact with each other. Subsection 2.4.3 presents an overview of its use in the IS literature and an overview of the critiques of this theory.

### 2.4.1 The SMT and its contribution

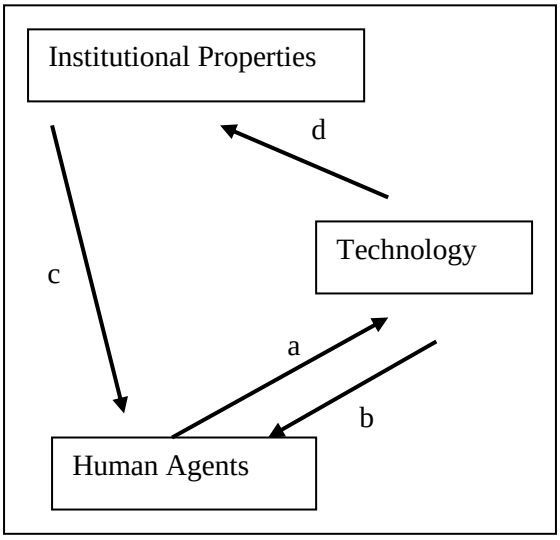
There is no doubt that technology constrains human activities (Winner, 1977 in Kline 2004); yet, at the same time, there is no doubt that humans shape technology for a multitude of reasons. Technological determinism and SST both lack the integration of human agency and the recognition that the human agent has a will that affects technology adoption and use (Orlikowski 1992a), the SMT is based on the structuration theory and attempts to provide a solution for the technology gap that was left by Giddens (1984).

The position of Giddens that technology is an allocative resource is not compatible with the view of IS by IS scholars, Orlikowski and her colleagues aimed to fill this gap. IS as an authoritative resource has to be recognized and analysed (Orlikowski 1991, p. 35). Technology has both social and material properties "being physically and socially

constructed by subjective human action, while also objectified and reified through institutionalization" (Orlikowski & Robey 1991, p. 164), when accommodated adequately, technology becomes centrally implicated in the process of structuration (Orlikowski & Robey 1991). Orlikowski adapted structuration to IS with the SMT and discussed the problem of agency by introducing material technology into the structure/agency duality. She suggested that social rules may be embedded in IS. However, she later recognized (Orlikowski 2000) that this approach was problematic as it contradicts the basic premise of structuration (Rose, Jones & Truex 2005).

Orlikowski (1992a) developed the SMT, a theoretical model to examine the interaction between technology and organizations, based on the theory of structuration developed by Giddens (1984). Structuration as defined by Giddens (refer to section 2.2.1 on Structuration theory above) refers to the reciprocal interaction between individuals and the structures of the social systems they belong to. These structures are the result of previous actions and they represent constraints and resources for the intended actions. Human agents are knowledgeable and reflexive and have a role in confirming structural properties (human agency and structure are neither contradictory nor independent). The duality of structure refers to the fact that "structural properties of social systems are both medium and outcome of the practices they recursively organize" Giddens (1984, p. 25). When technology is involved it impacts its new environment. For instance, even when ICTs are purchased for private use, the intrusion of work into the home becomes evident and the choice made in selecting that ICT can also be influenced by work-related considerations (Avery & Baker 2002).

The SMT theory as defined by Orlikowski (1992a) is represented in Figure 1 and is based on two important premises: the 'duality of technology' and the 'interpretive flexibility of technology'.




| Arrow | Type of Influence |
|---|---|
| a | Technology as a product of human action |
| b | Technology as a medium of human action |
| c | Institutional conditions of interaction with technology |
| d | Institutional consequences of interaction with technology |

**Figure 1: The SMT, reproduced from Orlikowski (1992).**

Structuration is understood as a dynamic process. The SMT does not separate the design (arrow "a" in Figure 1) from the use (arrow "b" in Figure 1) of technology. It embraces the idea that technology can be modified throughout its existence, technology is continuously constructed (Orlikowski 1992a). Similarly, when humans use technology as a medium for their actions, their actions are shaped by the technology. Technology does not determine social practice, but simply shapes it. Human agency drives the decision to use the technology and thus determines possible outcomes of its use. The '*duality of technology*' refers to the recursive notion of technology, "Technology is created and changed by human action, yet it is also used by humans to accomplish some action" (Orlikowski 1992a, p. 405). The '*interpretive flexibility*' of technology means

that “the interaction of technology and organizations is a function of the different actors and socio-historical contexts implicated in its development and use” (Orlikowski 1992a, p. 405), it “is influenced by characteristics of the material artefact (…), characteristics of the human agents (…), and characteristics of the context” (p. 409).

### 2.4.2 The components of the SMT

This section describes each of the three components (technology, human agents, and institutional properties) of the SMT and their roles in the structuration process. The structuration process starts as early as technology development. The human agents develop the technology (arrow a in Figure 1) based on their understanding of the institutional properties (arrow c in Figure 1). In this phase, institutional properties shape the development of the technology. Then to perform their work, human agents appropriate technologies (arrow a in Figure 1). Their appropriation is influenced by the institutional context; the institutional conditions influence how organizational members use the technology (arrow c in Figure 1). At the same time the use of technology shapes – constrains or facilitates – the work of those using it and all its characteristics (arrow b in Figure 1). Indeed, in using the tools, their actions and perceptions of reality (of their work, of the tools, of themselves and their business stakeholders) are mediated by the interpretive schemes, norms, and resources embedded in the technology (arrow b in Figure 1). “If users acknowledge that technology is interpretively flexible, they can modify their interpretation and use of it” (Orlikowski 1992a, p. 419). Once the use becomes taken-for-granted, the tools become institutionalized and their use by organizational members influences institutional properties and/or reinforces them. So when the human agents perform their work using the tools, they are typically reaffirming the institutional properties, as expressed in its structures (arrow d in Figure 1).

In the structuration theory, the role of actors in reaffirming structural properties is highlighted. "The recognition that actors are knowledgeable and reflexive is a central premise" to SMT (Orlikowski 1992a, p. 404). Reflexivity is the capacity of individuals to understand what they are doing. Knowledge and reflexivity are shaped by properties of the institution and the individuals themselves. Orlikowski adds "Human agency, however, through the dialectic of control, can act against the apparent determinism of institutionalized artifacts" (1992a, p. 419). Over time, patterns of interactions emerge and establish themselves as standard practices, protocols, values, etc. The interactions become institutionalized and constitute the structures of the organization as expressed in its structures of signification, domination and legitimation.

Orlikowski integrates the institutional structures to investigate how technology and organizations interact while filling the gaps of previous theories. Whenever human agents interact with technology they are influenced by the institutional properties of their organization, an ensemble of rules, values, procedures knowledge and resources that guide and structure work. These are referred to as the *institutional conditions of interaction with technology* and are a key component of the theory (arrow c in Figure 1). Most importantly, some of these structures are beyond intent and control. Within the organization, these structures are important as they represent norms that 'legitimate appropriate conduct' and govern interactions. Orlikowski does not provide an exhaustive list of these structures, nor does she specify how to identify the important structures in a specific case. She does, however, provide the following indicative list, to which she then adds technology,

> Institutional properties of organizations, including organizational dimensions such as structural arrangements, business strategies, ideology, culture, control mechanisms, standard operating procedures, division of labor, expertise, communication patterns, as well as environmental pressures such as government regulation, competitive forces, vendor strategies, professional

> norms, state of knowledge about technology, and socio-economic conditions. (Orlikowski 1992a, p. 409)

Returning to the three stages associated with technology development, use, and ongoing interactions, Table 1 highlights the role of the institution, and its structures in the process.

| Arrow | Type of influence |
|---|---|
| c | **Institutional conditions of interaction with technology:**<br>The appropriation and use of technology by human agents is influenced by the institutional context and the socialization of human agents into it. |
| d | **Institutional consequences of interaction with technology:**<br>The tools represent a set of rules and resources drawn on by organizational agents in their everyday action, hence comprising part of the organization's structures.<br>Once the use of the tool becomes taken-for-granted, it becomes institutionalized and their use by human agents influences institutional properties and reinforces them. |

**Table 1: The role of institutional properties in the structuration process, adapted from Orlikowski (1992).**

The importance of the sociotechnical perspective is reaffirmed in numerous cases. For instance, the dynamics of institutionalization are illustrated in a case (Hayes 2008) describing the development of an ICT to be used by numerous groups of users and where the culture of one group of users is imposed on all other organizational users. In turn, this culture becomes institutionalized because the primary users were highly involved in the development of the technology. Their structures and their culture were the institutional condition for the interaction with this technology and consequently shaped the technology, through the development of this ICT, the culture of one group became institutionalized.

### 2.4.3 The SMT in the IS literature and its critique

Giddens' structuration theory was applied under three main variations in IS research (Pozzebon & Pinsonneault 2000): the adaptive structuration theory (based on the work

of DeSanctis & Poole 1994), the mutual shaping – the closest to Giddens' thought – based on the SMT (Orlikowski 1992a) and the social/actor's organization perspective (used for instance in Sahay & Walsham 1997).

The structuration theory has served to flesh out the importance of the organizational context in technology implementation. Barley (1986), for example, reports that the same technology – CT scan – implemented in different organizations occasioned similar structuring processes yet led to differing forms of organization. Another study furthered these findings and recognized the place of the individual's roles and social networks in mediating the technology-organization relation (Barley 1990). Barley's (1986; 1990) findings contributed to Orlikowski's work in the development of SMT.

In the context of research on system implementation and change, the SMT identified institutional factors inhibiting necessary changes in work habits (Olesen & Myers 1999) and in organizational practice (Purvis, Sambamurthy & Zmud 2001); in the latter case the researchers built on the theory to recommend initiatives to motivate the development of a positive context. The factors inhibiting change were causes of implementation failure in both research papers. Research relating to culture and IS revealed complementary results, the SMT identified culture differences between groups during the implementation of systems developed in another culture. This analysis led to an explanation for the failure of the implementation (Walsham 2002). Furthermore, research, on the implementation of the same geographic information systems at different sites, identified the impact of site characteristics on organizational processes; the same technology implemented in different sites led to different implementation outcomes and different consequences (Sahay & Robey 1996).

Research on groupware has also used this theory. Findings indicated that groupware applications and organizational processes influence each other, which led to the development of a conceptual model of the interaction dynamics of groupware (Ngwenyama 1998). Results of research on groupware implementation revealed that quality of communication does not depend on the groupware itself but also on organizational factors, culture and the social environment, in this specific case (Olesen & Myers 1999).

In the context of communication, the SMT was used to define email richness and media selection. In both cases research revealed the importance of the contextual properties, namely institutional properties and the needs of the agents involved. The organizational context influences both the action of individuals and the meaning they associate to these actions. In the case of email communication, actors refer to the organization's context to contextualize the email content, understand its meaning, and then act on it (Ngwenyama & Lee 1997). Organizational actors select communication media based on their expectation of how the selected media will fulfil their needs; consequently individuals with different needs end-up selecting different media (Carlson & Davis 1998).

The majority of the studies using the SMT, shared the premise of duality of technology, confirmed that the consequences of IT depended on the context in which it was used and identified inconsistencies resulting from intended and unintended consequences of technology use (Pozzebon & Pinsonneault 2000).

Orlikowski (2000) later recognized that the SMT was problematic as it contradicts the basic premise of structuration (Rose, Jones & Truex 2005) by stating that technology embodies structures which are appropriated by users and stabilized (Orlikowski 1992a; Orlikowski & Robey 1991). She suggests an extension to the SMT by developing a

practice lens (Orlikowski 2000); "A practice lens more easily accommodates people's situated use of dynamic technologies because it makes no assumptions about the stability, predictability, or relative completeness of the technologies. Instead, the focus is on what structures emerge as people interact recurrently with whatever properties of the technology are at hand, whether these were built in, added on, modified, or invented on the fly" (p.407). Other critiques already addressed to structuration theory (refer to section 2.2.2) also apply to the SMT such as theorizing of agency and voluntarism, time, scope of application and lack of guidelines for empirical research.

## 2.5 CONSULTANTS

In both the structuration theory and the SMT there is an important focus on the agent and his/her reflexivity. It is therefore important to understand who the agent is, what are the motivations of the agent and his/her other characteristics. Reviewing the literature on consultants allows knowing more about the actors of interest, their work, their relationship to their clients as well as their specificities.

The interest in consulting, also referred to as management consulting or consultancy, has risen due to the fast growth of the sector – one of the fastest growing sectors in 1980 – in many advanced economies (Bloomfield & Vurdubakis 2002; Fincham & Clark 2002), to the size of the industry reported to generate 10 billion pounds per annum in the UK only (MCA 2010 in Sturdy 2011), to the spread of consultancy to a wide range of organizations both clients and suppliers (Bloomfield & Vurdubakis 2002), to its important role in the life of many organizations (De Jong & Van Eekelen 1999) and to the power many believe consultants have over organizations (Fincham 2002). However, the practice of consultancy puzzles some as it is regarded as a source of expertise yet it

is depicted in part of the popular press and anecdotes as charlatans (Bloomfield & Danieli 1995).

Qualified as ‘management fashion setters’ by Abrahamson (1996 in Fincham & Clark 2002), consultants are symbols of contemporary organizational change (Bloomfield & Best 1992; Sturdy 2011). They are said to be external experts that solve organizational problems and produce love/hate responses from their clients (Fincham 2002). Large variations are observed in consultant work context in terms of type, client, situation and task (Alvesson & Johansson 2002; Fincham 2002), “while consultancy is an advice giving activity the nature of the advice and the composition of the advice givers changes” (Fincham & Clark 2002, p. 2).

Fincham (2002) identified two distinct perspectives in the literature on management consulting. The first is referred to as organizational development (OD) and focusses on the effectiveness of consulting. OD conveys an idealistic picture of consultancy and presents consultants as competent professionals with high levels of integrity, self-control, expertise to solve all sorts of problems (Alvesson & Johansson 2002). Consultants are described as knowledgeable outsiders that have the main role in the consultant-client relationship; they are powerful and have a high status (Sturdy, Werr & Buono 2009). The other perspective falls within critical research and challenges the premises of the former as well as critiques consulting in general. One stream within critical research considers consulting as a social discourse that reflects power (Fincham & Clark 2002). Also found in the press is a journalistic criticism of the effectiveness as well as of the contradiction between expensive yet not useful advice (Fincham & Clark 2002). Subsection 2.5.1 presents an overview of the descriptive and prescriptive

literature, whereas subsection 2.5.2 presents an overview of the alternate views of consultancy.

### 2.5.1 Descriptive and prescriptive literature

Most of the literature on consultancy before the mid-1990s is of descriptive or prescriptive nature, and written by consultants for consultants (Bloomfield & Danieli 1995; Fincham & Clark 2002; Sturdy, Werr & Buono 2009). It describes the tasks conducted by consultants and how they work. It attempts to frame consulting by listing all tasks and firms, however this approach is not adequate as consulting continues to evolve (Fincham & Clark 2002).

Many attempted to define consultancy. It is as "an advisory service contracted for and provided to organizations by specially trained and qualified persons who assist, in an objective and independent manner, the client organization to identify management problems, analyse such problems, recommend solutions to these problems and help when requested in the implementation of solutions" (Greiner and Metzger 1983, p.7 in De Jong & Van Eekelen 1999). De Jong and Van Eekelen (1999) report that a lot has been written on how to perform management consulting and on what it takes to be a good management consultant. Nikilova et al. (2009) identified four major phases in the consulting process they analysed, acquiring projects, consulting practices and communicating results and coordinating expectations a parallel phase which runs along the other three. In typical projects, the consulting process included four steps, problem diagnosis, generating alternatives, evaluating alternatives, and implementations. Validating assumptions with client and explaining the solution to the client were identified as critical tasks. Consultants start by understanding the current position, the future goals and the existing behaviour of the organization before developing and implementing the solution (Bloomfield & Best 1992)

In their study De Jong and Van Eekelen (1999) found that senior consultants have long work days, their work pace is high and most of their time is spent in scheduled social interactions. The number of unscheduled interactions is large and their duration is short. Interactions are mainly face-to-face but also occur over the phone; mail interactions are marginal. Building and maintaining good relations with the clients is said to be one of the most important aspects in consulting as it allows to build the trust (Sturdy, Schwartz & Spicer 2006) that is a prerequisite to any form of cooperation.

Schein (2002) views the relationship as a process consultation where consultant and client perform a joint diagnosis and in which there is a transfer of skills from consultant to client. However there are some conditions for success. For Schein (2002), the initiative comes from a client seeking help, but the process depends on both parties and can be undermined if the consultant misuses the power the customer entrusts him/her with or if the client exhibits certain behaviour; for Schein it remains the responsibility of the consultant to have insight into such social dynamics to help the process evolve as expected.

### 2.5.2 The critical perspective: alternative views of consultancy

The literature presented above presents a descriptive and prescriptive approach to consultancy. However more recently, critical research has also shown an interest in consultancy (Alvesson & Johansson 2002; Fincham & Clark 2002). This perspective critiques and rejects the foundations of the previous consultancy studies. Critiques are discussed in the following paragraphs.

#### Presenting themselves and Impression management

The consultancy process takes place within a context of perception and representation. Consultants draw on their professional reputation to present themselves to the client as

independent experts who are objective and neutral in their positions and whose interest is the same as the client's (Bloomfield & Danieli 1995). This image also conveys an idea of 'professionalism'. However for Kubr (1996 in Alvesson & Johansson 2002) consultancy does not yet fit the definition of a "professional" which according to the strict definition of the term belongs to a profession which in turn is characterized by a body of knowledge, requires a specific education, abides by certain ethical rules and should be socially authorized. Poulfelt (1998 in Alvesson & Johansson 2002) argues that it has moved to become a profession with a strong reputation and value for the client. Alvesson and Johansson (2002) define consulting work as a blend of four types of interventions – esoteric experts, brokers of meaning, traders in trouble, agents of anxiety and sellers of security – that require different levels of symbolic and political work needed to fulfil the requirements of these interventions which causes the consultant to move between the professional and the non-professional; as the authors argue, a purist professional behaviour would lead consultants to fail in completing their work. Impression management appears to be an important aspect of consultancy and often prevails over solving client problems (Alvesson 2004 in Sturdy 2011).

### Knowledge of consultants

Bloomfield and Vurdubakis (2002) pursue the same stream of research and build on the idea that advice assumes some form of knowledge deficiency; consultants are hired because they have some skills or expertise that clients value and want (Bloomfield & Best 1992) and are hired as 'innovators' to introduce new knowledge (Sturdy et al. 2009). Sturdy et al. (2008) contests the role of consultants as knowledge disseminators suggesting that knowledge transfer occurs by default and not by design and that knowledge is about project process rather than project content. Sturdy comes-up with a number of potential explanations to be further assessed. The knowledge flow between

consultants and clients involves physical, cultural and political boundaries (Sturdy et al. 2009).

Another aspect of the work of consultants that relates to knowledge is their status as a community of knowing and the ways in which their knowledge is constituted, shared, presented or embedded, how they are affected by language games and narrative modes of cognition. Boland and Tenkasi (1995) argue that increased opportunities for perspective making and perspective taking in communities of knowing such as those of consultants improves the prospect of innovation; they provide recommendations for the design of an electronic communication system that would support such work. Similarly (Orlikowski 2002) discussed the enacted aspect of knowing in such communities, focussing on the on-going and situated action, she concludes that knowing is constituted and reconstituted everyday consequently knowledgeability is not "given and stable" (p.269).

Nikolova et al. (2009) identified three different ways in which the client-consultant relationship is described in the literature. The 'client-expert' interaction is associated with the idea that consultants hold the expertise and the knowledge in a particular area and can identify problems and develop appropriate solutions in that area, the client is merely an information supplier and consequently the consultant has a position of power. The 'symbolic interaction' builds on the fact that knowledge is socially constructed and builds on social recognition and legitimacy (Alvesson 2011 in Nikolova, Reihlen & Schlapfner 2009); beliefs, impression management and image are therefore critical. Consulting companies are therefore viewed as "systems of persuasion" (Alvesson 1993, p. 1011 in Nikolova, Reihlen & Schlapfner 2009) and clients are passive actors focusing on managing their fears. The 'social learning' model emphasizes "an equal role of

clients in problem diagnosis and solution generation" (Nikolova, Reihlen & Schlapfner 2009, p. 289), both the consultant and the client have an active role in the solution development and must establish good communication habits between them to ensure that they understand each other's positions and interpretations. Findings highlight that the three positions are complementary rather than exclusive.

### Persuasion and power

For Bloomfield (1992) power is central to social theory and understanding power relations is important for the understanding of social relations and social actions. Problem formulation itself becomes an exercise of power based on the legitimacy of the involved actors and the suggested solution are "translations" in which the problem is formulated and defined in terms of existing solutions. By this translation, consultants make themselves indispensable for the client by presenting themselves as experts holding all needed knowledge and solutions. A problem does not exist by itself, it presupposes an expert who can solve it so the problem exists only in relation to a consultant (Bloomfield & Danieli 1995).

> In summary, […] consultants may challenge a client's definition of a problem and translate or reconstruct it by appealing implicitly to managerial discourse, their own knowledge and experience of other work performed, and their skills in methods for solving problems. They may even seek to persuade clients that they have a problem when the latter perceive none (Bloomfield & Best 1992, p. 547).

Consultants also position themselves and their interests as coinciding with those of the client (i.e to obtain further work for example). Consultants use stratagems to be obligatory passage points (Bloomfield & Danieli 1995). The exercise of power is at play in the construction of roles, interests and the definition of problems and solutions.

Furthermore, the nature of consultancy is often political. Consultants are sometimes brought in and presented as an external objective entity simply to validate and

legitimate ideas and decisions of one organizational group that would not be accepted if they originate from the inside (Bloomfield & Danieli 1995; Sturdy 2011) and for related space-goating (Sturdy 2011). Consultancies are referred to as 'systems of expert persuasion' (Clarck 1995 in Sturdy et al. 2009). In such a perspective organizational boundaries are important because this role builds on the position of the consultant as an outsider (Sturdy et al. 2009) and aims to release anxieties of clients (Sturdy 1997). Sturdy (2011) observes a non-legitimate and opaque influence of consultants on organizations as the rational is bypassed through personal relationships and that boundaries between management and consultants are blurring. This further contests the view of consulting as an external objective advice.

Trust is important in consultancy, yet trust is produced and reproduced via action (Sydow 1998). Trust can be used to disguise power, trust increases power and power leads to more trusting relationships. Consequently interorganizational action is necessary for the establishment of trust and it is a boundary action that represents boundary spanning. Legitimacy roles (Sturdy et al. 2009) and building a strong relationship with the client is a prerequisite to trust which represents a form of control allowing consultants to finish their projects and acquire future business (Sturdy 1997).

In another research, Fincham (2002) describes consulting as not only about solving problems but also about creating an environment that is conducive for problem solving as well as legitimizing their own role by using strategies of persuasion; their work is essentially relational and they continuously try to establish a stable relationship with the client. Fincham (2002) studies the strategies of persuasion by focussing on charisma and technique, two forms of legitimacy and concludes that consultants rely on technique as

a mechanism to establish legitimacy as they need to convince the client that they have the solution to his/her problem.

Consultants in some instances use technology to allow the client to visualise deficiencies in their organization and to claim expert knowledge on the subject which makes it easier for them to convince the client of the necessity of their intervention (Bloomfield & Vurdubakis 2002). This is another illustration of the practices consultants use to convince by levering on the knowledge deficiency. To exert power, consultants even refer to other organizations to motivate the client to move forward but also to discipline the client (Bloomfield & Danieli 1995).

### Relationship with the client

Clients are as diverse as consultants. Contesting Schein's perspective, Alvesson et al. (2009, p. 261) pursue that recognizing that the client is "relational, pluralistic, processual and constructed" would contribute to a richer view of the client-consultant relationship.

The personal element of consultancy is important, there is an emerging bond between the client and the consultant that is paramount and that leads the client to trust the consultant (Bloomfield & Best 1992). This reinforces the idea that clients privilege consultants' level of commitment over their technical skills (McGirven, 1983 in Bloomfield & Danieli 1995). The relationship also maintains trust which replaces other more direct forms of control, facilitate project completion as well as signing project extensions (Alvesson et al. 2009). This facilitates the task of convincing the client to sign another project to solve a problem they have found but the client had not detected (Czarniawska & Mazza 2003). The importance of the personal ties between some clients and consultants allow them to transcend transactional relations into what can be

identified as liminal space (Kitay & Wright 2004). Nikolova et al. (2009) identified three main practices that are critical for the consultant-client interactions: shaping impressions, problem-solving and negotiating expectations and highlighted the complexity of social practices that exist between them. However, the nature of the impact also depends on the client (Sturdy 2011).

The way they present themselves, their management of how they are perceived by others, conveying the image of professional experts, their need to perform political work to fulfil the requirements of certain interventions are all important for consultants and for fulfilling their work. Similarly power, recognition, legitimacy, persuasion, language games have a role in knowledge processes. These contribute to who consultants are, to their work context and influence their reflexivity. The analysis of the social structures can contribute to understand the structuration process that influences their actions including their work boundary negotiation processes.

### Mobility of consultants

Sturdy et al. (2006) also explored the place of work of consultants and their boundary crossing. Consultants and consultancy work are the best example of constant boundary crossing and boundary blurring and are "one of the most interesting sectors […] where boundary crossing is an everyday activity" (p. 930). Indeed consultants work between their organization and the client's. Consulting is even assimilated to a liminal space (Czarniawska & Mazza 2003) "a condition where the usual practice and order are suspended and replaced by new rites and rituals" (p.267). Identities, routines and rules are replaced by new blurred or transitional equivalents, this state is a characteristic of mobile work such as consulting (Sturdy, Schwartz & Spicer 2006). Mobility is matched with work in between spaces. As consultants travel and while in a liminal space, they give-up control over their time which becomes the client's and to compensate they

create substitute time for themselves (Czarniawska & Mazza 2003), this illustrates work boundary negotiation. In addition to giving-up time, they are expected to 'internalize the goals of the client' and to 'change voice depending on who they meet with'. Liminality raises questions about where consultants should and should not work (Sturdy, Schwartz & Spicer 2006). Sturdy et al. specifically explored the business meal as a liminal space, illustrating how it was used by consultants to establish trust, explore dynamics, shape political dynamics while suspending rules and routines. Participants experienced liminality differently and negotiated its boundaries.

Liminality highlights how boundaries are not always clear-cut but can be graduated and dynamic (Sturdy et al. 2009). Boundary relationships between consultants and clients go with a number of tensions especially when expectations are not clear (Kitay & Wright 2004). The mobility of consultants, the constant boundary crossing and blurring, the work between places, and the boundary management and negotiation are of interest in this research. They make consultancy a very interesting context to explore boundary negotiation.

### Anxieties and pressures of consultants

Sturdy (1997) considers that assimilating consultancy to a social discourse is an oversimplification because the process is an interaction between consultants and clients rather than a one-way persuasion process. The interaction results from the actions and the emotions of both parties who seek a sense of identity and control as they are both anxious due to pressures and uncertainties. The work of consultants is very difficult to assess although they are the more evaluated people (Sturdy 2011). Work conditions of consultants in a liminal space weaken their self-esteem leading them to look for sources of pride for self-assertion (Czarniawska & Mazza 2003). Many consulting firms have a relatively competitive culture below managerial positions, they typically have a

pyramidal structure and an up-or-out career path that promotes an individualistic culture among consultants that hope to get the few yearly promotions (Orlikowski 1992b).

To conclude, although the impact of consultancy is praised by consultants themselves, concerns are raising regarding a number of issues relating to consultants and their practices such as presenting themselves and impression management, knowledge of consultants, persuasion and power, relationship with the client, mobility of consultants, anxieties and pressures of consultants. The developing critical research stream has contested and critiqued much of the previous writings on consultancy.

## 2.6 BOUNDARIES

A comprehensive view of boundaries must be taken to understand the spatial/temporal realms for consultants' interactions and boundary crossing (Sturdy, Schwartz & Spicer 2006). Defining boundaries, as well as how and why they are crossed, is necessary in understanding mobile work practices.

In the study of organizations, the interest in boundaries derives from the dominant idea in mainstream organization theory that organizations are boundary maintaining systems (Hernes 2003). Indeed, for management, the maintenance of boundaries is important to maintain order, rationality and predictability within an organisation. Boundaries draw the limits of accountability, reliability and efficiency all necessary for a stable organisation carrying out work tasks in an orderly and predictable manner.

An important share of the existing work on the organization-environment interaction builds on the open systems theory (Finet 1993). In the area of information systems, the interest derives from the capacity of ICTs to transcend boundaries. The interest in the study of boundaries is observed in a number of disciplines (Hernes & Paulsen 2003).

The increasing interest in the study of boundaries is fuelled by the impact of the extensive adoption of powerful ICTs, the need for organizations to be competitive in a globalized world and the move to individualized production necessitating agile systems that reach beyond traditional organizations' boundaries; this blurring of boundaries is observed in all global trends (Hernes & Paulsen 2003).

Subsection 2.6.1 aims to define the boundary construct, subsection 2.6.2 discusses the notion of space in IS research, subsection 2.6.3 introduces boundary spanning, a conceptual boundary construct and subsection 2.6.4 introduces a second construct, the boundary object.

### 2.6.1 Defining boundaries

The boundary construct is used in numerous disciplines and in different ways. Boundaries are sometimes simply defined as an object or idea separating one element from another, they are often perceived as if they were physical barriers that mark the distinction, difference and separation between one entity and the other, this is the case of geographical boundaries. They can be tangible or abstract, they can be physical, mental or social (Hernes 2003).

Yan and Louis (1999) provide an inventory of four boundary conceptualizations. Boundaries as demarcations allow to separate one entity from another; separation being necessary for the existence of each entity; "A system boundary implies a discontinuity" which "constitutes a differentiation of technology, territory, or time, or of some combination of these" (Miller & Rice 1967, p7 in Yan & Louis 1999). Boundaries as perimeters protect the entity by creating a buffer between the entity and its environment. Conceptualizations of boundaries as interfaces focus on the interdependency of the entity as a system with other system(s). Finally conceptualizations of boundaries as

frontiers focus on the transactions between the entity and its environment which stands as the source of all the resources it requires (Yan & Louis 1999).

For Hernes and Paulsen (2003) individuals in organizations relate to socially constructed boundaries. Because they are socially constructed, they are subject to interpretation, are sometimes ambiguous, difficult to identify or change over time (Hernes & Paulsen 2003). Social boundaries somewhat correlates with the work of Giddens in terms of the structures of signification, domination and legitimation (Hernes 2003); they allow to individuals and to groups to cultivate their distinctiveness (Hernes 2003). Boundaries allow organizations to ensure an internal ordering while being protected from the external environment, they ensure 'stability in time and space', yet they are permeable in new organizational forms (Hernes 2003). Boundaries have an enabling effect for organizations because they enable focussed action and building identity, and also because boundary spanners work to differentiate the organization and integrate its operations (Hernes 2003).

Towers et al. (2006, p. 595) borrow a location-related definition and write a "boundary exists when there are two territories, spaces or areas whose limits or extent can be determined". The concept of boundaries is also used in geography and location-related research. In geography, one way of defining a space is through the identification of its boundaries. Massey (1994) a human geographer, proposes that an area can be defined by describing its relationship to its environment; the area cannot always be explained by factors within and requires explanations to be derived from other external considerations in the general context.

Wenger (1998) uses boundaries to describe communities of practice. Boundaries can be used to describe and delimit any work practice or institutional property. He describes

boundaries as ‘discontinuities’ and ‘continuities’, he writes “boundaries (…) refer to discontinuities, to lines of distinction between inside and outside, membership and non-membership, inclusion and exclusion” (Wenger 1998, pp. 119-20). He does not suggest that they are impermeable. Boundaries also define the continuity by defining the ‘within’, the membership and the inclusion. This is defined as continuity because whatever is within the boundary represents stability with what it defines, and what is beyond the boundary represents a discontinuity, a lack of coherence with what is inside the boundary.

In the context of IS, any usage that is in line with the definition of a system and falls within its boundary represents a continuity with its definition. Any usage that is different, new or modified represents a discontinuity with what the system was originally intended to be. In such a case, the system and its usage become perceived and used in new ways. Similarly, in the organizational context, roles and responsibilities are defined for employees, yet these, at the same time, limit the employees; these defined roles and responsibilities represent boundaries to their actions and at the same time are the structures of the organization. Giddens (1984) defines structures as norms. As highlighted above, he writes, “norms figure as ‘factual’ boundaries of social life, to which a variety of manipulative attitudes are possible” (p. 4). This introduces the concept of boundary as a constraint; norms mark the boundary of action which becomes a limitation, a constraint to action. The mere definition or existence of a boundary makes it a structure. A structure is a recognized pattern of relations. Structures refer to factors which influence human actions. When a boundary is recognized, defined and established it influences human action and becomes a structure; a norm in the language of Giddens.

The idea of discontinuity can be explored in line with the SMT in which the modification of technology yields a discontinuity. Similarly, contradictions between expected and unexpected outcomes represent discontinuities. The redefinition of the boundaries of 'construct A' represent a continuity for 'construct A', yet at the same time causes a discontinuity for `construct non-A'. Orlikowski (1992a) did not define the concept of boundary, nor did she elaborate on limits to action, per se. In later work, she introduced the concept of boundary clarifying that "the recurrent use of a technology is not infinitely malleable" (Orlikowski 2000, p. 409) consequently limiting interpretive flexibility.

In their research on nomadic work, Bean and Eisenberg (2006) attempted to explain the process of enacting nomadic work and flexible organizations. The research findings illustrate how the absence of traditionally accepted symbols, mainly associated with the use of space and the traditional organization, corrodes the understanding of the work experience by employees. The employees, in the organization studied, used three main themes in their accounts describing their experience: identity, culture and structure. These themes had an important role in facilitating their sense making of the newly experienced work situation, particularly in the absence of frames. These 'frames' (Bean & Eisenberg 2006) are in fact boundaries although not explicitly mentioned in this paper. The absence of defined space and location destabilizes the relation between space and identity, culture and the meaning of space, and space as a component of structure.

When studying time and space in organizations two issues emerge: the issue of managing distant work from the organization's perspective and the impact on the worker in relation to issues of trust, locus of control, problems related to being out of sight, etc. that were extensively researched in the case of telework. A growing body of

literature believes that the boundary between work and non-work is permeable (Golden & Geisler 2007). Workers exhibiting mobile work practices need to develop mechanisms to protect space boundaries and to be accountable and reliable in their boundary crossing.

### 2.6.2 The notion of space [boundaries] in IS research

Boundaries are not only about spatial boundaries; however space is one of the work aspects that can be bounded. Space as a construct refers to what is universal, generalizable and abstract (Schultze & Boland 2000). A location is a geographically defined space (Green 2002). The notion of locality refers to characteristics of form (Lefebvre 1991) and meets Giddens' definition (1984, p. 118) for whom it is the setting for interaction. A place is a subjective space defined socially and culturally (Green 2002). It is a construct that refers to what is bounded, local and particular, and is used to refer to people and events that are situated 'here' and 'now' (Schultze & Boland 2000).

Giddens' structuration theory also contributes to understanding the notion of space. Time and space are the primary means by which social relations are structured in the information economy. "Structures can be conceptualized abstractly as two aspects of rules – normative elements and codes of signification" (Giddens 1984, p. xxxi`). These aspects are involved in the production and reproduction of social systems and the boundaries to human action, but are not deterministic; rather they are socially constructed and reconstructed. However, the unintended consequences of an action, feeds back and impacts future actions. Giddens (1990, p. 171) also discusses 'time-space distanciation', an idea that refers to the dissolution of ties that hold local practices in their place.

The traditional context in which the notion of place (i.e. location) is discussed in IS is in the field of Geographical Information Systems (GIS) which include databases that keep track of data related to geographical locations. Greenhill (2002) has performed an extensive literature review identifying the different views of space in IS and has categorized the existing spatial analysis based on the research focus. She found that research in IS focuses on the perception of IS, spatiality of the IS, as well as bounded versus boundaryless operations, the concept of virtual space and distributed teamwork. Many other research streams study the impact of mobility on space and boundaries; these include organizational behaviour, human resources, sociology, media studies. The purpose of this research differs from and complements other studies by analysing how the use of ICTs by consultants impacts boundaries and boundary negotiation. Existing definitions regarding the (physical) place and the (digital or virtual) space may lead to the assumption that the latter is replacing the former. However, affected organizations exist in two spaces (Li & Williams 2000). Li and Williams (2000) argue, following Olson and Olson's (2000) position, that distance still matters, that geography was never more important; the simultaneous operations in two non-mutually exclusive spaces that may overlap, may have consequences and they may yield discontinuities. These spaces are illustrations of the space edges defined by Giddens (1984, p. xxvii). An important space edge is the difference in the characteristics of both places in which knowledge workers need to navigate simultaneously, local characteristics for instance continue to affect the effectiveness of communication between people (Li & Williams 2000). One example is when consultants are physically on a client's site, a physical location, yet simultaneously, they are virtually in their organization. In such a situation, the consultant must continually adapt their communication modes (speed, context, content, style, language, etc.) to their peers' and to their clients. The boundaries separating these

social systems have an impact on the performance of the organization. The question of how individuals move between the two spaces and how they organize their lives in these two spaces simultaneously can be partly answered while understanding how they maintain their 'boundaries' or how they manage the 'space edges'.

### 2.6.3 Boundary spanning

Boundary spanning is a construct that appears in the literature and that refers to the activity of crossing or bridging (Ancona & Caldwell 1992) a boundary. It is a construct used to relate an organization to its environment including other organizations it interacts with (Balogun et al. 2005). The concept is also used for organizational units, for teams and for individuals. The idea of boundary spanning is rooted in the idea of the open system in which the boundary is at the same time a barrier and is permeable (Hernes & Paulsen 2003).

Boundary spanning is defined in the literature in a number of ways. It is said to be a communication with the environment (Finet 1993) or across work units (Ancona & Caldwell 1992) allowing the organization role to be fulfilled (Finet 1993), and the coordination of work (Ancona & Caldwell 1992) while adjusting the communication content to the task and the environment requirements (Ancona & Caldwell 1992). Aldrich (1972 in Finet 1993) categorizes boundary spanning activities as information gathering or representations. Yan and Louis (1999) identify three types of boundary activities buffering, spanning and bringing-up boundaries. Referring back to the definition of boundaries above, buffering builds on the ideas of boundaries as demarcations or perimeters and involves the tasks that attempt to close the system and protect it from the external environment by withholding bad news for example. Boundary spanning on the other hand builds on boundaries as interfaces and frontiers and involves the activities that attempt to develop and maintain relationships and links

between people, for example personal networking. On the other hand, bringing-up boundaries is an inward-facing activity aiming at acquiring needed resources from the environment, engaging members, marking the group identity by differentiating from others. To be added to this definition is the aspect that it is a deliberate strategy that teams adopt/develop (Ancona & Caldwell 1992; Golden & Veiga 2005).

New organizational forms and operational requirements caused by environment pressures necessitate boundary spanning. One of these reasons is for instance the increased reliance on teams (Ancona & Caldwell 1992), the need to build relationships across work units (Yan & Louis 1999), the decrease of formal authority (Yan & Louis 1999). Today, organizations need to interact with their environment to succeed (Finet 1993). Other initiatives such as organizational restructuring, use of cross-functional teams, increased workforce diversity, organizational slack cutting and adoption of advanced information technology (Yan & Louis 1999), also lead to or require boundary spanning. Individuals end-up being all the time in 'liminal situations', crossing boundaries and carrying boundaries with them (Hernes & Paulsen 2003). With the increased adoption of work teams, boundary activity has moved from the organizational level to the work unit or team level and it is becoming more challenging (Yan & Louis 1999).

Boundary spanning has implications on the organization and those with whom it interacts (Finet 1993). Ancona and Caldwell (1992) developed a typology of four boundary spanning strategies and concluded from their research that strategies are not adequate in all phases of a project phases; they found that managing the power structure has a positive impact on performance at the early stages yet maintaining such positive results requires an additional focus on workflow structures. Finet (1993) found that it

influences the society's perception of the organization legitimacy and that the capacity to influence this legitimacy is widespread to all the group members. Other research about the effects of boundary spanning addressed issues such as trust in boundary spanners, influence on other organizational members, impact on innovation (Finet 1993). The concept builds on the idea that there is something 'in-here' that needs to be protected from something 'out-there' (Hernes & Paulsen 2003, p. 8).

Boundary spanning is therefore necessary to coordinate work (Ancona & Caldwell 1992), if the adopted communication is adequate to the needs it improves performance (Ancona & Caldwell 1992). Wenger (1998) uses the term 'brokering' to conceptualize the relation of a community of practice with the outside world when membership to multiple communities is used to transfer elements from one practice to another.

Another situation that calls for boundary spanning is when individuals occupy multiple roles simultaneously such as in the case of work at home (Shumate & Fulk 2004). In these situations, write Shumate and Fulk, individuals do frequent boundary transitions, and adopt rituals and routine behaviour to help them thru the process; they develop strategies to find alternate time and space boundaries to separate the roles. It would be interesting to identify how this boundary transition work takes place in situations where individuals occupy multiple roles in situations that do not involve work at home.

Borrowing from the management literature provides additional insight on boundaries. Ashforth et al. (2000, p. 474) assimilate boundary-crossing to role transition and define boundaries as "slices of reality – domains – that have particular meaning for the individual(s)". In this regard, boundaries become social and dependent on each individual. They use 'micro transitions' to refer to the frequent and recurring transitions that occur. Boundary permeability is an interesting concept allowing to assess the

"degree to which a role allows one to be physically located in the role's domain but psychologically and/or behaviourally involved in another role" (Ashforth, Kreiner & Fugate 2000, p. 476). In such a case boundary transition is easy yet boundary maintenance is challenging. Shumate and Fulk conclude "every person is a boundary spanner between roles sent from within and outside organizational time and space by multiple organizations. These organizations may be economic, social, family, or ideological, but all are legitimate role senders" (2004, p. 71).

However, without active control of their personal boundaries, individuals are exposed to the pressures of work (Prasapolou, Pouloudi & Panteli 2006). Employee responses fall into two main strategies, the first is to physically separate work and home life 'segmenting'. The second is to interlace work and home 'integration' (Nippert-Eng 1995 in Golden & Geisler 2007; Middleton 2008; Perlow 1998; Wilson et al. 2004). An implicit conflict takes place. It is worth noting that the 'work/non-work boundary' construct is founded on the idea of 'separate spheres' that followed the industrial revolution and 19$^{th}$ century gender roles. This construct assumes two distinct spheres, work and home. Additionally, managers believe that work should be given priority (Golden & Geisler 2007).

Nippert-Eng (2003) on the other hand studies the separation-integration continuum of the home-work boundary. For her it is when such continuums exist that boundary negotiation, a boundary work that has two aspects, boundary placement and boundary transcendence (maintenance), is necessary. She also concludes from her research that each workplace has a number of characteristics that shape the personal boundary work. She classifies workplaces as bureaucratic, greedy and discretionary.

### 2.6.4 Conceptual boundary constructs: Boundary objects

The boundary object concept was developed by Star and Griesemer (1989) to address the difficulty of reconciling the perspectives of actors belonging to worlds that differ and yet intersect due to shared goals or common interests of these actors. Star and Griesemer identified how these actors manage to operate by setting a *modus operandi* built on two elements, methods standardization and the development of boundary objects. Understanding the boundary object therefore requires identifying the social worlds involved and understanding the role of the boundary object.

The social world refers to a group of individuals that engage in the same activity and aim to achieve the same goal. Pawlowski and Robey (2004) define it as an "aggregation of individuals engaged in common enterprise and distinguished in the manner in which its members interact and share interpretations" (p. 649). Indeed when engaging in their field, these individuals pursue a joint interest and are distinguished from others based on their practices. Doing the same becomes an indication of belonging as well as a differentiator from others, those who do not do the same (Levina & Vaast 2005). Consequently alignment and joint practices become conditions for participation and belonging. Similarity their lack of becomes a reason for exclusion.

These social worlds are characterized by their goals and interests (Star & Griesemer 1989), their work context (Bechky 2003), their tasks and practices (Pawlowski & Robey 2004; Star & Griesemer 1989), their visions and world view (Pawlowski & Robey 2004; Star & Griesemer 1989) which reflect their shared knowledge, values, meanings, assumptions and beliefs (Pawlowski & Robey 2004). They have both commonalities and differences (Star & Griesemer 1989). Furthermore, when belonging to the same organization, the perspective of each is shaped by the work structure of the organization (Goodwin & Goodwin 1996, p.65 in Bechky 2003). The literature on occupational

communities portrays groups with “strong subcultural understandings of their work” (Bechky 2003, p.314).

Social worlds, as referred to by Star and Griesemer, are also referred to as communities of practice (Wenger 1998), occupational communities (Bechky 2003), agent groups (Levina & Vaast 2005) or social communities (Gal, Yoo & Boland 2004). They can simply be units of the same organization (Pawlowski & Robey 2004; Wenger 1998) and even different disciplines (Nicolini, Mengis & Swan 2012). While laying the foundations of the definition of social worlds, one can refer to the definition of organizational boundaries.

Social worlds or organizational units are not sustainable on their own and need to exist in relation to others, they need to interact and operate with other social worlds with different goals and practices (Carlile 2004). Some organizations fail in doing that, yet other organizations’ success is due “to their ability to effectively engage their members in practices that allow them to span the boundaries of diverse settings” (Levina & Vaast 2005, p.366). Star and Griesemer’s research identified that such a success builds on the ability to define standard methods and use boundary objects that act as translation devices between two or more social communities (Gal, Yoo & Boland 2004).

When an object inhabits multiple social worlds each characterized by different work contexts (Star & Griesemer 1989), when it is given a different yet shared meaning by people coming from these different worlds (Briers & Chua 2001; Gal, Yoo & Boland 2004; Star & Griesemer 1989) when it comes to be used by these different worlds independently, when it is relevant to the practices of these different communities (Pawlowski & Robey 2004) allowing them to reach a common platform for working together and interacting together and it serves to bring them together (Star & Griesemer

1989) as well as transforms their understanding of the work process (Bechky 2003), it forms a common boundary and it becomes a boundary object. As each of these worlds is characterized by goals and concerns, this object aims to satisfy each of these sets. It is therefore valuable for each world, yet for different reasons. Indeed technologies are interpreted using mental frames (Orlikowski 1992b) and mental frames vary from one social group to the other.

The boundary object allowed Star and Griesemer (1989) to describe the process that was used by actors belonging to different social worlds to work together in spite of their different perspectives; working around a common object allowed them to reach a common understanding while maintaining their difference. In the context of cross-disciplinary collaboration, "they provide the motives and drive for collaboration to emerge, they allow participants to work across different types of boundaries, and they constitute the fundamental infrastructure of the activity" (Nicolini, Mengis & Swan 2012, p. 1). Levina and Vaast (2005) add that "some agents partially transform their practices in local settings so as to accommodate the interests of their counterparts" (p. 335).

So "[b]oundary objects are both adaptable to different viewpoints and robust enough to maintain identity across them" (Star & Griesemer 1989, p. 387). They allow to maximize the autonomy and communication between the different worlds, they "act as anchors or bridges" (p. 414). They allow to enforce a clear set of methods. Boundary objects are bridges used to cross a boundary and overcome differences in understanding and in goals by allowing to realign divergent parties (Carlile 2002).

The use of boundary objects is a marker that establishes and expresses the social identity of the group (Gal, Yoo & Boland 2004), as it serves to differentiate between

those in the group and those outside. “Boundary objects are embedded in the interface. They are represented in practices, institutions, and artefacts that make-up the social infrastructures of different communities and are rendered meaningful in the course of interaction among them” (Gal, Yoo & Boland 2004, p. 199). Wenger (1998) identified that actors act on the boundary object, when the boundary object is a reification of a boundary, i.e. an indication of belonging, the boundary object allows the actor to achieve his/her goals and acting is required for participation, i.e. imposed by the social world, in which case action is shaped by structure.

### Boundary objects characteristics and application

A boundary object is not necessarily a tangible object, it can be abstract, “An object is something people act toward and with. Its materiality derives from action, not from a sense of prefabricated stuff or ‘thing’-ness” (Star 2010, p. 603). It therefore exists through the agent group that acts upon it. The potential of this concept derives from its interpretive flexibility, a necessary yet insufficient characteristic. Star reconfirms the importance of each of the components of the boundary object concept (Star 2010), interpretive flexibility, the structure of informatics and work process needs and arrangements and the dynamic between ill-structured and more tailored uses of the object. To better frame this concept, researchers have attempted to identify its main characteristics.

Different types of objects can be boundary objects, as long as they “are plastic enough to adapt to local needs and constraints of the several parties employing them, yet robust enough to maintain a common identity across sites” (Star & Griesemer 1989, p. 393). Boundary formation does not enforce a universal meanings and actions on participants, it offers a common space for negotiation (Star & Griesemer 1989). Boundaries remain

flexible and the process can be reversed anytime (Constantinides & Barrett 2006), meaning that boundary objects are temporary bridges.

In their original writing, Star and Griesemer (1989) identify four important characteristics for a good boundary object – modularity, abstraction, accommodation, and standardization; these have been referred to by many of those who have used the concept in their research and writings (Levina 2005; Pawlowski & Robey 2004; Wenger 1998). Other researchers have recommended other characteristics for 'good' boundary objects that allow boundary spanning, concrete (Bechky 2003; Carlile 2002), joint (Carlile 2002) and shared syntax (Carlile 2002).

Four types of boundary objects were identified, repositories, ideal type, coincident boundaries, standardized forms (Star & Griesemer 1989). Briers and Chua (2001, p. 242) suggested a fifth type, the visionary object, a "conceptual objects that have high levels of legitimacy within a particular community". More specifically, they can be "artifacts, documents, terms, concepts, and other forms of reification around which communities of practice can organize their interconnections" (Wenger 1998, p. 105). Levina and Vaast (2005) provide a number of example of boundary objects that have been explored in different research areas and applied to different types of objects, physical prototypes (Bechky 2003; Carlile 2002), accounting ledgers (Briers & Chua 2001), design drawings (Boedker 2000 in Levina & Vaast 2005), engineering sketches (Bechky 1999 and Henderson 1991 in Levina & Vaast 2005), standardized reporting forms (Bowker & Star 1994 and Bowker et al 1996 in Levina & Vaast 2005; Star & Griesemer 1989), timelines (Yakura 2002 in Levina & Vaast 2005) including IT objects (Bechky 2003; Carlile 2002; Pawlowski & Robey 2004). To wrap-up boundary objects are rather unstructured when used jointly but highly structured when used within one

world and although they have different meanings in the different social worlds, those meanings are recognized by other groups.

Boundary objects are used in research in various areas as well as in IS (Bechky 2003; Carlile 2002; Pawlowski & Robey 2004). This concept helps understand how IT-based artefacts support the development of boundary-spanning competence (Levina & Vaast 2005, p. 339). The concept was often used to show that a single object can be used by different agent groups to achieve different goals.

## 2.7 INFORMATION AND COMMUNICATION TECHNOLOGIES

An important aspect of this research is the enabling role of ICTs and the work organization that is of interest is ICT-enabled mobile work as performed by consultants. Work organizations that involve distance and mobility, but do not require the use of ICTs are beyond the scope of this research. This section explores the role of ICTs in the context of mobility with an emphasis on the literature regarding an important ICT (a smartphone, the BlakBerry) for the mobile worker. Subsection 2.7.1 identifies the ICTs and subsection 2.7.2 discusses the reasons for using them.

### 2.7.1 The role of ICTs

ICTs enable and facilitate work organization. Chen and Nath (2005) report that the growing number of remote workers is due to technological advances. In the context of mobility, the mobile workers need ICTs to surpass temporal and spatial boundaries (Sørensen et al. 2008). ICTs support "connections between remotely distributed organizational actors and can place direct access to the corporate infrastructure in the palm of their hands" (Sørensen et al. 2008, p. 249).

Establishing a list of useful technologies is a challenging task – the list is long and cannot be exhaustive. Technologies evolve quickly and technologies not intended to support these work organizations can still be used for these purposes. The particular work organization this research is interested in involves the notion of space flexibility, so all technologies that contribute to this flexibility are of interest. It is useful to present the technologies using the classification found in most introductory textbooks on information systems – hardware, software and telecommunications. Using this categorization, Appendix A lists the prominent technologies (including ICTs) and specifies what each offers in terms of enabling 'work anywhere', 'work anytime' and 'mobile work'. The list illustrates that numerous ICTs can be of use to facilitate the mobile work of consultants. The ICTs supporting mobility are the most important.

### 2.7.2 ICTs and purpose of use

The ICTs that support anywhere, anytime and mobile work are numerous. Some of them are more relevant to the research question because of the greater possibilities they offer, their impact on boundaries and the discontinuities they create. These ICTs are generally portable, wireless and powerful devices that make both data and communication functionalities mobile. Many are ubiquitous and pervasive. The most relevant ICTs that have been studied in relation to boundaries are a smartphone, the BlackBerry (Mazmanian, Orlikowski & Yates 2006; Middleton 2007; Schlosser 2002), the mobile phone (Lowry & Moskos 2008; Prasapolou, Pouloudi & Panteli 2006; Townsend & Batchelor 2008), and the personal digital assistant (Golden & Geisler 2007); also studied is the use of the laptop in the context of knowledge management in mobile work (Fagrell, Ljungberg & Kristoffersen 1999), and the use of multiple devices, including the laptop by mobile information workers (Oulasvirta & Sumari 2007).

The BlackBerry is a mobile phone and a personal digital assistant (PDA). It is built on a technology that provides 'push' email – delivering messages to the corporate server then to individuals' devices as they are received "without the need for users to take action to connect to the internet" (Middleton 2008, p. 213). BlackBerry smartphones provide numerous functionalities, but the main reason for their adoption is push-mail (Middleton 2007) which allows for high mobility.

Email in itself is not new, but the BlackBerry has enabled new ways of using email by allowing a permanent connection to the user's email and work (Mazmanian, Orlikowski & Yates 2006). BlackBerry owners typically keep their devices on – like mobile phones – and carry them close to their body. Middleton (2008) provides an overview of the extensive adoption and evolution of the BlackBerry forecasting its expected growth.

When using a BlackBerry, users who are subject to communication solicitations continue to do their job while on the move (Schlosser 2002). This does not lead to a perceived reduction in workload, but allows users to better manage their workload. Users find the BlackBerry empowering (Middleton 2007), it allows them to control their environment by promoting real-time interaction across locations (Mazmanian, Orlikowski & Yates 2006). The mobile phone provides freedom and flexibility about where and when to perform the job (Duxbury et al. 2007) while also allowing for greater contact with friends and family (Townsend & Batchelor 2008) – a necessity or perceived necessity for the mobile worker. In fact, TV ads in the UK exhibited the mobile phone as a tool that allows users to engage in work and leisure in parallel despite distance (Green 2002). This view is utopian, for a more critical perspective refer to section 2.8.4 on ICT-enabled mobile work.

The email functionality of the BlackBerry allows for immediacy (Middleton 2007) in interactions when receiving and responding to email. With this device, the email moves from a different-time to an almost same-time communication mode. Similarly it increases autonomy (Mazmanian, Orlikowski & Yates 2006) and flexibility (Mazmanian, Orlikowski & Yates 2006; Middleton 2007; Singh & Wood-Harper 2010) by allowing the users to access their resources when needed, independently of time and location. Users often choose the BlackBerry, because it allows them to feel connected and informed which, in turn, provides them with a sense of security (Middleton 2007). The development and expansion of the i-phone and numerous androids in conjunction with the 3G network technology has replicated all the functionalities of the BlackBerry and the benefit of the push-mail allowing users to be constantly connected.

The use of technology and attitude towards technology can be related to a perceived meaning of the technology. Research indicates that the use of ICTs is motivated by purposes beyond functionality. They relate to self-identity with regards to image, the relationship with/to others, isolation and the integrated self (Schlosser 2002). Users associate prestige with the use of the BlackBerry. They perceive that BlackBerry use may enhance their reputation and image as competent professionals (Mazmanian, Orlikowski & Yates 2006, p. 5). In such instances, the ICT is used as a way to promote the user's desired self-identity and its use represents statements about values and lifestyle. Towers et al. (2006, p. 614) report the findings of Basset (2000) on this issue, in addition to allowing communication, mobile devices convey that their owners are "in demand". Schlosser's (2002) work provides similar findings about the BlackBerry being used to promote an image of the self and its use being associated with prestige.

Mobile workers often use multiple devices to meet their multiple communication and information processing needs. This practice can cause a number of challenges. The most important problems are "1) the physical effort demanded by various management tasks, 2) anticipating what data or functionality will be needed, and 3) aligning these efforts with work, mobility and social situations" (Oulasvirta & Sumari 2007, p. 1127). These are all important for mobile workers who carry everything that they need with them from place to place.

## 2.8 ICTs, WORK AND BOUNDARIES

In a context where new ICTs bridge space and time, while redefining traditionally established boundaries, the understanding of the relations between ICTs, work and boundaries is necessary for the understanding of boundary negotiation in the context of ICT-enabled mobile work. These constructs are analysed to attempt to untangle the complexities in their interactions.

The following subsection 2.8.1 summarizes the literature regarding mobile work, followed by a description of new work practices that ICTs facilitate in subsection 2.8.2. Subsection 2.8.3 proceeds and presents the rising organizational demands as a result of ICT introduction and mobile work practices. Finally subsection 2.8.4 discusses ICT-enabled mobile work in relation to boundary spanning. A study of this literature leads to the identification of a number of contradictions in subsection 2.8.5.

### 2.8.1 Mobile work

This section discusses the relationship between mobility and boundary spanning. The section provides an overview of the literature on mobile work, mobility and mobile professional work.

### Defining mobile work

The literature uses the terms ‘mobile work’ and ‘nomadic work’. Some use them interchangeably (Gray, Hodson & Gordon 1993), others use them to convey dissimilar work organizations (Bean & Eisenberg 2006; Chen & Nath 2008; Kakihara & Sørensen 2004; Lyytinen & Yoo 2002b), however most papers do not provide a clear definition of either term and do not use these terms coherently. These work organizations are primarily analysed in research that evolved from telework and in research based on mobility.

The first term, `mobile work’ sometimes used interchangeably with ‘mobile telework’ emerges from a long history of research on telework, telecommuting and related work organizations. Some researchers from this area identified mobile work as one of the manifestations of telework. Hislop and Axtell (2007) recognized the importance of work in motion and highlighted the neglect of spatial mobility in contemporary studies of telework. Specifically, research was conducted on work in the home and work going into the home, but there was little focus on work conducted on the move. This is an important distinction because mobile work is different from other work organizations. Managing mobility and work practices in such circumstances is important (Hislop & Axtell 2007). It is heterogeneous in terms of jobs, relationships with clients, terms of engagement, occupational groups, and work locations. As a result generalizations are difficult (Hislop & Axtell 2007).

The vast literature on telework and telecommuting provides the foundation for research on mobile work (Middleton 2008). Also provided by this stream of literature is a debate regarding the adoption, benefits and consequences (especially on the individual) of telework. The interest in this research area decreased considerably in the last couple of years. Nevertheless, some of the research on the implication of working at a distance

from the organization applies, to differing extents, in the context of mobile work. Specifically, there is an important literature on the boundaries between work and non-work in the case of home-based telework (Avery & Baker 2002; Baines & Gelder 2003; Duxbury, Higgins & Thomas 1996; Haddon 1998; Haddon, Silverstone & Nick 1995) and on the impact of work at a distance on issues such as coping with new technologies, reduced support, increased social isolation and other changes (Mann, Varey & Button 2000), costs at the psychological level (Baruch 2000; Mann & Holdsworth 2003; Sturgeon 1996), role conflict (Olson 1989) and issues relating to work-life balance or quality of life in the context of telework.

The second body of literature, giving meaning to the term `nomadic work', has its roots in the literature on the evolution of ICTs and their impact on mobility. This includes the literatures on mobility, ubiquitous computing and nomadic computing and their relation to boundaries. Some of it, including sociotechnical research on mobility, was motivated by or in reaction to, the seminal paper of Weiser (1991).

The research in this thesis is interested in the body of literature that relates to work practices having a mobile character and enabled by ICTs that bridge locations, span boundaries and allow work to become detached from any fixed location. There is an increasing number of publications on mobile work and its implications on work/non-work boundaries. Work that is not ICT-enabled is beyond the research question. Recognizing the work organization under study and understanding its specificities are important and necessary as they determine the generalizability of results.

### Mobility

Mobility refers to any form of movement or to any distance from a reference or base location (Chen & Nath 2008). Mobility is about moving or being moved and it concerns

subjects – the individuals using ICTs – the work they do away from the organization, and objects – in this case the ICTs and other required resources. Weiser (1991) in his seminal paper, coined the term ‘ubiquitous computing’. Ubiquitous computing provides the infrastructure that supports ultimate mobility by allowing the embedded technology to adapt to the user. It assumes a seamless integration of computing environments.

Luff and Heath (1998) define categories of spatial mobility relative to the extent of movement. ‘Micro-mobility’ refers to “the way in which an artefact can be mobilised and manipulated for various purposes around a relatively circumscribed, or ‘at hand’, domain” (p.306), ‘local mobility’ refers to mobility in a limited area within an office or a building and ‘remote mobility’ in which ‘individuals (…) move around different physical locations [… and] require access to information and colleagues’ (p.307). This conceptualization of mobility integrates the mobility required to work within the workplace. Kakihara and Sørensen (2001) extended mobility from being geographical to include the type of interaction. They redefined mobility along three dimensions space, time and context. These three dimensions are complementary and closely related. Boundaries can be spatial, temporal, or contextual.

‘Nomadic’ refers to a new approach to computing that liberates the user from specific locations. Nomadic users of technology are free to roam around. However, this spatial movement is dependent on the type of technology in use as the capability of moving from one network to the other and the capability of accessing required resources from any network might limit mobility. “Nomadicity may be defined as the system support needed to provide a rich set of computing and communication capabilities and services to nomads as they move from place to place in a way that is transparent, integrated, convenient, and adaptive” (Kleinrock 2001, p. 43). ‘Nomads’ are autonomous; they

transport with them what they need including the devices to access required resources. This may mean carrying several devices since the computing environment may be significantly different from one location to the other (Kleinrock 1995). This conceptualization of nomadism highlights the crossing of boundaries by the user as well as the designation of new boundaries that contribute to the formation of the individual's identity as a 'nomad'. Lyytinen and Yoo (2002b, p. 377) stated that the "nomadic information environment is a heterogeneous assemblage of interconnected technological, social, and organizational elements that enable the physical and social mobility of computing and communication services between organizational actors both within and across organizational borders."

For Chen and Nath (2008) focussing on the technology is not sufficient, mobility is sociotechnical, it is enabled by the technology, but has substantial social impacts including work practices. In their work, they define the need for a 'nomadic culture' to ensure the success of mobility. They base their work on Schein's definition of culture (Schein 1984 in Chen & Nath 2005), but extend it to identify the critical success factors of mobility (Chen & Nath 2008). These include a recommendation to improve the quality of work life and another recommendation to develop comprehensive corporate policies regarding mobile work.

Multiple frameworks were devised to reconcile concepts of nomadism with the mobile workforce. Lyytinen and Yoo (2002a) positioned nomadic computing as highly mobile with a low level of embeddedness in their two-dimensional, mobility-embeddedness, framework of ubiquitous computing. Chen and Nath (2005) used 'Mobility' and 'Distance from organization' to map the nomadic workforce and illustrated the highest level of nomadism with the example of the business traveller. Bean and Eisenberg

(2006, p. 210) define nomadic work as a "radical new mode of work that emphasizes: worker mobility both *at*[2] and *away* from the company facility; a paperless operation; and integrated technological platforms that enable knowledge and flexible, project-based organizing", respectively referring to 'local mobility' and 'remote mobility'. This is an interesting nuance as external mobility is often accompanied by an internal mobility, workers that spend most of their time outside the organization lose their right to a fixed desk at the organization's premises.

Hislop (2008) provides an inventory of the most common terms used in the literature to refer to the work that has some aspect of mobility. He reports that "mobile eWork [used by Gareis et al.'s (2006)] involves both spatial mobility and the use of an online computer connection when mobile" (Hislop 2008, p. 3). The terms 'mobile virtual work' and 'mobile telework' are also used. 'Nomadic' and 'multi-location work' are terms that refer to the same work organization and can be used interchangeably. Finally, 'mobile work' is a term used extensively and is inclusive of a variety of work organizations (such as mobile work not requiring ICTs).

Chen and Nath refer to mobile workers as 'organizational nomads' (2005, p. 57). Later they provide the following definition "Mobile workers are defined as employees that use computer and communication devices to access remote information from their home base, workplace, in transit, and at destination" (Chen & Nath 2008, p. 41). They use nomad and mobile interchangeably. Their definition has three components remote work, mobility and use of ICTs.

[2] Emphasis added

### Mobile professional work

In a new era of workplace connectivity (Schlosser 2002) where mobility is a characteristic of a new epoch, and a characteristic of people and information (Hislop & Axtell 2007), the nature of work is changing and service jobs and highly-skilled knowledge jobs are increasing (Singh & Wood-Harper 2010). Work is more geographically distributed and requires ICT support (Sørensen & Pica 2005). Work practices are changing (Chen & Nath 2008) with the blurring of formal organizational boundaries (Kakihara & Sørensen 2004). Professionals work together at a distance (Chen & Nath 2005) and spend time at clients' to complete jobs varying in duration from a few hours to a number of days.

The workforce is also becoming increasingly mobile (Chen & Nath 2005). Chen and Nath report a prediction that mobile workers will reach 61 million by 2009 (RCR Wireless News 2005 in Chen & Nath 2008, p. 41), this number includes remote work and highly mobile work.

The nomadic worker as a knowledge worker performs work that requires a lot of coordination. Their work often involves teamwork, requiring a constant need to be connected and available, yet their work can be performed in isolation with no or little assistance. The nature of work interactions are also changing due to the increased use of ICTs (Sørensen & Pica 2005).

The professional, white-collar worker is also changing. There is a lack of research on professional work (Kakihara & Sørensen 2004). What is available allows us to sketch a general picture. Professionals perform information or knowledge work; they are highly skilled individuals and are typically highly paid (Sørensen & Gibson 2008). Kakihara and Sørensen (2004) recognized the emergence of the mobile professional "including

designers, planners, consultants, accountants, lawyers" who need to travel locally or long distances to perform their work. Professionals such as consultants, for example, typically work long hours (Hislop & Axtell 2007). Because they work on the go and in multiple locations, ICTs are invaluable for them to perform their work. ICTs allow professionals to transcend the barriers that can reduce their productivity, for them "time is quite literally money" (Sørensen & Gibson 2008, p. 584). They rely on and seek ubiquitous ICTs to work and to interact, they must be able to make informed decisions when needed which requires having access to the necessary resources on the spot. The three dimensions of mobility (place, time and context) can be observed in cases of mobile professionals and are necessary to reveal the full breadth of their work practices.

Drucker (1999 in Duxbury et al. 2007, p. 312) defines the knowledge worker as an employee performing "non-routine", "knowledge-intensive work". 'Knowledge work' and 'information work' refer to tasks that process information inputs and produce information outputs. As such, these workers require access to both information and information processing tools. Information or knowledge work involves gathering, processing, analysing, reporting and disseminating information and knowledge (Davis 2002). It is the work of white collar labour; it excludes itinerant jobs such as sales, service, maintenance.

Users need to match the nature of the task to the spatial and material features of the location (noise, light, available table space, quality of network, etc.), they cannot perform any task in any place. In other instances, they adapt the spaces themselves or their work practices to suit their work (Holm & Kendall 2008). Being mobile and working in multiple places requires planning regarding both task and work location (where to do what). It also requires carrying along all required devices and resources.

Spatial mobility also affects how work is practically conducted and constrains tasks that are carried out in specific locations (Hislop & Axtell 2007).

The concept of work in the western world is understood in terms of two overlapping boundaries, payment and location; any form of remote work represents a discontinuity to be studied (Mirchandani 1998). The changing notion of the work week suggests "a sense of time and space bound by task completion and technology and not the organizational space and time of traditional work" (Broadfoot 2001, p. 111). When working virtually the cost of being wired and virtually available 24-7 is that all boundaries disappear.

### 2.8.2 New work practices

As workers increasingly use ICTs, they become accustomed to using them, adjust to them by changing the way they work and interact, and become dependent on them. By using them and consequently working in multiple locations they also learn to match work and location.

The use of ICTs in changing work locations has caused numerous changes in working practices (Kakihara & Sørensen 2004) and the location of work was transformed (Hislop 2008). In the past, technologies served to root jobs which might have otherwise been mobile, ICTs are reversing the trend (Huws 1989). Formerly 'place-bound' employees are becoming increasingly 'nomadic' (Luff & Heath 1998) and "work" increasingly refers to the work itself rather than a place to go to (Davenport & Pearlson 1998, p. 51). New work practices challenge the conventional concept that work takes place in a 'normal' workplace, as well as the idea of the normal working week[3].

[3] Paradigm of 'normal' workplace and work week - the traditional male approach to work in developed countries.

The use of ICTs speeds up the process of addressing demands (Schlosser 2002). Workers use their BlackBerry to read their emails and respond to them during dead time – while waiting or in transit (Mazmanian, Orlikowski & Yates 2006) transforming 'slow time' in 'fast time'. While mobile, workers use ICTs to interact with others (Hislop & Axtell 2007), they use their BlackBerry to compensate for the distance by remaining connected, they frequently check their email to be informed of what is going on in other parts of the organization and 'stay in the loop' (Mazmanian, Orlikowski & Yates 2006). As they use their devices and get used to them, workers change their perceptions of appropriate use; their actual use is different from what they initially predict (Palen, Salzman & Youngs 2000).

Sørensen and Pica (2005) identify an alteration in the intensity of interactions and communication. These technologies have changed the way people work and interact[4]. The use of mobile phones and the changes in work practices increases the reliance on them (Townsend & Batchelor 2008). The use of the BlackBerry is now integrated into the daily lives and routines of their users. This in turn has numerous consequences (Mazmanian, Orlikowski & Yates 2006) on the users, their work, their boundaries and their life in general.

Research indicates that extremely mobile people are much more eager to connect on the go than average mobile people (Bauwens & Truc Modica 2007). This difference is explained by an increased ICT dependency in the case of extremely mobile individuals. In their case, connectivity is necessary to work and to avoid social isolation. An escalating commitment to stay connected generates addiction and dependence and is followed by frustration when the technology is not available (Schlosser 2002).

[4] For both work and non-work.

Mazmanian et al. (2006, p. 19) identify three sets of dualities regarding the use of the BlackBerry: “continuity and asynchronicity”, “engagement and withdrawal”, and “autonomy and addiction”. “Continuity and asynchronicity” refer to users maintaining continuous attention to their important affairs using the BlackBerry; yet batching their responses to other emails. “Engagement and withdrawal” refers to a deep engagement with the world of BlackBerry email; withdrawing from the current situation and concerns. “Autonomy and addiction” are discussed below with the contradictions of ICT use (refer to section 2.8.5 on contradictions of ICT use).

Orlikowski (1991) has explored the relationship of technology to control and to the nature of work organization and the pattern of social interaction (Orlikowski 1992b) in consultancies. Following the implementation of IT in a consultancy a technical control emerged and personal, social structural and cultural controls increased through electronic mediation. In this organization IT was intended to reflect the organizational order, the goal was achieved as the rules were embedded in the means of production which reinforced the structures making them more difficult to change over time as they became difficult to distinguish and to reflect on. This led to weakening the professional autonomy of consultants and their self-regulation making them less competent (Orlikowski 1991). She also identified that the way collaborative tools can change the nature of work and patterns of social interactions is shaped by the people’s mental models and the structural properties of the organization and they can facilitate use and value for the organization only if the premises that underlie them are compatible with the culture of the organization (Orlikowski 1992b).

Referring back to the definition of boundaries above, the impact of ICTs is changing the boundaries of existing work and interaction practices, organizational and social

structures. The use of ICTs either creates or reinforces new structures (refer to section 2.4 on the SMT). All consequences represent some form of boundary change. As boundaries are structures demarcating the end of something, all organizational structures and all individual practices are defined by their boundaries. Boundaries constitute a frame of reference that guide individuals' actions in specific situations. This is further illustrated in the following subsection.

### 2.8.3 New organizational demands

In parallel to changing workplaces and changing work practices, the use of ICTs changes organizational properties. Increased expectations with regard to employee availability is reported (Hislop 2008; Schlosser 2002) especially in the case of extensive users (Duxbury et al. 2007). For instance, the BlackBerry is by nature always connected, which reinforces a work culture that expects high levels of work dedication and availability beyond traditional work boundaries (Middleton 2007), to times and places that were once protected. Indeed, with more portable and pervasive technologies, individuals are expected to remain connected, respond quickly and maintain a level of coordination (Mazmanian, Orlikowski & Yates 2006). As a result, many people feel pressured to remain connected to work at all hours, with some organizational cultures reinforcing and validating this expectation (Middleton 2007). Even for employees that have defined working hours, organizational activities claim some of their non-work time through ICTs (Prasapolou, Pouloudi & Panteli 2006).

Usage of devices becomes routinized and embedded within the organization (Middleton 2007) which is in line with consequences of repetitive use as per the SMT (Orlikowski 1992a). This extends and intensifies work (Middleton 2007) a source of boundary redefinition in the work-life conflict. This situation is more exacerbated in professional services where the work ethic requires dedication to the firm and the client. This

dedication is sometimes prerequisite to promotion and survival in the firm (Wilson et al. 2004). This is the case of management consulting.

### 2.8.4 ICT-enabled mobile work and boundary spanning

ICTs of interest are mobile and ubiquitous. Their pervasiveness and the way individuals use them have impacted a number of boundaries causing discontinuities at multiple levels. ICTs provide a permanent means for communication and possibly information processing. The smaller the devices, the more portable they are. Owners rarely separate from their mobile phones and smartphones, for instance. The laptop is also a device that is carried and used in many locations, although mobile workers are more selective about carrying their laptops. ICTs are adopted in ways to allow work to move beyond traditional work boundaries and beyond the home that has been studied in the context of telework (Hislop & Axtell 2007). The ubiquitous availability of these devices impacts space boundaries in multiple ways.

Mobile communication devices were originally designed for professionals on the go (Smith 2005). With the use of ICTs, individuals receive messages wherever they are. They have made boundary spanning much easier (Yan & Louis 1999). These messages cut across personal and professional domains (Yan & Louis 1999). Individuals using ICTs monitor their incoming communications after traditional work hours and outside traditional workplaces (Yan & Louis 1999). These ICTs erode commonly accepted work boundaries (Yan & Louis 1999). They create a need for censorship and control to put a limit to these messages (Yan & Louis 1999). Buffering is needed to screen communications (Yan & Louis 1999). Dealing with them takes both time and energy (Yan & Louis 1999).

Mobile phones are used to set up work practices, to create impressions of where work is done, pretending that it is done in a traditional organization; they create "greater opportunities […] in creating different images about the character, style, even size and physical location of the company to different clients and partners" (Panteli 2003, p. 83). By hiding information about real work location, the individual keeps the interaction to keep focused on work (Panteli 2003). Boundaries created on needs basis, images projected continuously, ICTs allow impressions of boundaries (Panteli 2003).

Users adopt many ICTs for professional purposes, yet many devices are social artefacts (Palen, Salzman & Youngs 2000) since they allow and support interaction between people meeting their social needs (Smith 2005). Users adopt them because they believe that the ICTs will provide them with benefits that they value for work or for personal reasons. They adopt them because they expect to increase their productivity (Smith 2005), achieve higher levels of efficiency (Middleton 2007; Smith 2005), improve communication and are convenient by allowing accessibility (Prasapolou, Pouloudi & Panteli 2006; Schlosser 2002). ICTs also facilitate work especially when coordination is needed (Prasapolou, Pouloudi & Panteli 2006). These new workers use ICTs to access information from any location or while on transit as a means to perform their work. While freeing users from time and space, opening up options of where work is done, they allow the invasion of their personal life (Panteli 2003).

ICT developments (such as mobile phones, laptops, the BlackBerry) are critical to the increase in mobility as globalized organizations take advantage of the new opportunities offered by technology allowing them to support their corporate strategy through increased flexibility (Hislop & Axtell 2007). Workers are provided with direct access to the information they need via the internet and online databases. Workers can carry on

with their work using powerful applications on their laptops. "[I]ndividuals rely upon their own mobility, and the mobility of particular artefacts, to support collaboration, and consider resources which might enhance their current tasks and responsibilities" (Luff & Heath 1998, p. 305). For the knowledge worker, individual work largely consists of word processing and spread sheet preparation, and for managing and planning their own work, calendaring, email, messaging, voice mail, and all types of groupware and web applications.

### New work locations and increased availability

The ubiquity of these devices and the connectivity they provide increase accessibility. Their owners become easily located (Pica & Sørensen 2008) when needed and more reachable (Schlosser 2002); they become almost permanently on call (for both their work stakeholders and to their family) and available independently of location (Mazmanian, Orlikowski & Yates 2006). The use of ICTs reduces distances (Pica & Sørensen 2008). The mobile telephone travels with its owner (Panteli 2003) and it "enable[s] others to find him wherever he is without others knowing where he is" (Panteli 2003, pp. 84-5). ICTs lessen the traditional physical constraint on organization formation in situations where the client does not know where work is done.

The use of ICTs inside and outside the organization, the diffusion of ICTs everywhere, their pervasiveness, their invasion of aspects of peoples' lives, all illustrate how technology dismantles traditional boundaries and creates new boundaries. ICTs extend the boundaries of work by intruding on other spaces and times. The impact can be summarized with the description of these ICTs as being 'thieves of time' and 'invaders of space' (Gleick 1999, Bluedorn 2002, Eriksen 2000 in Duxbury et al. 2007). Exploring the pervasiveness of time and space within organizations requires an

exploration of the relation of technology to work. Observations can therefore be analysed at the levels of space and time.

Space dimension – Work was initially performed in the office, then it was moved to predefined[5] other locations (home, satellite office, etc.), now the work is being performed anywhere; work can be performed at the clients' premises and while travelling from one location to the other. The location of work is changing, more work is done in non-traditional settings such as public places (Forlano 2008) and on the move, in a car or a plane (Holm & Kendall 2008). Work is conducted in 'nonoffice' locations and outside working hours (Duxbury et al. 2007). Any place ICTs reach, becomes a potential workplace. Wilson et al. (2004) observed that a substantive part of the value-creating work occurs outside traditional work boundaries. The high level of mobility increases the number of locations where some workers work (Hislop & Axtell 2007). The use of ubiquitous devices is moving work from the office, beyond the home to multiple locations outside work hours (Duxbury et al. 2007) – times and locations that were traditionally work-free and reserved for personal activities (Cousins & Robey 2005). Users traverse, occupy and work in a variety of environments. People continue to do their job while on the move; this is often done to cope with frequent incoming communications (Schlosser 2002).

*Time dimension* – Work was also initially performed during regular office hours, then close to office hours, and now it can be performed anytime. Work has expanded in time and shifted to different time slots, that is not the same hours and often more hours.

As work invades (Towers et al. 2006) all spaces – home, car, customer premises, cafés, hotels, airports, etc. – and all times – leisure time, commute time, family time, personal

[5] In the case of telework.

time, social time (many cafés have wireless networks) etc. – there is a move from conventional time/place combinations to less conventional time/place combinations. ICTs are challenging the traditional boundaries of jobs, they are making the boundaries disappear. The consequence is increased work pressure and the expansion of work over time and space to times and locations that are not conventionally associated to work. Mobile phone and BlackBerry smartphone use occurs everywhere (Middleton 2008; Palen, Salzman & Youngs 2000) or rather, everywhere there is network coverage. ICTs increase the occurrence of business communication in segments of time usually allocated to private activities (Prasapolou, Pouloudi & Panteli 2006; Schlosser 2002). The BlackBerry gives users a 24/7 connection to their work.

### Dual spaces, withdrawal and spillover

Modern organizations use IT to suppress locality and stretch operations over space and time (Giddens 1990). This is made possible because of new time-space configurations and compression of time and space (Schultze & Boland 2000). The use of technology therefore affects the boundary between two different places/spaces, and this boundary evolves with time (also refer to Lefebvre 1991; Towers et al. 2006). Towers et al. (2006, p. 597) write "Mobile devices allow us to interact in a variety of places with a spatially distinct reality (…). We are then in two spaces – physical space and the virtual space of the conversation – and two times – coffee drinking time and work time." The mobile worker ends-up in a situation where personal time confronts work time within both personal space and work space. Virilio (1997 p. 10 in Towers et al. 2006, p. 597) adds "the technologies of real-time … are killing 'present time' by isolating it from its here and now". These technologies work as extenders, they shift temporal and spatial boundaries, some spaces violate others and as boundaries are permeable some spaces overlap others.

Moving work to locations that were traditionally reserved for personal activities illustrates the idea of boundary crossing: a situation where the worker is physically in a non-work location, yet linked to a network of work counterparts, causing a number of discontinuities. When the device rings or beeps announcing a phone call, a text message or an email and the worker attends the communication he/she becomes simultaneously present in another location, a work space (Middleton 2007). This state is also referred to as a dual presence (Palen, Salzman & Youngs 2000; Townsend & Batchelor 2008). Attending to the communications requires the worker to 'withdraw' from the situation in which he/she is physically located and to perform a 'boundary switch' (Mazmanian, Orlikowski & Yates 2006). Similarly, the initial location can be a work situation, and the call can be personal (Schlosser 2002). "Users of new mobile technologies must master (…) a balance between what is going on 'here and now' and the on-going flow of activities that are outside the immediate physical context, but which still require attention" (Sherry & Salvador 2001, p. 108). It introduces new worlds to which the mobile professional must attend over and above the one they occupy. Consequently, the use of mobile phones for work causes a spillover between work and life (Lowry & Moskos 2008). The spillover is most likely to be negative in the case of those that do not have a clear strategy for mobile phone use (for boundary management).

### Boundary blurring and conflict

Discontinuities are gaps. The use of these ICTs can create two main types of discontinuities, a temporal discontinuity "a break in some kind of logical succession" and a cross-sectional discontinuity "a lack of coherence in aspects of an individual's work" (Watson-Manheim, Chudoba & Crowston 2002, p. 194). With mobility and the use of ICTs, boundary crossing is frequent and discontinuities are numerous. In the case of mobile work, identifying the factors that have not changed (and those that have) with

the introduction of discontinuities is important as this identification process helps people interpret new situations and make sense of them using what they already know. Continuities and discontinuities may evolve, and workers may routinize discontinuities into continuities (Watson-Manheim, Chudoba & Crowston 2002). This is illustrated in the findings of Bean and Eisenberg (2006), refer to 2.6.1.

For Lefebvre (1991, p. 87), space is not limited by its geometry and its location, it is a dynamic social construction, it is produced and reproduced by human action and by the social act and relations that take place in it. Space also shapes the human actions that produce it. When numerous activities are conducted in a single space the places are juxtaposed and they may collide (Lefebvre 1991, p. 88) creating tensions and conflicts. This highlights the human component, which is critical to the production of space;

> [Social] space (…) subsumes things produced, and encompasses their interrelationships in their coexistence and simultaneity. (…) It is the outcome of a sequence and set of operations. (…) Itself the outcome of past actions, social space is what permits fresh actions to occur, while suggesting others and prohibiting yet others (Lefebvre 1991, p. 73).

The production of space is affected by the technology in use and the space itself affects the use of the technology. The space individuals live in is marked with technology. For instance, the availability of certain networks such as mobile and WI-FI characterizes the space and what can be done in it. The encounter of the individual with the technology confirms the meaning associated to/with the planned use of this "dominated (…) space, (…) a space transformed – and mediated – by technology" (Lefebvre 1991, pp. 164, also refer to p.41). Technology marked space acquires the symbolic meaning associated with the technology. Similarly, some spaces include signs prohibiting the use of mobile phones thereby removing the meaning associated with the use of mobile phones.

Mobile work causes the crossing of the organization's traditional place and time boundaries. By allowing tasks to be performed in locations and at times that are non-traditional, the use of ICTs blurs traditional boundaries not only between personal and work life, but also between physical and distant realities (Cousins & Robey 2005; Golden & Geisler 2007; Kakihara & Sørensen 2004). These devices increase the permeability of boundaries (Mazmanian, Orlikowski & Yates 2006). Public activities become integrated in personal time and place and private activities become part of the public (Green 2002). The increased availability of users and the blurring boundaries also increase the stress of workers as limits of availability fade away and work days become longer (Mazmanian, Orlikowski & Yates 2006).

Being in dual spaces and managing activities between a physical place and some other space, spans the boundaries of the physical place, blurs them and makes it difficult to maintain these boundaries when both activities require attention. This can be disruptive as it causes tensions and a conflict over time (refer to Lefebvre 1991). As workers receive incoming communications, they switch frequently (Wilson et al. 2004) between multiple work spaces, their physical space and task and the distant space and task of their ICT-enabled interaction. Users of mobile phones experience a conflict when they are physically in one space having a conversation which projects them in another – the physical and the distant, often have norms that conflict (Hislop & Axtell 2007; Palen, Salzman & Youngs 2000). Workers on the move need to cope with multiple and intensive interactions from a number of stakeholders (Kakihara & Sørensen 2004). The always-on nature can lead to work-life challenges and other sources of conflict when others outside the user's environment feel the worker's time use to be inappropriate and to constitute a spillover (Middleton 2007). They fulfil multiple roles (Ashforth, Kreiner & Fugate 2000) at the same time and they are bound to multitask. They must deal with

many interruptions and the time available to concentrate on a single interaction becomes shorter, this changes the rhythm of social interactions (Green 2002).

ICTs liberate the user from time and place constraints (Singh & Wood-Harper 2010) yet at the same time attending the distant interaction can be considered anti-social by those physically present. Forlano (2008, p. 28) writes "mobile workplaces blur, and often reverse or contradict, traditional dichotomies such as work and play, online and offline, public and private". These ideas meet the ideas of spaces that collide (Lefebvre 1991, p. 88) and of space edges (Giddens 1984, p. xxvii) developed earlier. Cousins and Robey (2005) conclude that all workers face some problem relating to the fundamental issues of boundary control between business and social.

Yet, from another perspective, the literature identifies a blurring of boundaries in personal time and space. Humans need time for themselves to rest, do what they enjoy and renew themselves (Davis 2002). They need to switch from work to non-work and reserve time for their hobbies and exercise, among other activities necessary for self-rejuvenation. ICTs allow work to intrude on this time as well as to erase the distinction between work and leisure by promoting "fast time" during which people multitask by using short periods of available time to work at the expense of "slow time" that people take to relax (Eriksen 2000 in Towers et al. 2006). These uses of time also serve to erode personal space.

The increasing utilisation of globe spanning ICTs amplifies the possibilities of crossing an ever increasing number of boundaries, creating new challenges in the management of organizations. Boundary crossing in this way becomes both an opportunity and a threat for organisations requiring stable and predictable operations. New boundaries also mean

new possibilities for continuities, what was previously discontinued due to a boundary, represents a new continuity following the redefinition of a boundary (Green 2002).

### 2.8.5 A set of contradictions

The organizational impacts of ICTs are very broad and can have a 'dual nature' (Tarafdar et al. 2007). Four contradictions are identified in the literature and described below. They relate to what users expect from the use of ICTs and some reported consequences of use.

- Choosing work location versus increased pressures, discussed in 2.8.4 about New work location and increased availability
- Freedom and flexibility versus a 'ball and chain' and addiction
- Productivity and flexibility versus interruptions and reduced performance
- Promoting work-life balance versus blurring boundaries and creating conflict
- Positive image versus 'not-so-professional' use

Users adopt ICTs, such as the BlackBerry smartphone, for freedom, autonomy and flexibility in performing their job (Mazmanian, Orlikowski & Yates 2006; Townsend & Batchelor 2008), but many become addicted to and dependent on their devices. The devices become a burden that users cannot let go of for fear of missing something important. Mobile phones are compared to a 'ball and chain' (Townsend & Batchelor 2008, p. 180) and to 'electronic leashes' (Arnold 2003). These metaphors illustrate the dependence on these ICTs to perform the job. Users are reluctant to draw a line by turning off their phone or by not answering it (Prasapolou, Pouloudi & Panteli 2006) because they are afraid they will miss-out on something important or afraid that

ignoring a call will be interpreted as not assuming their responsibilities. Lowry and Moskos (2008) conclude by confirming that the mobile phone is a double-edged sword. These images are even more applicable in the case of the BlackBerry. Users become dependent and are frustrated when needed ICTs are not available (Schlosser 2002). Numerous stories and anecdotes about BlackBerry usage highlight the addictive nature of the BlackBerry and the inability of users to separate from it (Middleton 2007). Users typically keep the devices with them all day and use them constantly. The device is frequently referred to as "crackberry". Addiction to ICTs and the compulsive work behaviour of users is discussed in the literature (Middleton 2008; Singh & Wood-Harper 2010) as being one possible impact of their use. For a discussion on technology addiction[6], refer to Porter and Kakabadse (2006).

As described previously, users hope to achieve higher levels of productivity and efficiency (Middleton 2007; Singh & Wood-Harper 2010; Smith 2005). By adopting ICTs, they are always connected and reachable. However, they are also frequently interrupted in their work and their performance is reduced (Davis 2002). Permanent connection and availability blurs boundaries as described previously. These are associated with greater ambiguity, lack of control and decreased performance and well-being (Jessup & Robey 2002). Also, quick decision making (Davis 2002) induced by faster communication cycles prevents sufficient reflection time and leads to non-optimal decisions which undermine productivity.

Cousins and Robey (2005) note that users adopt mobile devices to reinforce work-life boundaries. Schlosser (2002) also reports that tools provide flexibility to juggle between work and family. However, Middleton (2007) concludes that the 'always-on' nature of

[6] This avenue is not developed here because it is beyond the research question although it could be related to boundary management.

devices exacerbates, rather than reduces conflict between work and non-work. This contradiction was already highlighted by Hislop and Axtell (2009) who report that although working from home is described as a solution to ensure work-life balance, the relationship between BlackBerry and work-life balance is more complex. Mazmanian et al. (2006) highlight the ambivalence of users towards the BlackBerry, clarifying that the chronic use of the BlackBerry causes and reinforces the communication patterns users seek to manage, in effect users use the device to set a boundary, but by using it all the time and remaining reachable, they blur the boundaries further. Even for those users that perceive that the BlackBerry facilitates balancing work and life (Mazmanian, Orlikowski & Yates 2006), the perception is not shared by the non-users around them (Middleton 2008). Other signs of a problem are the increased level of stress (Duxbury et al. 2007) associated with increased workloads and a consequent reduction in free time. For heavy users, the increased expectation to have more time for the family is accompanied by less time effectively available for family (Duxbury et al. 2007). The device may be allowing users to manage the boundary, but from the existing literature it does not seem to be able to balance it. The device increases the ability to 'accommodate work and family demands' and deal with 'personal emergencies' (Duxbury et al. 2007), but those are not signs of balance. They are merely indications of attending to some demands.

People use the BlackBerry to convey a positive image of themselves, yet they use it during large meetings to avoid boredom (Schlosser 2002), they use it in ways that are not always professional and annoy those around them due to their pervasive use. This does not provide a totally positive image and raises issues of business etiquette (Mazmanian, Orlikowski & Yates 2006).

These contradictions seem to be experienced by the users themselves. Some have a mixed attitude towards technology, they view it as 'god sent' and as a nuisance (Avery & Baker 2002). These contradictions are important and need to be explored further. Both positions in each contradiction must be explored together to understand how they relate to each other and in which situation one aspect (the positive or the negative) takes over. Future research should build on the existing literature of paradoxes related to technology (Arnold 2003; Jarvenpaa & Lang 2005; Mick & Fournier 1998; Salamoun-Sioufi 2011).

## 2.9 BOUNDARY MANAGEMENT

A critical perspective is presented in Wilson and Greenhill's (2004) work which notes that ubiquitous computing pervades space and time constructs. Boundary protection is therefore important in this perspective. The positivist literature typically only recognizes the benefits of technology. The use of technology is perceived as a criterion of modernity, development and efficiency, but it is our responsibility as researchers to critically analyse the impact of technology.

Section 2.8.4 ICT-enabled mobile work and boundary spanning, introduced the need for boundary protection. This section presents an overview of findings regarding boundary management in the context of ICT use by mobile workers. Subsection 2.9.1 addresses the factors that influence boundary management then subsection 2.9.2 examines the boundary management approaches used by human agents. The literature however does not address how boundary negotiation takes place in the context of such ICTs.

### 2.9.1 Personal preferences and boundary management

People want to separate work and non-work. A segregated approach allows more work-life balance than an integrated approach (Hislop & Axtell 2007). Boundaries are in

general useful to simplify difficult problems and in the case of mobile work help bring order to a complex environment. Wilson et al. (2004) report that individuals prefer to maintain a separation between their different worlds. With experience and after extensive use of ICTs, users decide to set some boundaries (Prasapolou, Pouloudi & Panteli 2006). This manifests in a will to build 'hard', 'inflexible' and 'impermeable' boundaries to separate work from non-work as much as possible. It is worth noting that no gender differences were identified in Wilson et al.'s results. This was later confirmed by Bauwens and Truc Modica (2007), indeed people do not want to be available anytime and anywhere, they are conscious of appropriate (and less appropriate) times and places for ICT usage.

The intensity of demands for interaction (phone calls, text messages, emails) requires the worker to be disciplined in scheduling work and responding to numerous interruptions (Davis 2002). Singh and Wood-Harper (2010) suggested that better role-boundary management may be required for knowledge workers to manage the demands of nomadic working. This highlights that boundary management is not only desired by individuals, but also required to tackle the demands of this work organization and allow for a successful global experience.

While trying to identify how the mobile phone shapes the boundary as well as how boundaries are negotiated and managed, Lowry and Moskos (2008) found that mobile phone management depends on age, occupation, status, economic context, and degree of instrumental agency that participants expressed. Additionally, goals are likely to change over time leading the individual to wish to integrate work and non-work at times and separate them at others (Golden & Geisler 2007). This means that more interpretive

research needs to be performed to have a better understanding of the contingencies of this boundary management.

Individuals manage their boundaries in a way that minimizes the difficulties of role transition and reduces undesired interruptions. The difference in the preferences of individuals regarding integration versus separation in roles depends on their perceptions of the costs and benefits of such actions (Ashforth, Kreiner & Fugate 2000).

### 2.9.2 Boundary management approaches

Golden and Geisler (2007) identified four interpretive repertoires to understand the use of ICTs for boundary management. 'Containing work' where the worker puts limits to work and controls its chaos; 'Integrating the self' where he/she uses a single device, he/she is always present and switches from one to the other; 'Transitioning work' where he/she allows work in different locations and in non-traditional places; and 'Protecting the private' where he/she protects the private and uses private devices (refer to Table 2).

| Interpretive repertoires | Forms of boundary management | Practices |
|---|---|---|
| Containing work | Boundary placement/ segregating work and personal-life | Setting limits<br>Controlling chaos<br>Keeping a lid on |
| Integrating the self | Boundary transcending/ integrating work and personal-life | Domain alternating<br>The constant companion<br>Enhancing life |
| Transitioning work | Boundary transcending/ moving work across the work-life boundary | Working in the home space<br>Making work mobile |
| Protecting the private | Boundary placement/ segregating work and personal life | Life calendaring<br>Keeping the PDA private |

**Table 2: Interpretive repertoires to understand the use of ICTs for boundary management, reproduced from Golden and Geisler (2007).**

Wilson et al. (2004) identify a replacement of traditional boundaries which were externally defined – space, physical location, time and social norms – yet blurred by the

use of boundary-spanning ICTs. In turn they identify emerging boundaries – use of artefacts, physiological need, values and individual norms – that are internally defined. These new boundaries are being validated by these users; the authors expect these boundaries to become institutionalized and socially defined. Internal boundaries are weaker and influence behaviour only when externally defined boundaries are circumstantially ineffective. These are interesting and valuable findings that need to be explored further.

Some examples of 'use of artefacts' for boundary management were confirmed by other studies. Schlosser (2002) identified that these tools provide the needed control and allow one to preserve a sense of self. For instance some users set a limit by defining who is served with the ICT in question. Cousins and Robey (2005) reported one case of device separation for the purposes of protecting a boundary. Golden and Geisler (2007) described how the PDA was used as a boundary management resource with a spirit of control through integration and segmentation of work and personal life. For Cousins and Robey (2005) boundary management is a central part of ICT use for nomadic workers and plays a significant role in allowing them to perform effectively.

## 2.10 BUILDING THE RESEARCH QUESTION

This research identified a number of gaps relating to ICT-enabled mobile work and advocates to explore boundary negotiation. The gaps are grouped according to the main themes of the literature review.

### Consultants

Do consultants constitute a community of practice?

How do consultants that occupy multiple roles transition from one to the other?

**ICTs**

How do consultants use their ICTs?

How do consultants deal with the contradictions that relate to the use of ICTs?

How do consultants present themselves and what is the role of ICTs in this presentation?

How are ICTs used for impression management?

How are ICTs used to establish and maintain relationships with clients?

How do ICTs mediate interactions?

What role do ICTs have in boundary negotiation?

How are paradoxes related to ICT use explained?

**Mobile work**

What boundaries do consultants span?

What are liminal spaces consultants work in?

How do consultants manage their work across space and time?

**Boundary management**

What is the impact of the dual role of ICTs (ability to blur and protect boundaries) on boundary management?

Reported findings relate to only one device at a time, how do consultants manage their boundaries when more than one device is involved?

How are the different ICTs used in boundary management?

How are the ICTs used to protect non-work boundaries?

What is the relationship between boundary management and power?

How are work boundaries negotiated and renegotiated during interactions?

How are decisions regarding separation versus integration made?

**SMT**

Can the SMT enlighten the exploration of work boundaries?

How do structures shape agency relating to ICT use?

What new structures emerge from the use of ICTs?

How do structures influence boundary management?

**Boundary objects**

What boundary objects do consultants use?

Is the boundary object concept useful to complement the SMT theory?

When do the multiple ICTs redefine and expand work?

These questions and many others still need to be answered. The overarching research question is: ***Using the structurational model of technology, how are consultants using ICTs to negotiate work boundaries?***

In other words, this research explores how consultants act on ICTs to negotiate their work boundaries. Specifically, a work context where mobile work practices are adopted is examined. In this context, we focus on how ICTs enable a redefinition of work boundaries, to replace traditional boundaries of work and how new work practices and different uses of these ICTs take shape to put up new alternative boundaries. The purpose of this research is to understand how mobile consultants maintain boundaries although they use boundary transgressing ICTs extensively. This exploration aims to identify the structures at play and to analyse the structuration process. The SMT is used as a background theory to assess the impact of ICTs on the work practices; the boundary object concept is used in order to complement the SMT.

The SMT was selected as a theoretical framework for a number of reasons. It attempts to provide a full analysis of the relationship between technology and organizations, recognizing the role of human agency, while simultaneously refuting the existing theoretical dichotomy between the technical and the social. It recognizes a dynamic relationship between technology and organization that goes beyond development and continues as long as the technology remains in the organization. The SMT has served to reveal insights elucidating the interaction between the social and the technical. Furthermore, this research is interested in the agency, the structures at play and the structuration process within the negotiation of boundaries.

This thesis centres on work/non-work boundaries rather than work/home boundaries. The focus on work/home is appropriate when the work is de-located from the

organisation to the home. However, in the case consultants, work intrudes on every place, not only the home. The concern is to delimit work from personal, family and social. Since non-work is generally referred to as 'life' (Middleton 2008, p. 211), one denomination would be to look at the boundary between work and life; however work is also part of life. The work/non-work denomination used by Wilson et al. (2004) is the most inclusive when referring to all aspects of one's life other than the paid occupation.

## 2.11 CONCLUSION

This chapter positioned the ICT-enabled mobile consultant in the realm of mobile work. The work organization under exploration is significant as it reflects the relationship between ICTs, mobility, the location of work, and boundaries. This literature review described the ICTs available for use by consultants as a means to disentangle the sociotechnical ensemble of worker, technology and organization. Bearing in mind the three dimensions of worker, technology, and organization; prevalent boundaries were then identified and described – both organizational and work. This included an exploration of why crossing and maintaining boundaries may be a problem for organizations who utilize mobile working practices and an examination of the impact of these ICTs on the mobile worker specifically. Mobile workers today, when equipped with the latest ICTs, raise new challenges for the organization.

# Chapter 3– Research approach and methodology

This chapter describes the research approach and methodology followed by this research study, the development and conduct of the research will allow a thorough study to answer the research question. This study is performed in the domain of information systems research, the research approach and methodology developed are in line with the research practices of IS scholars. This chapter will attempt to justify the method followed below.

The section 3.1 introduces the research goals and presents the reader with the research questions. Given the myriad of research approaches possible to answer research questions, choices are necessary – these choices are the topic of the section 3.2. This is followed by the section 3.3 which expounds on the research strategy followed by the methodology, in the section 3.4. Section 3.5, in turn, places an emphasis on the case study method used while section 3.6 details the qualitative data collection methods. Section 3.7 presents the case selection and the participants. Section 3.8 describes the data analysis and presentation; section 3.9 discusses the author's personal engagement in the research; and section 3.10 concludes the chapter.

## 3.1 RESEARCH GOAL AND OUTCOME

The objective of this research is to explore whether the structurational model of technology can help explain how the use of ICTs influences the negotiation of work boundaries. The question this research seeks to answer can be formulated as follows:

**How do management consultants use ICTs when negotiating work boundaries?**

In other words, how do consultants act on ICTs to impact their work boundaries? What are the work practices of consultants that relate to boundary management and negotiation? In particular examining the work of consultants who need to travel frequently to complete their project assignments wherever the client is located. To this end, the case of Sigma, an international management consulting firm that exhibits extensive travelling and mobility in its work patterns, is studied using the structurational model of technology as a background theory (refer to Chapter 2).

## 3.2 RESEARCH FOUNDATIONS

Social constructivism serves as the ontological foundation and interpretivism as the epistemological foundation. Together they form the basis for the research position and contribute to diversity and complementarities in IS research.

Ontology examines the nature of social systems. Different ontological foundations lead to different understandings of how social systems operate and what social reality is; meaning whether they should be considered as objective entities having a reality independent of actors or whether they are social constructions depending on perceptions and actions of the social actors (Bryman & Bell 2003). This, in turn, leads to different epistemological positions. Although objectivism – the position that "social phenomena and their meanings have an existence that is independent of social actors" (Bryman & Bell 2003, p. 19) – is the traditional ontological position, it is refuted by many (Lee 2001; Trauth 2001b; Walsham 1995); especially when it is applied to social phenomena since the social is subjective and exists only through human action. Nevertheless, objectivism remains valid in the natural sciences when the social is not involved. Indeed, knowledge of reality is constructed by individuals (Trauth 2001b), even "shared

meanings are a form of intersubjectivity rather than objectivity" (Walsham 2006, p. 320).

As the primary research question relates to information systems in organizations and their social reality, a description of the specificities of this research area highlights the adequacy of the above-described ontological positions as the basis for the research approach. 'Organizations' are the main context of work on IS. As stated by Checkland and Holwell (1998), in their study of IS in organizations, the problem and challenge remain in capturing "the tension between the rationality of collectively organizing to achieve declared goals and the ultimate recalcitrance of human beings as members of organizations" (Checkland & Holwell 1998, p. 79). Traditional philosophical positions and conventional rational models would be adequate if humans were automata. Yet reality can be unexpected and surprising, humans can have their personal agendas or not be 'rational', in such situations alternative research assumptions are necessary.

Information systems exist in organizational contexts. Thus, implicit social theory assumptions about what organizations are and how they operate are critical to understanding information systems (Boland & Day 1982). Research on the implementation of IS highlights the importance of the behavioural processes involved. The focus of this research is primarily on changes resulting from the use of technology "implications and consequences [that] are beyond the merely technical" (Checkland & Holwell 1998, p. 7) and most significantly qualitative consequences. Given this perspective, "according to Schultze, interpretive methods enable study of the sense making that accompanies such change" (Trauth 2001b, p. 274). Research topics related to IS used to be considered mainly technological (i.e. scientific and objective). However, many researchers are realizing that it is more appropriate to extend the focus

of study to include social elements, such as behavioural and organizational considerations (i.e. people issues, perceptions, actions and reactions) (Galliers & Land 1987). The IS field has also seen a shift from technological to managerial and organizational questions, and consequently is now more interested in how context and innovations interact (Benbasat, Goldstein & Mead 1987). The field is concerned

> (…) with IS and their relations with the organization and the people they serve. (…) This wider view brings with it added complexity, greater imprecision, the possibility of different interpretations of the same phenomena, and the need to take these issues into account when considering an appropriate research approach. (Galliers & Land 1987, p. 900)

Indeed even in the same organization, different individuals act in accordance with the same guidelines, yet differently.

The researcher favours the use of SMT for the analysis of the case and in order to answer the research question. An alternative theory concerned with balancing between technological determinism and agency (Diaz Andrade & Urquhart 2010) is actor-network theory (ANT) (Callon 1986; Latour 1996). ANT builds on the principles of agnosticism, generalized symmetry and free association (Callon 1986) and treats social relations, including power and organization as networks (Law 1992). One of the critiques of ANT is that it allows for a limited analysis of social structures and although its proponents argue that it does, it does not provide a clear approach to do it (Walsham 1997). This being said, there is today an increased resort to ANT in the IS literature (Azad & Faraj 2008; Williams & Pollock 2012) and it would be interesting to do a comparative analysis and assess how results would differ if ANT was to be used (refer to section 6.4).

The definition of the boundary object concept itself is in contradiction with positivism and realism which acknowledge a reality independent of the senses. The boundary

object is interpretively flexible, it is valuable for different worlds, yet for different reasons as each world is characterized by its goals and concerns. They are adaptable to different viewpoints and therefore do not exist independently of these individuals, their perceptions and interpretations; boundary objects only exist through the action of agents (Star & Griesemer 1989).

Epistemology is the study of the theory of knowledge and defines what is considered acceptable knowledge. Each epistemological position matches an ontological position and advocates the application of different research assumptions and compatible research methods (Bryman & Bell 2003). This research uses the interpretive epistemological position which starts from a constructivist ontological position. This approach focuses on analysing what humans construct and reconstruct through their actions (Checkland & Holwell 1998, p. 22), because even when knowledge is acquired by each individual, it is filtered through his/her social structures (Klein & Myers 2001, p. 219). Even after the knowledge is acquired, it continues to be reinterpreted, evolving with time and context (Checkland & Holwell 1998; Orlikowski & Baroudi 1991). Interpretive research aims to understand how members of a social group, through their participation in social processes, create their own realities which then shape their actions; and as a "mutual shaping" occurs causality is difficult to establish (Dalcher 2004, p. 311). Interpretive research seeks to understand phenomena in their natural setting through the eyes of the participants (Orlikowski & Baroudi 1991, p. 5) by studying their experience and perceptions (Greenhill 2004); "Positivist researchers tend to ignore the fact that people think and act, that people are active makers of their physical and social reality" (Klein & Myers 1999, p. 73).

> My belief is that all knowledge is a human creation and a human possession (Lee 2001, p. 241).

The personal characteristics of individuals (experience, history, etc.) evolve with time and influence this sense-making activity (Dalcher 2004). Since both reality and knowledge are social products, they cannot be understood independently of the social actors (including the researchers, refer to researcher subjectivity in 3.8.3 below).

Since interpretation builds on experience, background, history, personal goals, different individuals come up with different understandings and interpretations and consequently take different actions. To understand how individuals construct and reconstruct their work boundaries through their actions, one needs to resort to interpretivism as it is "concerned with the empathic understanding of human action rather than with the forces that are deemed to act on it" (Bryman & Bell 2003, p. 16). This study is interested in understanding how individuals negotiate their work boundaries; the research question is focussed on the action of these individuals and recognizes their agency. Since actors construct their own realities, it is in them that one can find the knowledge relating to their experience and their construction.

There is a debate about the adequacy of epistemological positions. Positivists, constitute the traditional American research school, and argue about scientism and generalizability of research; their view is described as the 'traditional scientific method', 'positivism', or 'classical research' (Keen 1991, p. 42). This research takes the stance that there is need for diversity and complementarity, as research questions cannot be answered in the context of just any epistemological position. Both positions – positivism and interpretivism – have advantages and cannot be used to answer the same type of research questions (Orlikowski & Baroudi 1991). Furthermore, the degree of uncertainty surrounding the phenomenon also affects this choice. In the positivist context, it is difficult to measure a phenomenon if one does not know enough about it

(Trauth 2001a, p. 18). Thus, interpretive and critical studies, by providing a different perspective to the same phenomena and new information that cannot be found in positivist analysis, provide important contributions to knowledge. Keeping in mind the complexity of social phenomena, plurality is important as it allows a more complete exploration from multiple perspectives (Orlikowski & Baroudi 1991, p. 2; Punch 2000).

## 3.3 RESEARCH STRATEGY: QUALITATIVE RESEARCH

Qualitative research emerged in the social sciences, and it is mainly concerned with social and cultural phenomena. It is important to separate epistemology from method and to "distinguish the quantitative-qualitative dichotomy from the positivist non-positivist debate" (Trauth 2001b, p. 272). The term qualitative research should be used cautiously as it is used in the literature to refer to both research philosophies and research methods. Qualitative research can refer to non-quantitative data collection independent of the research position that is adopted; it is possible to perform a case study – qualitative – from a positivist perspective (Klein & Myers 2001). Qualitative research can also refer to non-positivist research, i.e. interpretive, critical or other. The term qualitative is used in this context to refer to non-positivist research.

The research question posed addresses issues of perceptions, attitudes and actions and is in line with social constructivism and interpretivism. The research falls within the qualitative research tradition, and research methods will be chosen accordingly. Interpretivism most frequently influences the choice of qualitative methods because it is based on the assumption that "knowledge of reality is a social construction by human actors" (Walsham, 1995 in Trauth 2001a, p. 18), a property of the interaction between agents and the environment and is tied to perspectives, intentions and perceptions (Dalcher 2004).

## 3.4 METHODOLOGY

Answering the research questions (Section 3.1) within the framework of the research philosophy (Sections 3.2 and 3.3) requires the development of a complete research methodology. This section describes the logical sequence that will be followed from the research questions through the data collection and to the analysis needed to reach the conclusions. The relationship between the background theory and the complete research process up to method is spelled out. This ensures that the assumptions regarding the nature of knowledge sought and those underlain by the chosen methods are compatible (Morgan & Smircich 1980). The epistemological position influences the research process significantly as it defines what is considered valid knowledge and delineates what can and cannot be researched while being compatible with the theory.

> The interpretive position asserts that the language humans use to describe social practices constitutes those practices. Thus, understanding social reality requires understanding how practices and meanings are formed and informed by the language and tacit norms shared by humans working towards some shared goal (Orlikowski & Baroudi 1991, p. 14).

The present research attempts to explore and understand the 'what' and the 'how' of work boundary negotiation. This can only be achieved when the researcher studies the context and the perception of the actors. The primary activity is to describe, interpret and analyse the phenomenon being studied, from the participants' perspective. Techniques allowing to draw on the respondents' experience are required. There is a need to select methods that generate richer knowledge. The data will be collected through a case study and the use of qualitative and visual data collection methods. Sections 3.5 and 3.6 document these data collection strategies. The analysis of the data collected is an original method premised on the SMT and described in section 3.8. The entire research process is schematized in Figure 2.

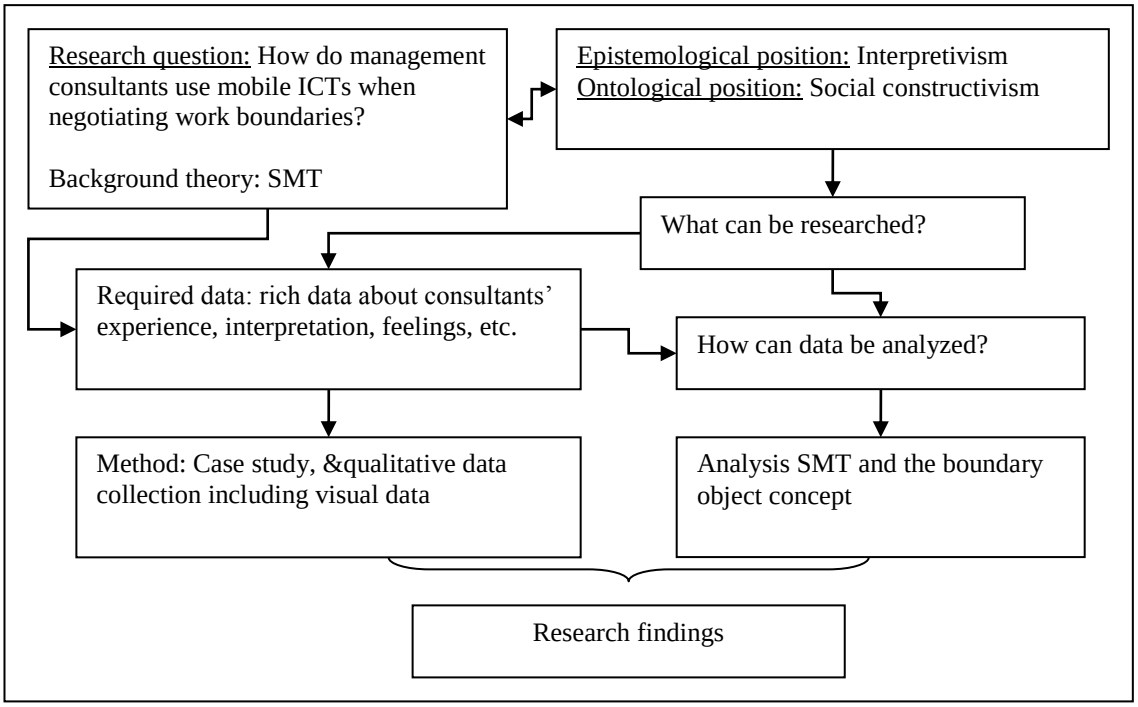



**Figure 2: From research question to findings.**

### 3.5 THE METHOD: CASE STUDY

The choice of method is coupled to the type of information that is required, to the type of information that is available and to the type of analysis that may be conducted. Using a case study is consistent with this type of research and addresses all of these considerations (Orlikowski & Baroudi 1991; Walsham 1995).

A case study is appropriate to understanding what and how questions (Klein & Myers 1999). It allows the researcher to concentrate on specific instances aiming to reach an in-depth understanding (Dalcher 2004). Case studies are ideal for exploring interactions between people, their experience in a situation and their understanding of the situation. The richness of the data obtained by multiple means, from multiple perspectives provides insight and understanding into what is occurring. Actions (and reactions) can only be understood in context, and case studies create the context for understanding them (refer to section 3.7 for a case overview). A case study is viewed as interpretive

when events in the real world are observed, and then an effort takes place to make sense of what was observed, for example, when one tries to make sense of an IS failure or an organizational change from the perspective of participants. Case studies allow one to investigate contemporary phenomena over which the researcher has little control (Bryman & Bell 2003) and in which research and theory are at their early, formative stages.

Case studies also offer the potential for generating alternative explanations from the different stakeholders' perspectives, thereby allowing the researcher to highlight contradictions and misunderstandings (Dalcher 2004). The present research question cannot be answered by simply counting or describing what is observed with the senses[7], but rather requires the phenomenon to be interpreted and analysed in-depth. To start, the definition of the work boundary itself is multifaceted, the ICTs in use are perceived differently by the various players and the work boundary negotiation is a phenomenon that needs to be analysed in depth and interpreted. Furthermore, case studies lend themselves well to "sticky, practice-based problems where the experiences of the actors are important and the context of action is critical" (Bonoma, 1983 in Benbasat, Goldstein & Mead 1987, p. 369).

In this research, the case method is drawn upon to generate alternative explanations from different perspectives. Differing perspectives include, consultants and other agent groups – support staff, personal assistants, clients – at stake allowing the researcher to understand how the boundary object (refer to section 3.8 on data analysis) and boundary negotiation are perceived; highlighting any contradictions or misunderstandings while deciphering the structuration process. It also allows to understand action and reaction, in

[7] It does not fall within empiricism as defined within the positivist stance.

the context of an intense (intellectually challenging, hard work, long hours, tight schedules) consulting work environment. Similarly recognizing boundary objects requires identifying and understanding the different worlds of the actors, their specific goals or their shared interests. Understanding the consulting activity of Sigma, the way consultants work, how they interact with each other, with clients and with the support staff. Understanding how they define their own work, when they work and when they do not. All of the above can be achieved through a case study as it allows to reach the expected in-depth understanding by exploring the phenomena in its natural setting (Dalcher 2004).

The SMT, the background theory, builds on the importance of the contextual dimension and the mutual shaping of the different components in the model. It is therefore important to select a method that allows capturing both the contextual dimension and the model components. Studying the phenomenon in its complex setting allows one to understand contextual conditions (Dalcher 2004) and to shed light on the complexity of social phenomena and the real world (Galliers & Land 1987). Consequently, case studies retain the holistic and meaningful characteristics of real-life events, such as organizational and managerial processes. Case studies are especially useful when the boundaries between phenomenon and context are not clearly evident, but where context is necessary to understand the phenomenon (Benbasat, Goldstein & Mead 1987; Galliers & Land 1987). Case study is about tracing a process in its natural context (Eisenhardt 1989).

This research will be completed through the study of a single case given the exploratory nature of the research and the in-depth level of understanding required to grasp the negotiation process. For the purposes of this research, it was necessary to select a case

with the following characteristics: work practices involving high mobility and using ICTs required to perform their work. The industry of the organization was not a selection criterion used to choose the research site although consulting represents a good opportunity (see Mobility of consultants in section 2.5.2 ). Indeed the IS discipline is predominantly interested in the IT artefact, its usage and impact (Benbasat & Zmud 2003) (see positioning of the research in the IS field in section 2.1). Avison and Eliott define it as "an applied social science pertaining to the use and impact of technology" (2006).

The site identified for the case study fits all the criteria listed above. Sigma – a pseudonym used to protect the identity of the firm – is a consulting firm that has ICT-enabled work practices. Its clientele are located over a large geographical area. Consultants are expected to travel weekly to the client site to carry out their work. Consultants are provided with a number of ICTs that are of specific interest to the research question because they are used in the negotiation of work boundaries.

In order to gain access to this company, a research project proposal describing the research and its purpose, outlining the research activities and detailing the request for access (Appendix B) was emailed to one of the Managers of the organization in January 2007. Obtaining access took time, after numerous follow-ups, the consent to participate arrived in June 2007. However this access was granted with some limitations. Interviews were limited to consultants at only one specific managerial level (Senior Associate) in the career path; in order to increase the sample size, the organization agreed in November 2007 to lower this level (to include the Senior Project Leader level). Later in 2012 an attempt to increase the sample size a second time was successful; interviews were authorized at all levels of the consultant career path as well

as with support staff. To facilitate access, the organization emailed all eligible consultants asking them if they would be willing to cooperate on their own time. It was left to the discretion of the consultants to accept interviewing.

A request to shadow consultants was rejected and the organization did not agree to provide any data or documents. The organization would not finance travel to multiple offices, this implied that all interviews had to be done in Lebanon. These constraints held implications for the data collection techniques used. Alternatives to shadowing was needed, these compromises had to be decided upon without jeopardizing the quality of the research. A case study with a focus on interviews as the main data collection tool is a common strategy in interpretive and similar research (Walsham 1995). Nevertheless, visual data was a viable option and a good method to complement the interviews. The use of visual images would enrich workplace descriptions and allow a deeper analysis. To accomplish this, the interviewer took photographs during interviews and asked respondents to provide photographs of their workspaces (refer to section 3.6.3 on photography for visual data collection).

At this stage, and to reassure the organization which was worried about confidentiality issues, the researcher reaffirmed her commitment to respecting the highest levels of ethics and professionalism in the conduct of the research, namely the three ethical concerns relating to the participants: ‘informed consent’, ‘right to privacy’ and ‘protection from harm’ (Fontana & Frey 2000, p. 715) as well as non-divulgation of strategic or confidential data.

### 3.6 QUALITATIVE DATA COLLECTION METHODS – INSTRUMENTS AND PROCEDURES

In order to answer the research question and understand negotiating work practices in relation to the use of ICTs, a detailed investigation of organizational interactions will be undertaken. Work practices are to be explored through the understanding of the social construction of reality. The case study uses multiple sources of information to increase the level of reliability and to allow a complete view of the phenomena under study and its context. Data gathering will be meticulous and based on data collection protocols which respect the research lens (Greenhill 2002).

Keeping in mind that interpretive research is interested in analysing the details of the mundane activities that are usually taken-for-granted (Greenhill 2002, 2004), the plan for data collection is to ensure the richness of data required for interpretive research, consisting of multiple scenarios (fall-back positions). These have contributed to plan how the study will be conducted. Fall-back positions represent satisfactory alternatives to obtain as much information and as detailed descriptions as possible about work location and boundary negotiation (how they and their work move from one location to the other). These are necessary considering the constraints that were set by the organization when they granted access to the research site. The plan includes the ideal research approach (Best case scenario) that was not approved by the organization and a series of possibilities and fall-back positions with their descriptions and the details of how they can be implemented. The second best scenario consisted of multiple data sources from within the limitations listed above, interviews, observation of workspaces, observation of interviewees in their workspaces, observations of interviewees interacting with physical artefacts, photographs of the interview site and physical artefacts by researcher and photographs by consultants of their work locations. Appendix C presents the different data collection scenarios. The three data collection

methods, structured interviews, questionnaire and photography are respectively discussed in the subsections 3.6.1, 3.6.2 and 3.6.3.

### 3.6.1 Structured interviews

Interviewing people to understand their behaviour and their experience is necessary to collect the core information relating to the topic under study, to capture the level of detail required to understand the phenomena and to collect the elements necessary to answer the research question. To understand individuals' points of view and interpretations, a useful approach remains in interviewing them about who they are, how they work, how they interact with others, which ICTs they use, how and for which purposes.

Interviews remain the main data collection method in case studies (Walsham 1995) and in most interpretive field studies (Walsham 2006). Qualitative research recognizes that subjects can express themselves and their feelings, and thereby, clarify the social and cultural contexts within which they operate. Meaning therefore needs to be "interpreted" in a process of "sense-making" (Dalcher 2004). Structured interviews are a guided conversation, yet they are rigid and require an active process yielding a "contextually bound and mutually created story – the interview" (Fontana & Frey 2000, p. 696). The whole interviewing process – from research design decisions to analysis – has an important impact on the results of the study (Fontana & Frey 2000). Therefore rigour is necessary in interview design.

#### Interview approach and protocol

Walsham's (1995; 2006) guidelines for interpretive case studies were adopted for this study. For interpretive research, data resulting from interviews is valuable and is a significant aspect of data collection (Walsham 1995, 2006). Based on the adopted

ontology and epistemology, reality is constructed by humans and perceived and lived as such and the analysis of participants' recounts of events and experiences is critical to understanding phenomena under study.

A detailed interview guide was designed to launch and guide the interview. Additionally informants' recounts and interpretations led to subsequent questions in order to better understand their actions, reactions, perceptions, construction and understanding of how their boundaries are being affected by ICTs in use and probe issues that were only remotely mentioned or not sufficiently developed. This approach engendered an understanding of how the interviewees construct the ICTs they use and how they construct the social reality in which they work as it relates to these ICTs.

### Pilot interviews

Pilot interviews are useful to validate data collection instruments (Bryman & Bell 2003) and provide insight on the context of the organization. One pilot interview was conducted with one consultant. The purpose was to assess whether the selected field was adequate to answer the research questions at a later stage. The pilot interviewee was subsequently excluded from the sample (to avoid any bias or information provided to him and not to other participants).

### Main issues from pilot interview

The interview was conducted as an open-ended discussion regarding work practices. A single interview cannot be meaningful for broader contextual understanding and no definitive findings or learnings can be drawn from it. The experience and outcome of the pilot interview provided additional insight on study feasibility and interview guide development – the way questions should be formulated and topics should be addressed.

The pilot interview was successful in that it confirmed the usefulness of Sigma as a site that could answer the research question. The consultants were very mobile and travel on a regular basis to perform client work. Refer to the detailed interview notes along with corresponding field notes in Appendix D.

### The interview guide

In order to operationalize the research question, the consultants' work practices and boundary crossing are investigated. The understanding of their experience of mobility and the requirement that they have to be mobile and support their mobility with ICTs, and any behaviour adopted to facilitate or limit work will allow the discovery of new boundaries.

Six different aspects derive from the sub-research questions and are key to the study: (1) the description of consultant interactions, (2) the description of ICTs used by the consultants, (3) the description of travel and mobility, (4) the description of work places, (5) the views regarding the self (one's own views regarding one's own work practices), and (6) the views regarding others' work. These six aspects allow us to identify work rules, practices and norms and the identification of boundaries as well as their changes, reinforcement and management. These six elements form the basis of the interview guide. The interview guide is organized by topic and includes components necessary for the other data collection techniques described below: a questionnaire to document the technological landscape, a guide to observe the interaction of the respondent with the artefact and the required pitch to ask them to provide photographs of their workplaces. The interview guide can be found in Appendix E.

### Sample – Participants and their selection

Since the research question is about the negotiation process of consultants, and since the individual characteristics and reflexivity of the consultants are important for understanding the practices of negotiation, the individual informant is the unit of analysis. Ignoring these variables would mislead the analysis into assuming a deterministic approach. The sampling approach is an important aspect of case studies as it impacts the results and the reliability and validity of the study. Two rounds of interviews were conducted; the first took place in 2008 and the second in 2012.

Interviews were requested with all of the consultants at the Senior Associate level. The organization contacted the potential interviewees and the researcher coordinated with a contact person within the organization to follow-up on interview requests and schedule the interviews. Initially sixteen requests were sent out, and ten accepted to participate. As the sample size was insufficient, alternatives to increase the response rate were discussed with the Manager. He subsequently accepted to expand the potential interviewees list to include Senior Project Leaders. At this point in time, five requests were sent out, and two accepted to participate, bringing the sample size to twelve male respondents belonging to the client structure, with managerial responsibility. Half of the interviews were conducted face-to-face and the other half over the phone. The sample was constituted of both individuals based in the Lebanon office and individuals based in other offices. The majority of consultants in the Middle-East offices are based in the Lebanon office.

In the aim of increasing the sample size and increasing the diversity of the sample, a second round of interviews was conducted in January-February 2012. The second sample included a diversity of gender, junior consultants (consultants with no managerial responsibility), personal assistants and administrative staff. The same

process was selected to recruit respondents. Fourteen additional interviews were conducted face-to-face. Eight belong to the client structure and six belong to the support structure. Four of the eight consultants belong to career path levels not interviewed previously; two of the eight are women. Five of the six support staff are women. The client versus support structure is a distinction that is visible in the organization chart of Sigma (refer to Appendix F) and it is used by Sigma staff to indicate their organizational affiliation.

The total sample is constituted of 26 respondents and is representative of organizational constituents. Multiple perspectives are critical in interpretive research to obtain a full picture of the phenomena under study. And in the context of attempting to understand the process of work boundary negotiation it is important to understand what is going on and how the process takes place and these from the diverse perspectives in the organization.

### The interviews

All interviews were recorded with the permission of the respondents and transcribed. While it has been argued that recording interviews has both advantages and disadvantages (Fontana & Frey 2000), recording in this case has the advantage of providing a true record of what was said and allowing the interviewer to concentrate on the interview itself; leaving the selection of direct quotes to the analysis stage. A downside to recording is that it is time consuming in terms of transcription, and might make the interviewee less open or trustful. Recording was deemed the best approach because although it does not capture the tacit, non-verbal elements it did provide a full and accurate replica of all that was said in the interview process (Walsham 2006). For these reasons all interviews were recorded with a small (smaller than a mobile phone)

digital audio recorder. This provided a full record of the interview without being distracted through taking notes.

One interview was conducted with each participant and these were supplemented with short phone interviews or emails when further clarifications or follow-up were needed. Such follow-up was required for instance to obtain an explanation of the photographs respondents had taken (refer to section 3.6.3 on photography as visual evidence).

### 3.6.2 Questionnaire to identify technology in use

The taxonomy of technologies developed from the literature review (refer to Appendix A – Taxonomy of technologies) served as the basis for the questionnaire. The taxonomy was included in the interview guide and administered during the interview for each respondent to identify what technologies are in use. This questionnaire was useful for both the interviewee and the interviewer as it served to focus the discussion and clarify to the interviewee what technologies are of interest. It also allowed the interviewees to identify ICTs not listed, but that they perceive as playing a role in their work.

### 3.6.3 Photography to capture the visual aspects

A key aspect that is of interest in this research is the workspace and describing the workspace and its characteristics. Understanding the workplace is a prerequisite to the exploration of boundary negotiation. To fully answer the research question it is important to identify details of the workspaces, and for the respondents to describe them as well as they can so as to analyse the boundary negotiation process that occurs through the use of ICTs. ICTs and workspaces have a visual component like most features of the social world that are seen by the eye; photographs provided data that are available as visual data for investigation (Emmison & Smith 2000). Photographs are helpful in recording what is seen and it is only when these instances are understood in

the context of some conceptual framework that they become data for investigation (Emmison & Smith 2000). Photographs have been used in anthropology as they reduce the need for long descriptions while providing the reader with a better feel with the subject matter; they have also been used in sociology and qualitative sociology with a purpose of documenting phenomena (Emmison & Smith 2000) as well as in other areas (see Manning & Freimund 2004), including the area of IS (see Diaz Andrade & Urquhart 2010).

In this research two types of photographs were used and they proved to be useful in a number of ways; the researcher took photographs of all the workspaces she visited during the interviews and the respondents were asked to provide photographs of some of their workspaces. Photographs constitute an interesting data collection approach as they are static representations of spaces and artefacts that cannot be disrupted by the researcher. Such an approach allows an inventory of spaces and artefacts of interest at the organization (Bogdan & Biklen 1992). Photographs allowed the researcher to grasp a full image of the workspace, document the visual context of the work and allow a detailed description of workspaces after the interview was conducted, especially that an individual can store a limited number of information chunks in short term memory (Meyer 1991; Schwartz 1989) and consequently provides more accurate data as it does not count on memory or estimation (Manning & Freimund 2004). Thus, the interviewer was able to save precious time during the interview with very busy and hard to access consultants by alleviating the need to engage in lengthy note taking to describe the workspace during the interview while still capturing the general feel and ambiance of the workspace. Photographs are snapshots of locations and, in rare situations, also depict participants. Photographs were taken during the 20 face-to-face interviews since

they were conducted in the workspace of the interviewees. In all about 40 photographs were taken by the researcher.

On the other hand and in order to collect respondent-produced photographs at the end of each interview the interviewer solicited ‘2 to 3 photographs of their workspaces’ from each consultant. This was a means to increase the role of informants, to engage them in the inventory of their workspaces, and to allow them to provide data about their social and spatial constructions (Young & Barrett 2001). This approach also compensated for the fact that shadowing was not allowed by the organization and that all interviews had to be conducted in the Lebanon office. Each interviewer was to be provided with a disposable camera that the researcher would collect and develop the photographs. All respondents had their own cameras in their mobile phones or smartphones and they were ofay to using them so none of them took the disposable camera and all of those who responded to the request sent to the researcher the digital photographs. This visual-based form of communication regarding workspace is faster than an oral-based form of communication. Those photographs allowed the interviewees to illustrate the “typical and ordinary” (Bogdan & Biklen 1992, p. 102), although consultants’ workspaces are neither typical nor ordinary.

Photographs provided a good proxy for actually ‘being there’ by providing a visual recording of places the researcher was not able to go to and see otherwise (Young & Barrett 2001) while allowing to discover the worldview of respondents (Wagner 1979 in Emmison & Smith 2000). The photographs were also used to represent a platform for a phone follow-up interview during which the respondent were asked to explain his/her choice of photographs (Berglund & Wigren-Kristoferson 2012) as well as describe what each photograph represents to them. So the photographs were used for photo-elicitation

(Harper 1988, 1994, 1997 in Emmison & Smith 2000; Schwartz 1989; Young & Barrett 2001) as follow-up of interviews (photo stimuli) and generated additional information on the work boundary negotiation process. They allowed respondents to relate back to their experience and remember forgotten stories or moments (Berglund & Wigren-Kristoferson 2012) as well as re-establish the link between words and their experiences (Freire 1973 in Berglund & Wigren-Kristoferson 2012). As Hee Pedersen writes "Pictures are helpers. They help transform abstract and complex feelings, opinions, experiences, concerns, attitudes and worries into tangible objects we can actually talk about, explain and expand" (2008, p. 36). In their use of informant produced photographs, Young and Barrett (2001) found many photographs to be self-explanatory and not requiring much informant explanation; they provide a level of insight that mere words cannot provide. They also found this methodology to provide more data than expected and to be an important means to represent social-spatial aspects. Indeed, time is valuable for consultants and during the interviews they did not provide detailed accounts of their work spaces possibly because they could not see the value of describing in great detail a work space. However when asked to describe the photographs they provided, they were more keen to provide longer accounts and descriptions. Seven consultants responded to the request for photographs of their workspaces and 69 photographs were received in total.

Although photographs represent a selective account of reality (Emmison & Smith 2000) and the photographer has the possibility of constructing the scene (Scott, 1991 in Emmison & Smith 2000), these do not represent limitations in the context of this research because this research does not seek to establish an exhaustive inventory of workspaces (it cannot since workspaces are any place negotiated through the use of

ICTs); and a constructed photograph is a good means for a respondent to convey his/her perception of his/her workspace than a lengthy description.

Photographs were also used to study the process of negotiation, since photographs also allow the study of the processes of social life (Harper 1988, 1994, 1997 in Emmison & Smith 2000). Meyer reports the use of photographic images to capture behaviour (Dabs 1982 and Van Maanem 1982 in Meyer 1991) and highlights its benefits as a means of communicating information about some organizational attributes.

Alternative forms of data gathering about workspaces would not have been adequate to provide equivalent rich qualitative data. For instance a diary in which informants would have provided a list of used workspaces with a written description would have had a couple of drawbacks. Reticence of informants to cooperate as a diary requires more effort and time on their part to describe the workspace using lengthy prose which would not provide as much details as a photograph – a photograph is worth a thousand words – leading to a lower response rate than simply taking photographs. The possibility of obtaining unusable descriptions because incomplete, or not addressing the required parameters. Also a photograph provides a still image of the visual of interest, for instance the negotiation process allowing the researcher to analyse the visual within the conceptual framework. Informants cannot provide in their description all the elements required to describe the negotiation of work boundaries through the use of ICTs in a workplace.

This methodology responds to the urge of Meyer (1991) to collect data from respondents in forms of pictures as well as to adopt pluralism in methodology. The photographs provided a level of insight into informants that mere words could not provide, they represent an in-depth qualitative element of the research.

## 3.7 CASE OVERVIEW

The research was conducted in an international consulting firm that granted approval based on a research proposal describing the purpose of the research. Data was collected using the selected techniques. The following paragraphs present the significance of the research site in answering the research question and an overview of participants.

The case of Sigma is very interesting for this research as it is a good representation of the work organization under study. The dual presence of ICTs and travel serves well the research goals. In the context of constructivist interpretive research, the work organization at Sigma appears interesting and significant to answer the research question. Even though travel to the customer site has been a practice that is specific to the consulting industry for years, travel was never so frequent.

Sigma consultants are very different from each other and come from different backgrounds in terms of culture, degrees and scope of work experience. Nevertheless, the organization describes them as having a lot in common; they are interesting people, intellectual elites hired after a rigorous selection process. They have acquired at least the basic consulting skills, very strong analytical skills, and a very structured approach to problems. They are outspoken in terms of their abilities to communicate with the client, they are assertive and sharp, yet smooth and flexible. They are passionate about their work and team players as well. It is worth noting that there is no difference in profile between the consultants that were interviewed face-to-face and those that were interviewed over the phone. The following table lists the respondents, highlighting their organizational belonging and their position. The organizational belonging is important for respondents, they highlight it as they introduce themselves.

| Name (pseudonym) | Organisationnel belonging Client structure vs. support structure | Disguised title to hide the identity of the organization | Method of interview |
|---|---|---|---|
| Chris | Client | Senior associate | Face-to-face |
| Nick | Client | Senior associate | Face-to-face |
| Pete | Client | Senior associate | Face-to-face |
| Mike | Client | Senior associate | Face-to-face |
| Ted | Client | Senior associate | Face-to-face |
| Ron | Client | Senior Project Leader | Face-to-face |
| Sam | Client | Senior associate | Phone |
| Dave | Client | Senior associate | Phone |
| Raf | Client | Senior associate | Phone |
| Kevin | Client | Senior Project Leader | Phone |
| Roy | Client | Senior associate | Phone |
| Kam | Client | Senior associate | Phone |
| Andy | Client | Senior associate | Face-to-face |
| Ella | Support | Administrative manager | Face-to-face |
| Henri | Client | Senior associate | Face-to-face |
| Emma | Client | Consultant | Face-to-face |
| Mark | Client | Senior consultant | Face-to-face |
| Diego | Support | IT support manager | Face-to-face |
| Sasha | Client | Senior associate | Face-to-face |
| Sophie | Client | Consultant | Face-to-face |
| Paul | Client | Senior project leader | Face-to-face |
| John | Client | Project leader | Face-to-face |
| Tania | Support | Personal assistant | Face-to-face |
| Ellen | Support | Travel coordinator | Face-to-face |
| Mia | Support | Graphic design coordinator | Face-to-face |
| Maya | Support | Personal assistant | Face-to-face |

**Table 3: List of respondents.**

The interviews took place in the Lebanon office which is located in a new and modern building. Ten spaces were photographed during the twenty face-to-face interviews. The

workspaces are furnished with modern design office furniture, a desk and chairs, filing cabinets and shelves. Slight variances exist in furniture selection (availability of item, number, material, and colour). The level of personalization differs from one workspace to the other through the presence versus absence of personal decorative objects, frames, books, awards. Globally very few documents and reports are seen on the tables and even cabinets are generally empty (this can be seen as the doors are in sanded glass and are see-through). The conference room used as a workspace differs slightly, it has no cabinets and it does not allow for personalization.

## 3.8 DATA ANALYSIS AND PRESENTATION

The following section describes the data analysis process. This section begins with a description of the data preparation in subsection 3.8.1, then in subsection 3.8.2 the analysis process, followed by the content analysis using the SMT and the boundary object concept. Special attention is given to the analysis of the photographs. The subsection 3.8.3 addresses the issue of researcher subjectivity in interpretive research.

### 3.8.1 Data preparation

Following each interview, the interviewer's impressions were meticulously recorded; this included describing the atmosphere of the interview, noting down anything that drew the interviewer's attention as well as all impressions, thoughts and ideas that emerged from the interview. The researcher then devoted two steps to data processing. First, the researcher transcribed the interview recordings and performed quality control by double-checking the transcriptions. Second, the researcher manually coded each transcription using a preliminary list of coding themes that was fine tuned and adjusted during the coding process; excerpts were identified by respondent identity and then grouped by theme (refer to Appendix G).

### 3.8.2 Analysis process

Following the recommendations of Walsham (2006), the interviewer wrote her initial impressions after each interview and identified sets of themes after a group of interviews to try to identify lessons from the field data. The researcher also made sure to clearly and explicitly document the process of analysis. The contextual and data richness which are an integral part of interpretive research is fully documented and presented, it is part of the chain of evidence that was established. This permits the reasoning in the research to be clearly stated and defended. After moving from objectives and questions to assumptions and design choices, and finally on to specific data, the process continues to the results and conclusions (Benbasat, Goldstein & Mead 1987).

The interpretive practices for data analysis involved extensive use of participant experience and field notes. In order to understand the complex interaction taking place at Sigma and decode the phenomenon of interest, the researcher drew on the field notes to illustrate findings, reported participant experiences in their own words, quoted while making sure not to divulge the identity of participants and derived constructs from the field through detailed examination (Orlikowski & Baroudi 1991, p. 14).

The interpretation of data, field notes and preliminary findings was supported by the framework provided by the SMT. This allowed restating specific findings more generally while identifying the interaction patterns between the different components which may hold meaning beyond the specific research site. Since the research is about "interpretations of other people's interpretations" rather than facts, this process is necessary in order to establish credibility (Walsham 1995, p. 78). The following paragraphs describe how the SMT is used for data analysis.

Analysis of the data collected during the interviews was performed taking into account the three components of the SMT. Attempting to disentangle the relational aspect (the social) from the technical aspect and identify the sociotechnical elements in order to understand the structuration process, the sociotechnical interactions. In the SMT the role of actors, the human agents, in interpreting structures and their derived actions are key. Reflexivity of human agents (refer to 2.2.1 and 2.4) is an important premise. On the long run their actions reaffirm structural properties or create new ones. All of the consultants' interactions were identified and described. This process included the identification of reported benefits, consequences, and any personal characteristic and experience they revealed to contextualise their preferences, thoughts, emotions, and impressions. The question of how individuals move between the work and non-work spaces and how they simultaneously organize their lives in these two spaces is partially answered by understanding how they maintain their 'boundaries' or how they manage the 'space edges'. As introduced in Chapter 2, technology is one of the components of the SMT.

Analysis is comprised of establishing a portrait of the technological landscape in the organization, describing how ICTs are used, and analysing the structuration process that takes place by analysing every step in detail. It consists of the identification of how the ICTs are used (appropriation in Orlikowski's terms 1992a, p. 409) and why (intended consequences) and specification regarding whether the ICTs are used according to their initial purpose or whether the technology has been modified in functionality or reinterpreted in meaning (modification in Orlikowski's terms 1992a, p. 409). This led to an identification of the intended as well as the unintended consequences of each ICT. Contradictions between the consequences constituted discontinuities. Unintended consequences were either a collateral benefit or cost of using the ICT. Dependence was

one such consequence. Other consequences include habit development and taken-for-grantedness – both precursors of institutionalization. The use, modifications or consequences were then related to boundaries. By identifying the technological landscape and making an inventory of all ICTs used by the consultants in their work, the researcher does not introduce a bias in terms of the most significant ICTs in relation to boundaries. It is worth noting that these ICTs are developed and mass-produced externally to the organization (this corresponds to Stage I, Initial development of the technology, refer to 2.4.2). In this research, the interest starts at the stage of appropriation or lack thereof, and beyond. A key element of the SMT is that "institutional properties" represent "institutional conditions of interaction with technology" and shape the way human agents use these ICTs. Analysis consisted of identifying and rigorously describing these structures.

The structuration process served to identify how changes emerged in the boundaries of work. Specifically, this research sought to understand how the three components of the model interact to yield an impact of the ICTs under investigation on the negotiation of space and time boundaries of consultants. This identification process was performed by analysing the requirements derived from institutional properties, the possibilities offered by ICTs, the implications of high mobility and the personal characteristics of consultants.

With an aim to explore the boundary object concept in relation to boundary negotiation, one aspect of analysis was to explore the application of the concept to Sigma. As a first step, agent groups were identified and described. In a second step ICTs were identified and described in order to reveal their various interpretations with the aim to assess whether they qualify as a boundary object.

The analysis of photographs allows certain deductions based on their descriptions and the content of interviews. Each photograph was analysed using the SMT and the boundary object concept along the corresponding themes of analysis. The photographs illustrate the use of multiple ICTs to remain connected and communicate with others. All contain ICTs allowing both work, client and personal interactions, such as laptops, mobiles and smartphones, and artefacts indicating interactions such as flipcharts, guest chairs, a couch, children's drawings and others. Photographs represent a snapshot at a certain point in time and do not represent the location at all times, because locations are dynamic. The photographs were used in the analysis to complement the data collected during the interviews since they provide additional insight on workplaces, ICTs in use and the boundary negotiation process.

### 3.8.3 Researcher subjectivity

> [T]he interviewer is a person, historically and contextually located, carrying unavoidable conscious and unconscious motives, desires, feelings, and biases – hardly a neutral tool. (Fontana & Frey 2000, p. 696)

In the context of interpretive research, neutrality is impossible. Indeed, a researcher that has a history and experience makes a certain number of decisions regarding data collection, interpretation and reporting. To ensure research quality, Walsham (1995) recommends that researchers report on the data collection, data recording and data analysis.

Since the basis of interpretive research is that knowledge is constituted through social filters that differ from one person to the other, then the researcher's personal characteristics intervene and shape their investigations; they "can never assume a value-neutral stance" (Orlikowski & Baroudi 1991, p. 15). This is further reinforced by Walsham,

> …there is no objective reality which can be discovered by researchers and replicated by others, in contrast to the assumptions of positivist science. Our theories concerning reality are ways of making sense of the world and shared meanings are a form of intersubjectivity rather than objectivity (1993, p. 5).

Consequently, this research does not lead to the 'only' possible interpretation of the phenomena at hand, nor does it try to infer that this is the case (Greenhill 2004). Other readings may be possible by other researchers as interpretation is sense-making and contextual (inclusive of the researcher's context). Generalization is not sought (Orlikowski & Baroudi 1991), however understanding the phenomena will help understand other similar situations.

### 3.9 RESEARCHER ENGAGEMENT

Before concluding the chapter, reflection on the researcher's engagement in the study is helpful because of the way it may resonate with the way data was collected and the level of interaction with the participants. This note is intended to clarify reader expectations. Considering the research ontology and epistemology adopted and described above, some readers might expect a high level of engagement during data collection. The following paragraphs clarify how the researcher's identity, the identity of the interviewees and the identity of the organization shaped the data collection approach and limited her level of engagement in the study.

The interviews were conducted in a business context. Thus, the interviewer had no previous relationship with the interviewees. This sets the context and shapes the type of communication exchanged between interviewer and respondent.

With regards to face-to-face interviews, the respondents were interviewed in their own space, in business attire, in their own business environment. The consultants are business professionals and acted as such, they sought to keep the interviews at a

professional level often limiting their answers. For instance, one of the interviewees refused to give his age and specifically asked not to answer any personal questions. Many interviewees did not let go and did not allow an inquiry into their feelings, perceptions and emotions, although the impact of ICT use and work practices on workspace and the negotiation of boundaries can be emotional. This suggests that their rational side is preponderant over their emotional side. Indeed their general discourse demonstrates that they perceive themselves as rational individuals. This rationality, as well as 'what is right' and 'what must be' were visible in their answers.

The researcher, as a person, acts and reacts in a research context. The researcher is also a person with a history and an identity. In this case, the researcher's engagement was limited as a reaction to the perception of informants during the interviews, but also as a consequence of the researcher's own character and background.

Based on personal experience as a consultant and an understanding and acceptance of the 'rational dimension' that is highly present in the culture and philosophy of consultants, the researcher was able to understand and respect the consultants' request to remain at the professional level as a protection of their privacy. The researcher did not want to upset the consultants and have them regret accepting to be interviewed.

## 3.10 CONCLUSION

This chapter presented the methodology and research approach, from the research assumptions to data analysis. This research is performed at Sigma, an international consulting firm, exhibiting high mobility that impacts on its work practices. Sigma is the only site and is an in-depth case study. 26 interviews were held with consultants and

administrative staff at various career path levels. The interviews were supplemented with photographs.

The data resulting from the interviews and photographic evidence were encoded and studied from the perspective of the SMT and drawing on the boundary object concept. This analysis ultimately serves to answer the research question regarding work boundaries as influenced by ICTs. This chapter sets the stage for the subsequent data analysis chapter.

# Chapter 4– Case description

This chapter describes Sigma and its work context. This research is especially interested in consultants who work in multiple locations to meet their work requirements. The research question '**How do management consultants use ICTs when negotiating work boundaries?'** focuses on the individual, the ICTs he/she uses, his/her workplace as well as his/her workplace negotiation practices. This chapter presents the empirical data of the study. The purpose of this description is to paint the reality of the consultants working at Sigma and aims to provide an accurate description of the situation described and observed by Sigma consultants. Thick description is employed so as to permit the reader to immerse him/herself in the case under study.

On the research and analysis front, and in the context of this interpretive research, clarification on the construction of this section is in order. Respondents provided data via interviews. The interview guide specifically addressed work, work location and the use of ICTs in relation to the experience of work. The elements that allow the description in section 4.1 are derived from the respondents' interviews which were significantly detailed to describe the institution and identify its properties. At differing times, respondents presented their own experiences, talking specifically about themselves, their understandings, their opinions and their actions. At other times, the informants talked in the name of the organization by using terms such as 'we do' and 'the way it is done '. Some elements on the details of Sigma's policies resulted from desk research and were subsequently confirmed during the interviews.

Section 4.1 introduces Sigma; the institution in which the research was conducted, section 4.2 describes the respondents, while section 4.3 describes the ICTs used by consultants, section 4.4 discusses work interactions, section 4.5 focuses on work

locations, section 4.6 describes boundary management and section 4.7 presents concluding remarks.

## 4.1 SIGMA

The organization is a global consulting firm specialized in strategy and technology. Sigma is a top-tier worldwide provider of management consulting services and a pioneer in the consulting industry. Sigma has over two hundred offices worldwide and across continents. The area of interest in the present research is Sigma's four offices located in the Middle-East and the Gulf; in Lebanon, the UAE and Saudi Arabia. The Lebanon office is the home office of most consultants in the area; however the majority of the projects are conducted in other countries in the Middle-East and the Gulf. The growth of these offices has been substantial during the 1998 to 2008 period.

Sigma integrates the full range of consulting capabilities. Its clients are the world's largest organizations, it helps to solve their toughest problems and work towards fulfilling their mission.

The subsection 4.1.1 begins with a description of Sigma's business strategy. Then 4.1.2 describes the external environment and the culture. Subsection 4.1.3 presents Sigma's organizational structure, subsection 4.1.4 describes its core activity and the rules that guide work practices. Subsection 4.1.5 concludes by highlighting the most important aspects.

### 4.1.1 Sigma's business strategy

The business strategy of Sigma in the Middle-East defines the general direction and method by which the organization must operate. This strategy is important since it impacts on all the institutional properties (Robbins & Coulter 2005) of the organisation

at both the tactical and operational levels. All members of the organization are expected to work to realize the business strategy.

Sigma's business strategy is defined by its Managers, on a yearly basis. The regional Managers of the firm meet and decide any additional specificity for their region such as target industries, clients and geographies as well as business goals for income generation. The latter are based on existing business constraints such as available staff, possible recruiting, and project budgets. Although the organization operates regionally from four offices, it targets clients across the Middle-East and the Gulf. Missing resources at the regional level can be compensated globally from Europe, Asia or the USA for example.

The firm is positioned to provide premium consulting services; it only accepts "significant projects for major organizations" as described by one of the respondents. The target market for Sigma is the largest firms worldwide as well as governments. Sigma consultants need to be mobile in order to meet these requirements and go to clients.

Globally, the client is the first priority for Sigma. Additionally, the strategy in the Middle-East consists of developing ever stronger relationships with the clients – a cultural requirement of the clients themselves. Managers described this strategy as requiring a long-term work relationship with the client, based on trust. It requires full availability from consultants, which leads to frequent interactions with the clients and solicits a high level of commitment to them and their business. This strategy materializes in the work practices observed at the research site.

### 4.1.2 The environment of the organization

The work of any organization is affected by its external and internal environment. The external environment in Sigma's case includes other industry competitors, and all ICTs used by this particular industry; while the internal environment is unique to Sigma. Jointly, these affect the actions of consultants within Sigma.

#### The external environment - The consulting industry and ICTs it uses

Two important external environment factors worth mentioning for Sigma are the structure of the industry and the ICTs that are used in this industry.

The consulting industry is competitive and diverse. Firms have different offerings and specializations with diverse fee structures; their success and operations depend on hard working, highly motivated, dedicated workers otherwise described as "overachieving individuals". It could be argued that environmental pressures push individuals to work hard. The industry is made up of different tiers, as recognized in both the main stream media and within business school graduates. The firms that are perceived to represent the finest consultants are the large well known and long established firms, specialized in strategic consulting, for example A.T. Kearney[8], Bain & Company, Booz & Co., McKinsey & Company, The Boston Consulting Group, and The Monitor Group, to list the main ones. This list is similar to the list identified by one of the interviewees as representing the first tier of the consulting industry and as the main competitors of Sigma.

Travel and mobility are the norm in the consulting industry. Mobility is said to be governed by the client needing to see the consultant. Consultants in the tier-1 consultancies are familiar with the need to travel because they work on strategy projects

[8] In alphabetical order.

which are typically geographically distributed, short in duration and require intense work, explained Andy.

All firms in the consulting industry use the same ICTs. Sigma consultants confirmed that their ICTs were in line with industry standards. ICTs are important in the workplace because they are used to increase productivity and efficiency. In line with industry standard Sigma's main ICTs used are the laptop, the mobile phone, the smartphone and email. These ICTs allow the consultants to work faster, to collect data and format reports. One of the consultants stated:

> It's a natural law that management consultants need to use laptops. It's not an emotional choice, (…). If you're a taxi driver you sit in a car, if you're a management consultant you sit in front of a laptop. It's just the way it is. (Kevin)

This quote expresses the taken-for-grantedness of ICTs as work tools in the consulting industry. Its use is institutionalized within the industry as a whole.

As illustrated above Sigma's operations must be aligned with the other firms in the industry in order to succeed. Furthermore there is a pressure to use the same ICTs as competitors, because clients have the expectation that such ICTs be used. Indeed, there is a positive image associated with the use of particular ICTs. The pressure to use these ICTs is exerted by clients both on the firm and on the consultants.

### The social setting

The geographic and social setting is the Middle-East which is diverse. As an example, to better understand the context of the research site; the host country can have different workdays and weekends than the consultant's home office. Lebanon has the same weekend as Europe and the US, but this is not the case in other Middle Eastern countries which may have the weekend on Thursday and Friday or Friday and Saturday.

Consistent throughout the Middle-East, however, is the need to establish a trust relationship on a long term basis with clients (Hofstede, 1980; ,2001).

### The culture - The internal environment

Culture has an impact on the way individuals act in the organization, and the 'way they do things'. Culture is defined as being a "system of shared meaning and beliefs held by organizational members that determines, in large degree, how employees act" (Robbins & Coulter 2005, p. 52).

The core values of Sigma worldwide (as listed on its website[9]) are client service, excellence, diversity, respect, entrepreneurship, teamwork, professionalism, fairness and integrity. Each trait is described next as lived by consultants with a highlight on how it influences actions. The consultants themselves provided indication that these values are not just stated, but also lived within the organization.

*Client service* is of paramount importance for the organization. The institution, in the words of the consultants, is characterized by a culture that values work, professionalism and creativity geared towards productivity and client service. The entire business revolves around client service excellence which is reflected at all levels of the organization. It is part of the culture worldwide; the client is of utmost importance. All offices share the same structure in terms of how to respond, serve and communicate with clients.

> Our role is to make clients as successful as possible in improving the value to their shareholders. (Chris)

In this quote, a senior consultant expresses how he has internalized 'client service' a value of the organization and part of its culture. It illustrates how culture shapes his role

[9] Sigma's Website – the address is not provided to conceal the identity of the organization.

and how his actions are instrumental for the client's success. No project can be considered successful if it does not improve the value for the client's shareholders.

> Everyone is working towards the same goal which is helping our clients improve themselves (Andy),

added another consultant highlighting that the goal of consultants is aligned with the culture of the organization and focussed on the client. This goal dictates much of the consultant work practices as is described below (refer to sections 4.4 on work interactions and section 4.5 interactions on work locations).

The culture strives for *excellence* and values hard work. It illustrates excellence at all levels, excellence of people, excellence of work, excellence of solutions and thought leadership. This leads to intense, hectic and hard work where individuals do not count hours, but rather impact. People at Sigma are all intellectual elites; this creates a challenging environment with a continuous pursuit for excellence. All are dedicated to getting the work done well, independently of what it requires.

> Everything we do has to be durable, we create results that endure… It's not something that fixes the problem today. It fixes the problem and institutionalizes that solution at the client's for a long time. (Chris)

This quote illustrates the extent of the culture of excellence through a focus on success. Consultants at Sigma work to develop long-term solutions. This has an impact on the way consultants work and creates a constant challenge to find radical solutions to sometimes long-standing problems.

*Diversity* is yet another value displayed at Sigma. It is illustrated in the organization by the great diversity of consultants and staff within Sigma. Diversity includes ethnic group diversity, nationality, political affiliation, religious diversity and gender diversity.

> Looking at people, we have… people that are PhDs in physics we have people that are MBAs from Harvard we have people that are engineers from AUB [The American University of Beirut]. (…) So if you look at the group of people that are working together on the client it's really diverse (…). Everybody has a different experience, and a different way of adding value to the overall environment. (Sam)

This quote illustrates the diversity in the background of consultants in terms of area of speciality and in terms of their *Alma mater*. The consultant stresses the value of diversity in terms of how it allows the organization to create value by building on different experiences, perspectives, and backgrounds. *Respect* complements diversity. Consultants work together in teams and value each other's input and ideas:

> A very junior consultant can have a long discussion with a Manager about a particular thing that is related to the content of the work that's being done on a particular project which is normal and everybody adds value in one way or another. (Sam)

Consultants respect each other's' ideas, listen to each other's' input and discuss projects independent of position. This quote illustrates the above by giving the example of a Manager taking the time to listen to the input of a junior consultant and discuss the project with him/her.

Sigma has a culture of *entrepreneurs*. It has a very dynamic work environment where everyone is highly involved and dedicated to achieving results. Entrepreneurship and teamwork build on each other and allow the organization to grow. Teamwork describes both the dynamics at the firm level, where all consultants act as if they were Managers in the firm, as well as on the project level, which determines interactions and work practices on the project. Projects are team responsibilities, consultants work in teams to deliver value to the client and no single individual can claim credit for a project's success. The culture of *teamwork* has a visible impact on operations. This team culture

is global and offices assist each other to achieve the organizational goals. This culture is represented in the organization of work.

> [The culture is described by] support at all levels, technical, as well as I would say emotional support if you want. (Rudy)

Consultants support each other. The team culture is not limited to conducting the project and technically helping each other, it manifests itself as solidarity and camaraderie among the consultants who support and help each other through difficult periods of extensive travel and absence from their family. They provide each other with the necessary emotional support, they listen to each other and share experiences.

*Professionalism* represents producing work in line with the norms of the organization and the industry. It is also an important value at Sigma and an integral part of its culture. It dictates how the interaction with the client should be and how the work should be performed. Consultants work to the highest possible standards, because this is what is expected from them internally.

*Fairness* is also listed as one of the core values. It was not directly described by consultants but it is illustrated by some internal practices such as the 360 degree evaluation which attempts to be as exhaustive and transparent as possible in making a fair assessment of the consultant's work. Other examples include continuous feedback to help consultants develop and the work-life balance policy which attempts to prevent consultants from becoming totally absorbed by their work at the detriment of themselves and their families.

Integrity is about respecting business ethics, but integrity is also about social responsibility and giving back to the community. One consultant discussed the involvement of Sigma in community service and its support for non-profit, non-

governmental organizations to better the quality of life of people. Sigma selects small charities and assists them in their planning, operations and projects. The time consultants spend on these activities is either sponsored billing time, or personally volunteered time. This participation has a dual purpose, it allows the firm to give back to the community and it contributes to team building as it allows consultants to build their network and work together outside of the work environment.

It is also an institution that relies on the good judgement of its professional team. Indeed, work practices are not formalized and written, but rather inherited from more senior individuals. Respondents highlight the strict adherence of consultants to this work culture, which is a prerequisite in accepting the work practices in general, because they entail long hours of hard work. Additionally, the work practices represent a critical success factor for Sigma's operations which, like the industry as a whole, seem to be built on a large base of junior consultants that work hard.

The culture as described above has an impact on the way work is performed and when it is performed. The commitment of consultants to their work has implications on the number of hours they work. In this work environment, being a professional leads to long hours of work. The impact on the hours of work can be more important when they travel between locations that do not have the same weekend (refer to section 4.1.2), which is often the case in the Middle-East. When consultants are allocated to a client in a country with a different weekend, there is an impact on their social and personal life as they end-up working during their own weekend.

The strategy, the work requirements and the culture reinforce each other and lead consultants to work in diverse situations. Consultants accept the work requirements because they have adhered to Sigma's culture.

### 4.1.3 Organizational structure

The organizational structure of Sigma represents the way the jobs are arranged in organizational units (Robbins & Coulter 2005, p. 234) and the way they relate to each other. It represents the organization of work and dictates how work must be performed by setting expectations and rules. The organizational structure is designed to best support the implementation of the strategy and goals of the organization, at Sigma it is geared to serve the client and consists of two units, a Client Structure at the service of the client and a Support Structure, which is an administrative support group that is supportive of the client structure and expected to provide continuous support to the consultancy staff, but are not assigned to travel. Support staff can work in multiple locations on needs basis only. Appendix F presents a sketch of the organization draft structure that was reconstituted from a simplified chart drawn by one of the respondents and completed with data collected during interviews. Respondents presented themselves in relation to their organizational affiliation. This classification is significant as it determines their level of mobility and influences the way they use ICTs.

The client structure is labelled as such because it is built around the client; it groups together all the client staff, the consultants whose primary responsibility is to conduct the project for the clients. The client structure is constituted of a number of practices and a pool of junior consultants. The practices are commercial units that group consultants based on their expertise in the same area, generally an industry. The organization is flexible, project-based and revolves around teamwork. When a practice signs the contract for a new project, it forms a team by staffing the project according to needs. Senior consultants are chosen from within the practice and junior consultants are drawn from the available pool. One senior individual is assigned to manage the project

and the team. The organization is built in a way to develop the best possible relationship with the client and ensure the close coordination required for the project's success.

When junior consultants join Sigma they are allocated to the centrally managed pool of junior consultants in the Middle-East. The premise behind this approach is that consultants must become strong generalists before they can be good specialists. By the time they reach the Senior Project Leader or the Senior Associate level they would have developed an expertise and been assigned to one of the practices thus reinforcing their expertise in that area.

Taking into account the expertise of consultants over time, the firm has an advantage by using the same specialized consultant to solve similar problems around the world; this allows the firm to leverage existing knowledge. In a global world, this is easy and makes business sense. The firm therefore seeks the knowledge of a consultant in another country or another continent. Similarly this also happens when local resources are not sufficient.

> Not all my projects are staffed from the Middle-East. I have probably 60 people working on my IT projects in the region, only 25 are from the Middle-East. (Nick)

In this quote, a Senior Associate illustrates that consultants are mobile across geographical areas and when local resources are not sufficient, consultants are allocated to projects managed by other offices.

The support structure is comprised of the organizational units that facilitate the work of consultants. The support structure is created to help consultants with as many administrative and support issues as possible so that they can focus on the client project

and invest their time and energy in serving the client. The roles of the different units in the support structure are described below (refer to section 4.2).

### 4.1.4 Sigma's core activity

The organization described above is the context in which management consulting, Sigma's core activity, is conducted. A number of practices and operating procedures dictate the mechanisms by which this consulting work is carried out.

The consulting project is constituted of a chain of tasks: prospection, scoping client needs and requirements, proposal, negotiations and contract signature may follow. Once the contract is signed and the team is assigned, the work starts with data collection, analysis, and recommendations. Sometimes the client signs a project extension requesting assistance in the implementation of the solution.

As mentioned above, projects can be in any city covered by the Middle East offices. While assigned to a project, consultants are expected to **remain reachable** to team-members and clients through their business mobile line and email. They are also expected to spend as much time as needed on the **client site**. When they work on multiple projects, they travel accordingly.

Since work is aimed at creating impact, the nature of the work along with the commitment and dedication of consultants translates into consultants investing a lot of **time, effort, and travel to interact with clients**. The project manager ensures that the **quality of the project** is up to the requirements in terms of the tasks performed and the quality of the output. These requirements are defined by the standards and values of Sigma. The project involves extensive interactions between the project team and between consultants and clients, these are described in detail below (refer to section 4.4).

Some practices that relate to conducting the consultancy work emerged from the descriptions of consultants. All consultants travel numerous times every week. Sigma has a certain number of practices to manage frequent travelling. The travel policy limits travel to four days, it states "four days of travel, three days in [the home city] of which one day is in the office", this is the general rule, but sometimes depending on the project, the time of the year and the client; consultants might have to adjust their schedules differently. This means that consultants spend four days at client sites, a single client or multiple clients depending on the number of projects they are allocated to. This policy forces consultants to come back home once a week. Junior consultants start travelling when they are staffed on their first project.

### The work practices

Work practices are described to provide the work context at Sigma, which includes travel, consulting work practices, work rhythms, and ICTs used.

Consulting projects are specific missions entrusted to a team. Consultants agree on the work plan through a presentation for account planning and discussion. The team then engages in the delivery of the work which is usually done as an analysis and recommendation presented in a report to the client. The team identifies problems by diagnosing the symptoms expressed and attempts to find the root causes verifying their credibility and validity based on empirical information, best practices, and a variety of sources, including their own experience. The team then proposes solutions; which, following a discussion with the clients, results in building the recommendation for actions to be carried. The client takes the recommendation, endorses it and begins implementation. Sometimes, as an additional service to the client, the team assists in the implementation by serving as program managers. A project constitutes a commitment, it is a deliverable, within a deadline at an expected service level. In the consulting

industry, when the required resources are underestimated (i.e. number of man hours), the pressure increases on the team-members.

Working in such firms is often perceived as prestigious, It involves working with an intellectual elite, switching from one project to another, shifting from one domain to the other to accommodate new situations, clients, projects, locations and workplaces. Projects can be short; consultants' accommodation needs to be quick which implies learning and reading a lot to come to speed readily with the goal of delivering value to the client. The work is fast paced, intense and hectic, consulting requires a lot of effort, energy and time. It is also relationally intensive; consultants are committed to client service and project delivery, they need to work extensively with clients whether by phone, email or face-to-face a condition that leads to constant travel.

Consultants at all levels of the career path, use laptops, mobile phones and smartphones. Email (via laptop or smartphone) and mobile phone service (via phone or smartphone) are used as a means of communication and consultants rely greatly on them.

As consultants specialize over time, the firm leverages existing knowledge and uses the same specialized consultant to solve similar problems around the world. Working in a first tier consulting firm is somewhat different from working in other consulting firms. Consultants in all first tier firms work in more or less the same way, because the firms operate in the same way. They have an assigned home office, but are assigned to work on projects in the entire region covered by their office. Work is allocated to them based on their own expertise and the availability of human resources at the global level in the firm. With seniority, consultants become involved in a larger number of projects in parallel. For instance, an entry level consultant works on a single project at a time, while a Senior Associate oversees all the projects of a practice (area of specialization) in

the Middle-East. Thus, travel increases with seniority. When they reach the level of Senior Project Leader, or above, they start working on multiple projects and manage teams, while they are on the move; they are often away from the people they work with. Consultants establish and maintain interactions through personal relationships (face-to-face) and ICTs; both email and phone. Maintaining their interactions with team-members and clients is important.

Most consultants say they are happy to be mobile and appreciate the added value of travelling the world and meeting people from different cultures. They appreciate their freedom by not being tied to specific locations. They work flexibly with respect to both time and place. They face a lot of unpredictability and lack routine in their work life.

### 4.1.5 Concluding remarks on Sigma

This section set the stage for understanding the external and cultural context of Sigma. It introduced Sigma's business strategy which is mainly focussed on the client, its external environment, and its culture; highlighting a number of elements that promote hard work. The organizational structure of sigma is aligned to its business strategy and is designed to facilitate and support the work of consultants. Finally consultancy, the core activity of Sigma, is introduced setting the stage for further descriptions in the following sections.

## 4.2 THE ACTORS

Following the introduction of Sigma, this section 4.2 describes Sigma's consultants and how they interact during a consulting project. This section starts with the introduction of consultants, their roles and responsibilities in 4.2.1. Subsection 4.2.2 focuses on the presentation of personal assistants and their responsibilities. Subsection 4.2.3 introduces the different units that constitute the support staff as well as their responsibilities and

subsection 4.2.4 concludes. The client is of course an important actor but is not discussed in a section per se, the client was globally introduced in the strategy (refer to section 4.1.1) and the interactions between clients and consultants are discussed in detail in section 4.4.2.

### 4.2.1 Consultants, their roles and responsibilities

The following paragraphs describe the consultants as a group in order to bring forward their primary characteristics.

Consultants come from varying cultural and national backgrounds, who mainly studied and worked in the US and Europe before settling in the Middle-East. They are recruited through a very selective process which seeks intellectual elites graduating from top schools worldwide. The selection process favours self-assured individuals. In order to be recruited and to remain at Sigma, consultants have to prove themselves which reinforces this self-assurance. These individuals have a strong drive that allows them to remain in the industry by working hard during long hours. Consultants working in these conditions, love the work itself due to the constant intellectual challenge; or love its short term financial benefits or the long term prospect of becoming a Manager in a prestigious and lucrative organization.

Consultants need to constantly adapt to new situations, unpredictable clients, projects sold on tight schedules, lost luggage, delayed flights, technology breakdowns and the like. They are faced with and need to deal with these difficult situations more than the average worker, because they are more often on the move, alone and without support staff. Considering their relatively young ages and the positions they have reached, they have already accomplished a lot in their career, making them comfortable in what they do and giving them a feeling that they can do it all.

Organizations define roles and responsibilities for each job in their organizational structure. These roles and responsibilities guide the work of the individuals holding each job type. Roles and responsibilities define expected behaviour as well as the obligation to perform assigned duties (Robbins & Coulter 2005, pp. 237,374) designed to achieve the strategy. Within the client structure the roles and responsibilities are defined for the different positions that constitute the career path. The consultant career path is constituted of seven positions presented in Figure 3. The career path stipulates the maximum number of years an individual can stay at the same level, after which an "up-or-out" policy applies.

Business Analyst ➔ Consultant ➔ Senior Consultant ➔ Project Leader ➔ Senior Project Leader ➔ Senior Associate ➔ Manager

**Figure 3: Career path for consultants.**

Consultants have the responsibility of project execution which refers to the core activity of the organization, the consulting service. Although roles and responsibilities define the work at each level in the career path and evolve with seniority, the project delivery responsibility remains the most important at all times and consequently work with clients remains important. Nevertheless, flexibility requires consultants to determine for themselves what needs to be done to complete the work according to expectations. Roles and responsibilities define the increasing responsibilities in project management and leadership and the involvement in multiple projects as responsibilities increase. This potentially leads to working with multiple teams for multiple clients in multiple locations and to high mobility.

In entry positions consultants mainly do analysis, look for data, and look for benchmarks. As they move higher in the ranks, they become responsible for developing a small section of a document, then a document, then managing an assignment, and then multiple assignments.

As they become **Project Leaders** they become responsible of managing the project, ensuring that delivery respects expectations, and doing part of the work.

The **Senior Project Leader** starts developing managerial responsibilities, he/she has the responsibility of managing the project team and is mainly responsible for project delivery. He/she can start managing two assignments at the same time. As a preparation for the Senior Associate level, Senior Project Leader can be involved in the selling of a project with a Manager. The Senior Project Leader level is described to be challenging, because the consultant starts developing managerial skills and must respond to upper-management requests, manage the client who is asking for results, and manage the team who needs time and direction.

The responsibilities of a **Senior Associate** belong to the areas of business development, delivery of the project and institutional development. Business development consists of developing markets, and developing existing or new business in the practice area. Work is done either by him or herself or with other Managers, it requires meeting with clients, writing proposals, following-up on proposals, negotiating the price and deliverables and finally, signing the contract. Project delivery is about managing the project, delivering multiple projects and working with project managers, to ensure that job managers are working well and that delivery will be on time and up to quality standards. Institutional development focuses on growing the firm by working on recruiting efforts with travel to universities and, on the intellectual capital level; writing articles and publications to

promote the firm. It is also about developing people to grow the capabilities within the firm. Starting at the Senior Associate level, consultants have multiple project responsibilities, sometimes in multiple cities.

Responsibilities of a **Manager** involve, as executive of the firm, the institutional responsibility to manage the firm in the Middle-East offices and globally. They manage business development, client relationships and project engagements for Sigma. They also oversee and lead institutional development by working with their team to publish studies on various aspects of the industry, participate in conferences, participate in industry events as well as create awareness among top CEOs, and business leaders, of future industry challenges and solutions.

In line with the career path they expect to build, and with the up-or-out policy discussed further below, consultants seek to develop their skills. Consultants' work is a source of self-development. They say that travelling, seeing different cultures and working in different environments expands their horizons. Mobile work presents multiple career opportunities. Consultants get, in a few years, more experience and more exposure than other individuals, working in a single organization, can get during their career. One senior consultant explained that working on multiple projects gives consultants a business exposure that they would not have if they were confined in an office with little social interaction. Self-development seems to be very important in the daily life of a consultant. Consultants work on different projects for different clients operating in different industries in different cultures and countries. The experience they obtain at Sigma, even if they do not move to the top of the career path, is an important source of development and an important addition to their résumé. One Senior Associate said that work is an important source of development for all consultants:

> [They work with] clients [in] different situations, different environments it's always very enriching they can up to a certain level start pulling this as examples in meetings from other clients. So that is the way you build your experience. (Pete)

Pete, a Senior Associate, illustrates how this type of work builds the experience of consultants and allows them to develop professionally. By working on diverse projects, for multiple clients, consultants face business situations from which they can draw knowledge by transposing client experiences, by comparing different approaches of running a business, by cross-fertilizing their experience in different settings they develop a firmer grasp of businesses and problem-solving. It is by developing this experience that they grow into managing larger project segments and later full projects; they then become qualified to move-up to the next level in the career path.

The second source of development identified by consultants is mobility. Mobility allows consultants to interact in different environments and different cultures at a personal level. Mobility also allows them to develop a broader business experience since business is not the same across cultures. Consultants need mobility to fully develop through meeting other people and visiting different places. For some, this mobility allows them to "experience different lives" and represents a freedom that they value.

> Mobility gives the ability to see different places to connect with people, where they are and move in the different places with all the enrichment that comes with that. (Nick)

This quote is representative of the experience of different respondents. For many consultants, being mobile and not being tied to a single country allows them to travel the world, see different places in different continents and interact with people in diverse cultures, with diverse backgrounds and experiences. Being exposed to so much makes their life experience much richer.

## The management of consultants

This section presents the policies that guide the management of consultants. Policies are "guideline[s] for decision making" (Robbins & Coulter 2005, p. 142), they are a set of rules that individuals in the organization must abide by. The policies that relate to human resources issues are important because they relate to the actors in the organization, they relate to the selection and the recruitment of consultants, their evaluation and promotion, the up-or-out policy and the work-life balance policy. The policies are presented in the sequence by which they apply.

### Recruiting policy

Top business consulting firms have a prestigious image and are known to recruit only the 'best'[10] people for the consultant career path. Sigma's recruiting policy specifies the profile of consultants so that once they are recruited, they adhere to core values, fit with the culture, work hard, have what it takes to get the job done in terms of content and be able to develop a strong relationship with colleagues and clients.

They have to be very flexible to adapt to the different types of work interactions with clients and team-members, as well as travel. In addition to that, they must have the basic consulting requirements, very strong analytical skills, sharpness, flexibility and good communication skills. This means being outspoken and assertive. They must also be good team players. One consultant explains:

> We typically like to bring people in [early on in their careers] and shape them and form them in a way that creates a lot of predictability and expectation in their performance. If you take somebody who is not familiar with this industry and put them in a senior position they don't know how to leverage the resources to deliver the results we expect to give to our clients. (…) When you come directly from a qualified competitor you may come in at the Project Leader

[10] This is a judgemental statement that does not represent the author's opinion. It is the opinion of participants and it is also a common talk heard in top business schools around the world.

> level, at the Senior Project Leader level, at the Senior Associate level and potentially even the Manager level. (Nick)

This quote explains the recruiting policy. Sigma seeks to recruit hard working individuals with strong hard and soft skills early in their career. Sigma trains them so that they acquire all of the required skills, but also to shape their character. Once the individual is recruited, trained, and exposed to the work practice and culture then the possibility of him/her performing according to required standards increases his/her ability to stay in the firm and move up in the career ladder.

**Yearly appraisal**

Sigma has a 360 degree yearly evaluation process that assesses the performance of consultants on all their projects as well as their adherence to predefined assessment criteria. This process is heavy, time consuming and critical for the career of consultants.

Consultants write their self-assessment which is sent to the person in charge of their evaluation and who does not know them. This appraiser contacts the different people with whom the consultant has worked to validate the self-assessment, the appraiser sometimes involves the client. The purpose of this assessment is to evaluate the development of consultants and their ability to move up and take on increased levels of responsibility. It identifies any variance between the consultant's behaviour and expected behaviour for his/her level. This process leads to the identification of priorities for the consultant in the form of a development plan. If the performance is satisfactory, the outcome is a promotion; an under-performance could result in a lower bonus, a delayed promotion or at the extreme termination following an up-or-out decision. The process is performed through written documents and lengthy phone discussions.

This is a comprehensive process that includes many criteria and covers all aspects of the consultant and his/her work. Criteria vary by position. Consultants are assessed on the personal level, adherence to values, project delivery, business development and institutional development, sample criteria are listed in Table 4.

| Assessment level | | Sample criteria |
|---|---|---|
| Personal | | Personality traits |
| Work | | Adherence to values<br>Ability to keep work-life balance healthy Consultants must be able to balance their own and if in a management position they must help others do it |
| | Project delivery | Establish the right relations to the client<br>Deliver project according to requirements |
| | Business development | Achieve targets for business development |
| | Institutional development | Active involvement<br>Team development<br>Intellectual capital development |

**Table 4: Assessment components and sample criteria, at Sigma**

The yearly appraisal puts a lot of pressure on consultants, it pushes the consultants to work more because they want to obtain a good appraisal in order to move on in their career path; otherwise they have to leave the organization due to the up-or-out policy. Multiple criteria in conjunction with "[project] objectives not [being] carved in stone" put a lot of pressure on consultants in terms of work load as it often requires them to do whatever is needed to get the project moving. The pressure to fit in and belong also leads juniors to adopt the same work practices as seniors. Juniors know they will be assessed by their seniors according to the latter's standards which is formalized in the appraisal system. The 'client development' and the 'market development' criteria both put pressure on the consultants to spend time at the clients' which may be in different locations and to develop new markets . This applies more to senior consultants. In

addition to the multiple assessment criteria, consultants are evaluated on their adherence to the work-life balance policy.

**Up-or-out policy**

While recruitment is important, perhaps the most important policy relating to the management of human resource is the up-or-out policy because it governs consultants' career management at Sigma. This policy is common in the top-tier consulting firms and specifies that consultants who do not fulfil the conditions to move to the next level in the career path must leave the organization.

The career path presents the expectations from consultants at each level and the requirements they have to fulfil in order to move on to the next level. For example Senior Associates are expected to manage projects and develop good relations with clients. This expectation is fine-tuned within sublevels of the Senior Associate position. Being elected an executive of the firm and becoming a Manager is perceived as a great achievement for consultants and constitutes a major milestone in their career. It leads to great personal satisfaction and the ownership of a major business with all the associated rewards[11].

They need to work hard to be promoted; a consultant cannot count on team-members to do the work. This policy represents additional safeguards to ensure that work is always well performed.

> We run the business through an 'up-or-out' philosophy. You are either meeting the criteria of the stage above you, you are always growing or we simply ask you to leave the firm. (…) People who try to limit the degree to which they are working in a way that is negative towards the quality of their output, will be weeded out by the system. (Nick)

[11] Including self-satisfaction, prestige, financial.

In this quote Nick explains the impact of the up-or-out policy on the amount of work that consultants must perform. If a consultant tries to limit their work beyond a certain necessary level, his/her output would be affected in either quality or quantity. When the yearly appraisal comes up, his/her performance would be evaluated as insufficient and he/she would not get promoted and subsequently would be asked to leave the organization.

Indeed one must keep in mind that consultants attempt to obtain the few yearly promotions which become fewer and harder to get as they get closer to the top. Also although, they perform a team work each member must add value and prove him/herself.

The recruiting policy which seeks hard working individuals coupled with an up-or-out policy leads to both hard and intensive work. In these circumstances, consultants are willing to fulfil all work requirements.

**Work-life balance policy**

Work-life balance is one of the values of the organization; it is formalized as a policy and supported through a number of internal initiatives[12]. This policy stands-out from the others. All policies described previously are about work and promote work. This policy attempts to maintain a balance between work and life. It is integrated in the form of an evaluation criterion in the yearly appraisal. The work-life balance policy, in the context of project responsibilities in different cities or countries, and of work practices that promote mobility, aims at limiting work and promoting non-work time.

[12] These include: providing the consultants with some benefits and possibilities such as longer maternity and paternity leaves, leave without pay, the possibility to move the family to the city of a long term project.

### 4.2.2 Personal assistants and their responsibilities

Personal assistants are assigned to two or three seniors; they can be senior consultants or senior executives. Their main responsibilities are to assist the seniors in all the logistics and administrative work. Logistics include passport renewal, residencies renewal, visa applications, flight and hotel booking, ground transportation coordination, and others. Administrative work includes managing the agenda, namely scheduling appointments and meetings and preparing required documents; coordinating with team members; answering and transferring all calls, conference calls; taking care of insurance claims; organizing business cards and contacts; preparing expense claims; filling timesheets; scheduling calls and following up with emails, yearly assessments and appraisals, and anything else that may arise.

Personal assistants are based in the home office of the seniors they assist; they officially work from Monday to Friday from 9am to 6pm. They are provided with a BlackBerry, a laptop and a home internet connection and they are expected to remain accessible. In reality they can be on call up to 18 hours a day and need to be well organized themselves, ensure their own work-life balance not to get swapped away with all the requests they receive.

> Their main responsibility is to provide full essential support for the seniors in order for the seniors to be comfortable in their travel, in their service that they are providing to [clients]. They need a full support [… equivalent to] a full presence of their assistant with them. (Ella)

This quote highlights the extent of the support personal assistants are expected to provide. The mention of a full presence refers to the frequency of interactions that exists between personal assistants and seniors in numbers of emails, calls and text messages exchanged.

Personal assistants need to be on call and responsive due to changes in the schedules of seniors that can occur following the cancellation of a meeting for example. One Personal assistant explains:

> Sometimes you have to work on Weekends. … My seniors are always on the move so if they have a meeting set in Jeddah on Sunday for example, I would have prepared everything for that one; then the meeting gets cancelled and they have to be in Riyadh instead, so I have to work to cancel the ticket, book another ticket, book a hotel, book ground transportation, make sure that the arrival time meets the meeting time etc. (Maya)

This quote illustrates the required logistics to prepare a meeting as well as the required interactions and work that the cancellation of a meeting entails. Another personal assistant shared a similar experience.

> When I ask for a meeting I need to make sure that all requirements [for that meeting] are in line: flight, hotel etc. so Clients in Saudi would typically confirm on Sunday for a Monday meeting, so I will be cooking and checking and waiting to be able to coordinate. I always need to follow on who confirmed who did not, know what to do next and [how to deal with the unexpected]. (Tania)

This quote illustrates the need for personal assistants to be constantly informed of what is going on in order to be able to prepare, coordinate or readjust the distant work of the seniors. Personal assistants are expected to be autonomous, creative and find solutions quickly. They have the tools that give them access to all the resources they need.

> [Whenever there is an emergency …] You can do it… You have to do it. There is nothing you can't do wherever you are. Once you upload the numbers of all the hotels on your mobile, once you have internet on your mobile, you can take care of everything. Sometimes, it won't be that easy because you know… the hotels are always online but the travel agencies close. So sometimes when you can't reach out to [… a travel agency in your city], you have to contact a travel agency [… in a different time zone]. You have to call the airport for seats available; you have to call the airport, the manager on duty. When we don't find a room in a hotel, we email each other to check if any other personal assistant has a booking for a room that she doesn't need anymore … [but you manage]. (Maya)

This quote illustrates well that the ICTs they use enables them to access what they need. The smartphone is particularly important as it allows them to stay online, call, text , chat, mail and access online resources and applications. Personal assistants reported receiving up to 200 emails a day.

Seniors also change their schedules and bookings themselves and when they do so they copy their PAs to keep them informed. Personal assistants receive a lot of interactions and are expected to provide a full service but benefit from some flexibility such as the possibility of working from home for example or coming late to the office.

### 4.2.3 Support staff and their responsibilities

The support staff counts about 200 in the Middle East, among the 4 offices. This unit is constituted of a number of departments, and local department heads report to the Regional Support Division Head (refer to the Organization chart in Appendix F). Support staff has a different profile from consultants'. In general, they have a lower level of education (no masters or PhDs) in local and less prestigious universities. The support unit includes functional department staff and personal assistants. Department staff in the Middle East have a 9am to 6pm work schedule, they work five days a week on shift basis in a way as to have the departments running seven days a week. So for example if all staff in Lebanon is off on a Sunday, someone in the KSA fills in. Personal assistants on the other hand do not have a rigid work schedule and are expected to provide support to the consultants they assist any day of the week and are expected to address all matters that arise within the expected timeframe.

#### Office management and administration

Each one of the 4 regional offices is managed by an office manager in charge of ensuring the smooth daily operations in the office. This goes from the direct

management of office staff (receptionists and drivers), the management and maintenance of facilities, to the implementation of office policies such as the smoking policy, the food distribution, the dress code, etc. A member of support staff explained,

> We have plenty of things that the management would like to apply and make sure that the implementation of these policies is taking place: this is the responsibility of the Office Manager.

Policies decided by regional and international management are communicated to the different offices and implementation is facilitated by the local office manager. In terms of food distribution there are fully serviced dining rooms and kitchens in every office. It is important to ensure food variety, quality and quantity for all the staff; and quantities vary a lot from day to day. In terms of parking space, they have to fairly distribute the parking places to all staff. Most importantly is office space allocation to consultants which is becoming limited as Sigma is growing. Office space use is subject to pre-booking so that when a consultant arrives to one of the offices he/she can easily find an office or workstation depending on rank, plug and work. In the case of seniors, their personal assistants usually coordinate with reception ahead of time to book an office for them.

### Logistics unit

The logistics unit in the Middle East is in charge of all travel related matters; flights, visas, hotel bookings, and ground transportation for all Middle East based consultants (except for seniors since their personal assistants take care of travel issues for them). This Unit also ensures that they have access to all the facilities and services they need while away. The team includes staff members dedicated to assisting them in airports including checking their luggage in to allow them to arrive at the last minute to the airport, airport pick up, dealing with lost luggage if any, etc. Consultants are not required to use these services, but they always do because this unit assists them quite

efficiently and then they do not need to worry about the logistics that take-up time and represent a source of stress.

The unit also takes care of logistics needs for events that take place at the regional level and that require the attendance of a large number of consultants. Organization of such an event involves preparation of the visas, the taxis, the flights, accommodations, and entertainment, just everything that has to be done in terms of logistics for all the attendees.

The unit signs contracts with a number of hotels which are selected based on Sigma standards following a site inspection and a negotiation of rates. The rates are communicated to all logistics units across all regions. Daily transactions and bookings are done according to these contracts.

The unit receives a lot of emails. One of the team members reported that the unit received about 500 emails during a weekend. Emails are either requests made by consultants or responses to consultants. The consultants send a single request addressed to the team and to the travel agency specifying what is needed in terms of visas, hotels, taxis, flights, etc. All requests must specify the project number and a billable account. Requests are handled by the team member located in the destination city, or by the team member located in the home office of the traveller. For flights, the unit needs to validate that the consultant is allowed to travel on the requested class for example, after which the travel agency handles the booking and responds to the consultant, with a copy to the unit. The unit takes care of all the rest.

The unit team members are located in the different offices in the region which ensures a seven day coverage, however as one member explained, in some circumstances they need to work on Sundays

> For example on Sunday if a consultant is coming to Beirut and does not have a ticket or a hotel, she calls Logistics or sends an email. With the blackberry when Logistics see the mail, they accommodate the request. But the good thing is that the unit is located across different cities, this provides a 7 day coverage, but someone in Dubai can't find a hotel in Beirut, during a high season, they call a team member in Beirut requesting that she talks to the hotel's sales manager and use her connections and get a room. (Ellen)

This quote highlights the need for a continuous service because consultants travel a lot, this is provided thanks to a seven-day coverage and the different weekends across the Middle-East. A team member explained,

> We used to have calls at 3am because of different time zones [and night flights] "I reached Paris and have no place to stay'. This happens because consultants have a very heavy workload, so indeed they sometimes forget to request a hotel booking before they travel. We're used to this because our team is in charge of things in different countries. This happens less frequently because consultants are now provided with what they need during induction to be able to manage by themselves if it is not a 'normal timing' [to call].

Consultants are being trained so that they become less dependent and can manage in case of emergencies especially when it is late at night. They have access to multiple online resources and applications that facilitate travelling, and have access to airline schedules, an application to claim travel and business expenses.

Technology such as electronic visas and e-tickets has made the work of the Logistics unit way easier. Even the ICTs are enabling its work and facilitating it however expectations are also increasing.

> Consultants always know you have a BlackBerry or i-phone or anything and they expect us to see our emails even on weekends. This is taking our personal time away. (Ellen)

Although Sigma does not provide BlackBerry smartphones to the members of this team, the fact that they own and use personal smartphones has increased the expectations of consultants with regards to service levels and a reduced response time.

### Graphic Design

The graphic design department is located in Lebanon. Two team members work during the weekend to ensure a seven-day work coverage. The department is responsible for report production and graphic design. Like personal assistants, they are provided with a laptop and a home internet connection. Requests are received from consultants, the department estimates the time needed to execute the job, calculates its cost and informs the consultant; all work is billed to projects.

Graphic design requests concern the creation of posters, finalizing firm reports, web design, e-cards, printed cards, and other items. These can be executed internally or outsourced. Report production is about branding all the documents and presentations that consultants present to their clients. Work varies from creating slides to simply formatting and shaping the reports and controlling that they abide by Sigma standards. When work is agreed upon, it is assigned to a team member; it can also be sourced from another Sigma office or outsourced offshore. Supporting people on the move has an impact when the team member working on the request has questions to the consultant. If the consultant is on a flight the team member needs to wait until he/she lands in order to answer the questions. Team members always try to clarify the request when it is received. When the consultant is in the same office, work is easier because he/she can sit with the team member and explain what is needed exactly. One team member explained

> Some will only send 3 slides and say make these slides ‘sexy’ so what do you mean by sexy? Even with the brief over the phone it is not clear, they can come

> in and sketch it and explain it visually. When they are away we have to understand what is in their mind. Being here they can check the slides and give quick feedback instead of waiting for the file to comeback with comments. (Mia)

This highlights the challenge of working with colleagues at a distance. The service requires a good understanding of the request which is easier to achieve face-to-face.

### IT support

The role of IT support is to ensure that the day-to-day operations run smoothly in terms of office automation and telecommunication that it provides to their customers, the client facing staff. This consists of providing all consultants with running and connected laptops, configured BlackBerry smartphones, internal telecommunication systems, teleconferencing, and routing their requests for support to the global help desk which provides day-to-day IT services (connectivity, laptop support, printing…). The second important role of the unit is to implement projects decided upon by the Global IT such as laptop replacement, laptop encryption and others.

Requests for support are communicated by call, email or by registering a ticket with the global help desk. The unit receives a lot of requests on a daily basis including hundreds of emails. Support is provided in different ways. The unit can provide remote support by using a software that allows access to the laptop through any connection, support can be provided on the phone, on location, or through the global help desk. The international global help desk is a centralized call centre staffed with a number of experts in Microsoft, Windows, and all type of software that consultants use. Experts are located in different cities and tickets are routed depending on expertise and time zone providing almost 22 hours of coverage.

### 4.2.4 Concluding remarks on actors

This section introduced the consultants; the main actors in the organizations, as well as the organizational units they interact with for the conduct of the consultancy project. This section also introduced the main responsibilities of each group of actors and described their work interaction. Consultants' main responsibility is project execution and delivery, personal assistants assist the most seniors and facilitate their work, logistics is in charge of all travel related arrangements, Graphic Design helps with report production and IT support provides office automation and telecom support. All support units receive large numbers of calls and emails from consultants. One important distinction between the client staff and the support staff is that members of the former are required to work where the client is and consequently adopt mobile work practices, whereas the members of the later are not required to be mobile to perform their work but may need to work in a location other than their office because they may receive a request that they need to process while they happen to be in a location other than their office.

## 4.3 ICTs USED BY CONSULTANTS

Consultants are provided with ICTs that allow them to perform their work. There is a set of policies that relate to the provision of ICTs and their use by consultants. These ICTs are at the core of the research question. Sigma has a Corporate IT Department responsible for applying IT policies, selecting ICTs, setting them up, deploying ICTs as well as providing technical support.

> On a technical front relating to IT, all infrastructure is set up so you can work comfortably, your PC is well equipped. Renewed every period of 18-24 months, you have technical support that can help you when you face any problem. And, you have sufficient training to perform your job. (Rudy)

This quote illustrates that Sigma provides its consultants with the IT infrastructure they need to be able to perform their work. The tools are provided, maintained and renewed and the support is available allowing consultants to focus on their work and on client-related issues.

Consultants also use ICTs for personal purposes, they use their corporate ICTs and personal ICTs (mobile phones, smartphones, laptops, pads or music devices) to remain connected, look at personal pictures, watch movies or listen to music.

Consultants describe the ICTs they use as allowing connectivity, facilitating communication, enabling work and improving the quality of output by supporting certain tasks. As was highlighted by many, "The speed of doing things has changed", consultants can "do more in less time". ICTs allow consultants to work faster by reacting and responding faster. The following subsections focus on the descriptions of the ICTs used by all consultants to perform their mobile work. Subsection 4.3.1 presents the laptop, subsection 4.3.2 describes the mobile phone service, subsection 4.3.3 describes the email and subsection 4.3.4 focuses on smartphones. Subsection 4.3.5 presents concluding remarks on ICTs.

### 4.3.1 Laptop

The work of consultants entails, among other tasks, heavy data analysis, writing long reports, sending many emails and exchanging documents. All of these tasks are supported and facilitated by the use of a laptop running the appropriate software.

**As soon as consultants join** the firm, laptops set-up and loaded with a pre-defined set of software and utilities - MS-Office and Outlook, as well as other useful utilities - are delivered to them. The consultants were unanimous in their possession and use of a laptop. The laptop and the standard software are a **required work tool**. They carry it

with them and use it wherever they are and for most of their work. They mainly use applications for their functional aspects such as Word to write documents, PowerPoint to prepare presentations, etc. Some utilities are used to facilitate work, the desktop search allows searching data stored on the laptop, the antivirus allows for the protection of work files, and PDF readers and converters allow sharing files that others can read but cannot modify.

Consultants also described the software they use to perform their work. The laptop is configured with a list of pre-determined licensed applications. They use software that contribute to facilitate specific tasks. At Sigma, simple applications are used to conduct the work, Microsoft office forms the standard set of software. PowerPoint is used the most; it is used by default, in conjunction with Word, to prepare all reports. Usage of Excel decreases as consultants are promoted; since junior consultants are expected to run the data analyses. Access is also used to perform complex data analysis, however not as often. Other Microsoft Office applications like MS-Project and Visio are used less frequently. One participant estimated that 90 percent of laptop usage involves email and PowerPoint. Outlook is used extensively for email which is discussed further in section 5.3. Internet Explorer is used for internet browsing and running intranet applications.

In their descriptions, there was a high recurrence of statements referring to the work they are expected to perform. Consultants say laptops increase their **efficiency**, they allow ‘doing more with less’, which is important for them because their time is a scarce resource. Applications are generally used for their **productive value** (i.e. saving time).

Consultants also use their laptops to be productive – ‘working smarter not harder’. This entails working differently to create value and leverage the new opportunities made

available by the use of the laptop. As the main resource in management consulting is time, and more specifically billable time, faster work leads to an increase in efficiency and productivity. Management consultants become "more efficient" and more productive. Nick estimated "we're probably 5 times as productive as [consultants] were 20 years ago". For example, a laptop allows them to perform numerous tasks such as complex analysis in less time. The following quote illustrates the idea further:

> They are requested to prepare presentations. They are requested to do documents. And all the development in the technological world has helped them reduce the time spent in developing one slide for example: better templates, quicker speed of processing, [and] Excel models. (Ted)

Preparing presentations is a task that is observed frequently in the organization. Consultants prepare many client presentations at multiple stages of the consulting project. They also prepare internal presentations for practice[13] meetings and periodical updates. By using easy to use applications that integrate a number of automated tasks such as generating graphs, by being able to reuse templates, and by reusing models previously developed for data analysis, consultants spend less time on building the presentation.

From the descriptions provided by the interviewees regarding their use of the laptop, three main task groups emerge gathering information, developing and delivering documents and communicating (table H1 in Appendix H provides an extensive list of all the tasks described by the consultants and matches the tasks to one of these three groups). These tasks make-up most of what consultants do on a daily basis for their work. The following quote reinforces the observation that many tasks are performed using the laptop.

[13] A practice is an organizational unit that groups consultants specialized in the same industry refer to 4.1.3.

> [I use my laptop] mostly to check email and to respond to email, to [prepare] reports and presentations, … to run analysis using Excel mainly sometimes it is complex analysis so you use databases like Access. (…) I use my laptop (…) - it has an annotation capability so I have a pen and I can actually write on the screen [… to] review documents and put my comments on them and send them back to the team. It just reduces the need for faxing or printing. Even sign[ing] documents and send[ing] PDF files. (…) I also use my laptop to give presentations. (Chris)

This quote exemplifies two of the tasks, document development and delivery and written communication, identified above. This quote also illustrates the work practices of consultants that require distributing documents to multiple recipients in multiple locations.

Laptops are configured to support the **mobility** of consultants. Consultants use a wired LAN connection while in their own offices – a single location – and a wireless connection while moving around within the office or when physically in other firm's offices. If travelling outside the range of wireless reach and if no broadband internet connection is available, a connectivity software allows consultants to access a dial-up connection through a local internet service provider from any location in the world. Security software allows authentication of consultants on the firm's network when they are outside corporate offices. The corporate network permits use of corporate resources. All these measures indicate that carrying and using the laptop while mobile in multiple locations is institutionalized at Sigma. Thus, using the laptop is independent of location since their work is independent of location. Mobility in this organization is a context of work, the absence of ICTs would prevent consultants from carrying the resources they need. For example if a laptop crashes, it causes a detrimental effect on the work.

The laptop also serves as a repository for all of the consultant's resources, such as reports of past projects and data for current projects; the laptop replaces the need to transport cumbersome loads of paper. Mike explains "[we] use [the laptop] for storage

of our information, we carry it with us all the time" and Roy adds "I'm travelling all the time; I cannot have tons of papers, so everything is stored on my laptop". Mike and Roy, like many others, travel a lot, nevertheless they can access all of the information they need, such as past documents, while on a plane, at a client's or in a hotel. Indeed, desktop research makes it very easy to run a search on a large number of files stored on a laptop and quickly retrieve what is needed. It also provides an additional security, whereas consultants do not feel isolated from their own or the organization's knowledge.

> I feel secure when I have my laptop because my knowledge is on my laptop… and I don't remember anything (…) even when I'm on vacation I take my laptop with me. (Chris)

Chris knows he might need to respond to work-related phone calls or emails anytime. Consequently he keeps his laptop with him all the time because it holds everything he knows about his projects making him feel secure while on the move.

> [With a laptop] you have everything in front of you. You have a view of everything that's happening and you're connected with everybody when you're on your laptop. (…) You can work all the time when you have your laptop. (Sam)

In this quote Sam describes the laptop as an indispensable tool. It allows him to remain connected as long as he has access to a network.

One consultant explained how he uses the laptop to perform research and access resources in distant libraries when working on a new project.

> All [my] work is done on my [laptop]. It is ***the*** [work tool…], you can take laptop and mobile and you can operate. I don't even need an office. [Our work] is based on technology. You cannot imagine like writing a deck which is our report, going through hundred iterations with the team and changing without it. (Rudy)

This quote is representative of answers formulated by each of the respondents during the interviews. Consultants concur that the laptop is the most important work tool and that it is necessary to perform the consulting work as it is used for numerous tasks. Specifically the laptop is the primary tool for writing the project report which is typically lengthy and requires numerous iterations. Rudy also explains, in this quote that his office has become secondary because of his mobility and ability to use his laptop anywhere.

Interviewees made strong statements in these regards. One consultant estimated using his laptop "fifteen to eighteen to twenty hours a day"; he uses it to work when he is in his office, in the car, and on the plane. For another consultant, the laptop is omnipresent:

> [At Sigma] you use your laptop all the hours that you are not in a face-to-face informal discussion with a client. Because all the rest: if it is a client presentation, you're using your laptop, if working on your own in the office you're working on the laptop because you're developing things, you're responding to emails, and whatever, if you're with a team you're actually projecting something on the screen and working through it and making modifications. If you're at home and after hours, after the kids go to sleep when you're working, you're working on your laptop. So it is omnipresent. (Nick)

This quote illustrates well that the laptop is used all the time. This description is representative of all consultants. It synthesizes the different aspects of laptop usage, the need to use it for almost all tasks, its use in many locations and its use all the time.

Work becomes dependent on the laptop and the absence of the laptop disrupts work, mobility and constrains consultants' habits. As the laptop facilitates consulting by increasing efficiency and productivity, consultants appreciate its benefits, get used to it and take it for-granted. The laptop becomes part of their work practices and they become dependent on it. It is difficult to think of a consultant's work being performed without the use of any computer. Consultants have so much work and feel so much stress that it would disturb their work regardless of their location. Consultants identify

themselves with their work and use an over-exaggeration to convey the laptop's importance for their work and consequently for them. They express this idea dramatically, one consultant said the laptop is "absolutely indispensable (…) without that you die" and "you cannot live [without a laptop]". It is their way of saying that the laptop is an absolute necessity for work. So both its absence and downtime become problematic, "When a device breaks down or when a network connection fails, work is disrupted and serious business losses can incur" creating delays, and disrupting email communication, among others. Emails cannot be sent; work cannot be performed. "We've become so dependent on it, that we feel that [their absence is] a major, interruption to our business. (…) You are dependent on them in (…) many ways" (Sam). These two quotes refer to all the tasks that consultants perform using a laptop and the fact that they use the laptop independently of where they are and in support of their mobility. They express a feeling shared by consultants.

The laptop constitutes a gateway to the internet and a library as it provides consultants with a range of resources and information, both internal and external to Sigma. This serves the early stage of projects which often involve desk-research requiring access to distant libraries and online directories which are either not available physically or cannot be accessed easily in their physical form and/or location.

> [With technology you] have access to information which you did not have before (…), before when we used to do a global benchmarking exercise or so on, the consultants had to travel to public libraries in specific countries, to clients in specific countries, now you don't have to do that, everything is available on the internet, you can exchange a lot of information via email, you don't have to wait for DHL or Fedex to [deliver] you documents [from] companies that you have contacted. (Kam)

In this quote, Kam further describes the role of the connected laptop to access remote information in distant libraries and download what he needs instead of travelling from

country to country to research public libraries. The laptop, as a repository, also gives consultants better access to internal knowledge which allows consultants to leverage common aspects of previous projects and reports. Consultants also use laptops to access online information and manage project logistics (scheduling and reservations).

### 4.3.2 Mobile phone service (through phone or smartphone)

In an attempt to separate the ICTs from their use, this subsection focuses on the mobile phone services, calls and text messages. The next subsection focuses on the email performed via the connectivity afforded by both the laptop and the BlackBerry.

The firm provides all consultants with a business mobile line as soon as they get staffed on their first project so that they are connected and reachable wherever they are. Some consultants use the term 'business mobile', others 'business line' or 'business SIM card'; a few clarified, however, that when the line is provided, the company does not provide the handset.

The mobile phone service is used with a mobile phone or a smartphone. During interviews consultants referred to it as 'mobile phone', 'mobile line' or 'SIM' – an abbreviation for SIM card[14]. The functionality of this service is independent from hardware. It allows the consultant to remain connected (two-way reachability) while on the move and to communicate instantly through calls or text messages, independently of location within the service area. It provides much better connectivity than the laptop because there is a worldwide mobile phone network infrastructure.

Mobile phone and smartphones are the second most important ICTs for consultants. They use them extensively, every day. These devices are the means by which they

[14] It stores the service-subscriber identification and must be inserted in the mobile phone to use the mobile phone services offered by the service provider.

communicate across distance. These ICTs are described from the perspective of functionalities in opposition to the laptop description which focussed on the device. Given the high degree of integration between the devices and the services that their connectivity enables, it is difficult to disentangle the ICTs and their use.

Consultants that have multiple devices typically allocate each one to a type of communication – personal or business, which becomes the label used to refer to the device. Due to their frequent travel and absences from their home country, they also need to remain connected for personal reasons. Consequently, these devices are necessary to enable communication for work and non-work, for establishing new and maintaining old interactions. Mobile phone service (via phone or smartphone) and email (via laptop or smartphone) are the main means of communication for consultants. Consultants have become dependent on the use of the mobile line and its absence disrupts work, since work requires a lot of communication.

Consultants own their personal lines, they pay for their subscription and use them for personal communication to remain connected with their friends and family and be able to call and be reached wherever they are (independently of the availability of a fixed line). Business lines are SIM cards provided by and paid for by the firm. This line is mainly intended for communications with business stakeholders but allows a certain quota of personal communications.

> All SIM cards [except for the personal] are provided by the firm. We have some expense policies on how much we can have personal calls that are also covered by the firm. So the firm also caters for personal calls while we are travelling, up to a certain amount. (Ron)

In this quote, the consultant explains an expense policy that provides a budget for personal calls on the business line. This mainly facilitates the communication of

consultants that prefer to use a single line for business and personal. It also recognizes that consultants need to make personal calls to their family and friends while on a business trip.

### 4.3.3 Email via laptop or smartphone

Email[15] is a cross-platform application which is accessible through the mobile phone[16], the BlackBerry or other smartphone, the laptop as well as Webmail (also referred to as web-based email), a web application that allows users to use their email via any web-browser on any device. A corporate email account is created for each new recruit. Email is an important means of communication for consultants. They use it extensively for their work and it represents an important part of the written communication, any exchange of documents across locations is done by email. Email is preferred to phone calls in many instances unless the communication is urgent. The email is said to be one of the most used applications.

Email provides benefits such as time efficiency and productivity; it saves time and phone calls. The improvements in email technology have increased the benefits of using email in terms of speed, flexibility in sending and receiving large documents, and accessibility through different interfaces. For Kam, efficiency is important:

> Having email for me is very good because it also saves you a lot of time and phone calls to other people. (Kam)

What this consultant is referring to is not the cost of the phone call but the time and energy associated with it. The consultant prefers communicating by email because the

[15] During interviews, email was referred to as such by consultants, but they also often referred to it as BlackBerry, meaning email sent/received on the BlackBerry platform. So 'BlackBerry' not only refers to hardware, but it also refers to the push email functionalities that are available using the BlackBerry.

[16] None of the respondents mentioned using a mobile phone to access their email, the consultants who were keen to have a mobile access to their email have all adopted BlackBerry smartphones.

communication is to the point, there is no need to chit-chat, message transmission is fast, flexible and convenient and email allows the instigator and the recipient to communicate at the time that suits them best. Consultants often send emails at unexpected times, such as 2am. This obfuscates the need to schedule a call that takes-up time and fits the schedule of both parties. Email is enabling, because time is an important resource.

#### 4.3.4 Smartphones

The BlackBerry facilitates work-related email communications while reducing the need to carry a laptop and ensuring an internet connection. For convenience, many consultants prefer using the BlackBerry over the laptop for email – it is a smaller device, easier to carry around, and has a better connectivity since it connects to the internet via the phone network. The BlackBerry allows for an increased level of accessibility and enables immediacy in dealing with received emails.

Sigma provides a BlackBerry to all seniors in the consultant career path. Those who prefer to use a different smartphone are allowed to, but need to acquire the handset themselves. Indeed the interest in the BlackBerry mainly derives from push-mail, an email service in which new messages are automatically transferred to the email client, in this context the BlackBerry. Some consultants opt for another smartphone and configure it with Sigma's corporate email.

However, it is not clear where seniority starts. Some say the BlackBerry is provided to all consultants starting at the Senior Project Leader level, others say that it is only provided at the Senior Associate level and some say they do not know. However, those who purchase it themselves can use it independently of their level. Some consider it to be required for work and others say it is not. Some consultants state that using a

smartphone is not required, but expected. For example one consultant mentioned that one of the Managers with whom he works often, jokes with him about the fact that he does not have a BlackBerry and tells him "Be careful not to travel without the BlackBerry", but he does not feel this represents a pressure. Another senior individual says:

> BlackBerry? Hmm… it's required to be my own choice. It's becoming standard, a standard thing for Managers, Senior Associates and Senior Project Leaders and. All the seniors in the firm carry a BlackBerry. (Chris)

For Chris, although there is no formal policy requiring seniors to have a BlackBerry, the firm appreciates seniors to have one. Since more and more seniors carry a BlackBerry, it becomes an expectation that others do the same so they do not exclude themselves from the management group.

The BlackBerry is perceived to increase the benefits of email and to be a very useful tool for work. For another consultant, it replaces his laptop at times and allows him to access certain functions such as his contacts when he wants to call someone or send an email. It also gives him access to his calendar which allows him to manage his time. He can even access and read files, so he can always find information he needs during a meeting. Pete also explains how the BlackBerry facilitates the daily activities.

> [The BlackBerry] eases a lot of things like … access to email without being in the office so a lot of time I spend on airports or leisure time, on trains you are always connected if you need to know if you received an important email or if you need to respond to certain email it helps a lot so you're not stressed out to go back to the office to check your email. (Pete)

In this quote, Pete explains his use of the BlackBerry which is in line with the use of many others. The BlackBerry allows him to always be able to use his email. For urgent matters, such as somebody sending an email inquiring about a deadline, he can respond to him/her quickly and this is something he values. This is possible because his

BlackBerry gives him access to his calendar which is synchronized with his laptop and thus he always has a visibility on what needs to be done. This allows him to expedite part of his work while on the move.

The BlackBerry also increases productivity because it offers new opportunities in relation to work. For instance, always being connected allows the consultant to manage incoming email in new ways; they can reply to emails before arriving to the office in the morning or reactively as the emails come in, avoiding any bottleneck. Any decisions that have to be made are made seamlessly in this manner.

The smartphone represents possibilities of flexible use as well as new sources of productivity. Consultants demonstrate that they benefit from this flexibility, as it provides them with new ways of communication. Some consultants send their emails late at night, others respond to their email on the go, while waiting for someone or something. Kam explains how he benefits from the BlackBerry to respond to emails while waiting:

> We have many small emails that you have to respond to, (…) hundred plus emails, (…) small email like emails where you need to respond by 'yes' or 'no', 'maybe' or 'yes I would do this' (…), for that I use [my BlackBerry], I like the way I do it, because I'm in the car (…), sometimes when I'm even at lunch or when I'm waiting for something, I do it, when I'm standing I do it. When I come to the office, I actually gain a few hours in a way, because if you sit and do this in a row, it takes time. When I do it every time, I have two three minutes empty, it actually kills a lot of those emails. (Kam)

In this quote, Kam describes a common practice among consultants to use their BlackBerry to respond to their emails, during short periods of time that would otherwise be lost; a practice that increases efficiency. Consultants refer to this time as 'slack time'. The BlackBerry is very useful in such situations because time is one of the most precious resources of consultants. So while waiting, whether in a restaurant, in a traffic-jam or for a meeting, consultants use their BlackBerry to deal with the easy emails.

### 4.3.5 Concluding remarks on ICTs

This section presents the ICTs used by consultants at Sigma. This description exposed which ICTs are used in the organization, the purposes for which they are used, and how they are used to support work practices and mobility. These ICTs are now necessary for work and their use is institutionalized at Sigma.

## 4.4 WORK INTERACTIONS OF CONSULTANTS

It is within the context described in the previous sections that consultants work. This section examines the interactions of consultants. It begins by describing work-related interactions with colleagues including a discussion of their intensity and some of their consequences in subsection 4.4.1, subsection 4.4.2 describes work-related interactions with clients focussing on the typical sequence of interactions on a consulting project. The interactions encompass all forms of interactions mediated by ICTs (e-mail, phone calls, text messages) these are discussed in subsections 4.4.3. The subsection 4.4.4 concludes on work interactions.

### 4.4.1 Interacting with colleagues and team-members

This section describes the work interactions that are associated with the consulting work in the case observed with a focus on the work-related interactions of the consultant with both colleagues and team-members. Work interactions occur when two consultants interact, one solicits the other or they work together. Interactions can occur face-to-face during a meeting, during a phone call or a conference call. They can take place by email or through a written report. Work interactions include everything that is intended for another person or that is performed by more than one person in relation to work and the conduct of the consulting project.

When in the same location, consultants interact with each other in-person. This is often the case for junior consultants, who work on a single project, and spend most of their time working together from the client site or the local office and the remainder of the week in their home office. In contrast to the junior-level consultants, seniors work on multiple projects. Thus, email and phone interactions are as important as face-to-face interactions. Interactions between senior-level and junior-level consultants and among senior-level consultants occur more frequently over the phone and by email since senior-level consultants are allocated to multiple projects (in different locations) and need to interact while on travel.

Other important interactions with team members are described below in Project Interactions (refer to section 4.4.2) to avoid repetitions and maintain – in the description – the coherence of a project sequence.

Seniors schedule conference calls with their project teams and with their practice members, these calls take place in a structured manner and respect hierarchy. They proceed in the same manner as meetings.

> Whenever we are in a conference call, there's a process: the most senior speaks, we listen, we accept whatever feedback he has, he asks if anyone has any feedback or any comments, if we have a concern we raise it, he listens to us. (Mark)

Mark describes the process by which conference calls are conducted, a very hierarchical and systematic process that allows for efficient meetings. This is the process by which most conference calls and team meetings are conducted.

Consultants often work together in the same location. During business hours, they work face-to-face when at the client's premises. In the afternoon and evenings, when they leave the client's premises, they work together in the local Sigma offices, holding

project meetings and updates. The time they spend together is necessary because consultants work in teams to deliver value to the client. When they are in their local offices, they work in an open space area or meet in team rooms. They usually appreciate these workspaces as they facilitate working together and work interactions between team-members. In order to spend time with their team, especially when the team is large, Senior Associates need to go back and forth from one project and location to the other.

> I work a lot on client premises as well. I (…) visit the [team on client premises …]. I move from place to place [and] I come back to [my base office] during the day. (Ted)

Ted manages a very large project in the same city as his home office. His project team is organized in multiple smaller units working on different modules of the project. During his day he moves from one team to the other to work with each one of them, remain updated on module development and provide feedback. He comes back to his own office when he needs to.

In addition to working face-to-face, Chris expresses a need to maintain some form of a traditional organization. He particularly appreciates this when he goes to the Middle-East headquarters.

> The [Beirut office] is kind of the headquarter (…) the only difference is that you tend to meet people you don't usually meet. So it's good for networking with all the people in the firm. You also get a chance to meet people outside the firm – people in the Lebanese market, understand what's happening with the clients, etc. So it's a nice environment that I personally use for mostly administrative and institutional activities. (Chris)

In the above quote, Chris describes the traditional organization with its structures. He clearly appreciates it. He likes the environment, meeting with people and remaining informed. He enjoys meeting new people, developing new business relations and

maintaining the relational aspect of his work. Chris also enjoys gaining insight from the market in general and the clients in particular. Spending time in this office is important for him, because it is the only predictable location. Consultants travel around and still feel connected to 'headquarters'. This illustrates how the structure of 'headquarter' is maintained despite the non-traditional mode of operation in the organization. Consultants still relate to the headquarters because it allows them to maintain and build work relationships, both within and outside of the organization.

Consultants also have other responsibilities at Sigma, many of these tasks require ICT-mediated interactions (discussed below).

### Work interactions are intense, frequent and fast

Work interactions can be observed in most of the tasks relating to the conduct of the project which creates a certain frequency in interactions. *Frequency* is also confirmed by the number of daily interactions reported by consultants illustrating the intensity of the work. There seems to be a high concentration of tasks in short periods of time. This highlights time as an important resource in the organization and often a primary concern for management. Some consultants have mentioned that they receive more than 100 emails a day. Ted clarifies:

> I receive more than a hundred emails per day. (…) 40-50 emails are from the team. (Ted)

Ted a Senior Associate is managing a project of more than 50 consultants and receives daily 40 to 50 emails from consultants on his team. He receives and deals with these emails wherever he is and at any time during the day; depending on where he is, he either uses his laptop or his BlackBerry to read and answer them. Often, these emails interrupt the work that he is performing. The number of emails, the pressure to deal with

them quickly, and their level of urgency add to his workload, he likes to respond to emails immediately, because he does not like to represent a bottleneck for other people's work. Dealing with them promptly prevents work delays and possible project complications. Managing these interactions, in this manner, allows him to deal with them seamlessly.

Immediacy is another characteristic of interactions. The necessity to deal with a request immediately adds pressure on consultants as it often leads to work that will take up of their time (refer to section 4.4.1).

The *urgency of requests* is an important aspect of consulting projects because projects typically have a tight schedule, clients often lag in providing consultants the information they need, unexpected developments arise and as a result the pressure builds towards deadlines. In these situations, replying quickly is necessary and the BlackBerry helps to respond quickly.

> So for urgent matters let's say somebody sending an email (…) inquiring about something you can respond to him very quickly (…). You have your calendar there with you all the time synchronized with (…) your laptop. So it really does allow you to remain connected everywhere. (Sam)

In this quote, a common situation is described; a colleague has an inquiry and needs a quick response. Sam explains that his capacity to respond quickly is enabled because he is connected wherever he is. His BlackBerry allows him to have access to the information he needs including his emails, his contacts and his calendar at all times.

People in this environment respond to each others' interactions quickly because decisions are fast and if they do not react quickly, decisions are made and their opinion is not taken into account. They can agree in a few minutes on issues as diverse as a trip date, a project duration or a team assignment. Ron explains:

> As you become in a more senior position, decisions are made quickly, so an email is sent 'what do you think guys?', two of the guys respond, you don't have a BlackBerry, you don't respond, the decision is taken. You can't come the following day and tell them: yeah, but I didn't check my email, I don't think this is the right decision, etc. (…) sometime the decision is going to impact you. For example, you're gonna finish the project in 10 weeks or 8 weeks? If you know that it will take 10 weeks and everyone said it is doable in 8 weeks because the firm is trying to sell it to the client, it is sold in 8, you step in to execute in 8 and you can't. (Ron)

In the situation above, Ron is illustrating why interactions must be *fast*. He describes a situation that requires consultants to respond quickly. If they do not respond quickly to an email then the other people that received the same email will make decisions without them and their opinion will be lost, despite the impact of this decision on their work. In the case described above, the email is about deciding on the duration of a project being sold to a client. Underestimating the time necessary for its completion by two weeks puts additional work pressure on the consultant that will be managing this project and on the team that must execute it.

This need to respond quickly pushes consultants to respond to emails as they come in wherever they are to avoid emails piling up. Many consultants manage to do that thanks to their BlackBerry. Nick explains:

> Having a BlackBerry increases my productivity because I am able to respond to emails as they come in. (Nick)

Nick is concerned about *productivity*, because at Sigma the culture is work-oriented and consultants strive to finish as much of their work as possible using the least amount of resources, and time is a precious resource. The following quote further exemplifies the sense of *immediacy*:

> From a work perspective you would want everything to be done right at the same instance and managed at the right time. (Sam)

Here Sam expresses the pressure and stress of the work environment by explaining how the work culture and practices require and push the consultant to deal with any task immediately at the 'same instance' that it is formulated and that this represents the right time. Thus, there is a sense of urgency that accompanies any task to be done.

For consultants, interacting by emails and phone calls saves a lot of time and increases their *efficiency*. They can send emails at their convenience, for instance many write emails while they are on a plane and send them out as soon as it lands. Mike a Senior Associate explains:

> They send an email at 10pm saying you know I need your input on this by 8am and I read it and send an input by email. They give me a call they say I met the client today, I have this issue, what do you think we need to do, I respond to that. (Mike)

Consultants sometimes work in different time zones and often need to obtain input from others. They send an email late at night and expect to obtain a response by the time they wake-up the next morning.

Consultants work under pressure and this pressure is demonstrated in the large number of interactions and the speed in which they have to deal with them. Frequency and speed contribute to work intensity. Each interaction has a duration and consultants must spend time to reflect for each interaction. Often, significant amounts of work are associated with each interaction as it can be a request to perform an analysis, to edit a report, to follow-up with a client, or to provide an update on a project to list just a few examples. Furthermore, the interaction itself, can take-up immediate work time in the case of meetings, phone calls and conference calls. Consultants tend to prefer to deal with them as they come in. Emails can simply be sent for information purposes, but in general require a response. This response may be a simple 'yes' or 'no' answer, but it

may also involve some work that was requested or reveal problems on a project, such as delays or unexpected developments. Emails may also have a report attached requiring reading, editing and validating.

### Work interactions cause work interruptions

Additionally, numerous incoming communication notifications; whether calls or emails, disrupt the work of consultants and distracts them from their current tasks because they feel pressured to react. This is a concern because while working they "need some private time [to be able to] work". They need to concentrate for long stretches of time to think, develop solutions and write project reports; whereas responding to these interactions also entails work and requires time.

Another consultant described that the BlackBerry disrupts both the approach to work and the rhythm of work because the stretches of time available for concentrating become shorter. Constant accessibility is not positive for consultants, and they are not happy being accessible all the time.

With the caller ID service (a service that allows the recipient to see the number of the caller) the consultant knows who the caller is. Many consultants reported feeling compelled to take the call, which usually distracts them from their current task.

> The phone is also a disruptive tool, because sometimes when the phone rings and with the technology of showing you who's calling, sometimes you know you're compelled to take the call, which means that again you're distracted from maybe a meeting or from a…, but you know what you're doing is you're prioritizing in your hand, which is more important. (Dave)

Sometimes consultants end-up sending so many emails, with such a disruptive effect, that it can be considered abuse.

> You have some people abusing, for example BlackBerry, and firing messages every 5 seconds. And you keep receiving orders from different people and giving orders I think people need to pace themselves. (Chris)

Consultants need to interact instantaneously and because they possess ICTs that allow them to do so, some consultants tend to send emails without a second thought. The multitude of emails that some people send gives the impression that they interact and distribute work to others more than working themselves. Consultants also report that when they receive too many emails, they cannot work appropriately because they are always being interrupted and do not have any private time for focussed concentration. Interactions become a cause of work interruption and their intensity is disruptive because nothing regulates the timing of these interruptions.

Being compelled to answer emails on the BlackBerry has an impact on the other people working with the consultant, when they get distracted, their work gets disrupted, and others notice. For instance during a meeting, everyone loses focus.

> In meetings if I am bored I read my emails (… sometimes) in meetings with the board I read my emails - very frequent checking, it's bad but I can't resist it. (…) The beep is enabled and indicates that an email has arrived; I am tempted to read it immediately which I do unless I am in a meeting or have someone in my office because it wouldn't be polite. I try to be professional. (Ted)

Ted, a senior consultant, wants to remain professional and polite, yet make the most out of his time, a valuable resource. Sometimes he gets bored in important meetings, like board meetings, because he is focussed on his short term tasks, such as the projects he is managing. In turn, he feels that meetings focussing on long term matters are of less interest. Thus, it is difficult for Ted to resist checking his emails and answering them as this would slow down the work of his teams. This represents a contradiction since consultants are professionals and want to be perceived as such. Throughout the years they spend at Sigma, consultants develop important interpersonal skills that allow them

to deal with colleagues at all levels in the organization, to deal with clients, to work under pressure and to adapt to different cultures. High levels of interpersonal skills are required to reach senior levels in the consultant career path. Using a BlackBerry in a board meeting shows that even work etiquette is blurring with the introduction of the BlackBerry. Constant visibility on their emails allows consultants to constantly evaluate and change their priorities. In the mind of consultants, constant questioning takes place: Should I complete my current task? Should I answer this email? Should I take this call?

Similarly responding to emails on the fly without reserving time for reflection creates an acceleration of work that can deteriorate its quality; the time for reflection becomes limited and decision speed increases at the expense of quality:

> No, I don't have a BlackBerry (…) because I work and people who have BlackBerry do not work, they tend to just distribute work. And they tend not to focus; they tend to react very quickly to something that they get. In the nature of our work, you have to look at documents, you have to look at analyses, you have to read carefully emails, otherwise you're going to make mistakes. (…) Also the BlackBerry is creating (…) disruptions, so sometimes you're in an important meeting and you have those people with a BlackBerry, they tend to become distracted which means they're not focused on the discussion at hand. (Dave)

In this quote, Dave presents his perception. He believes that having a device prevents work and encourages work distribution, due to the numerous interruptions and the ease of communicating with others. For him, work requires periods of concentration and reflection to ensure quality work without mistakes.

Work interactions across locations are mediated by ICTs. ICTs are necessary, yet insufficient, because face-to-face interactions are essential. Furthermore, when ICTs are used excessively they create more interactions and, in turn, create more disruptions.

### 4.4.2 Interacting with clients

This section focuses on interactions with the client, because they have their own specificity; the consulting project serves the client and entails many tasks that are performed with the client or that require client input. Client satisfaction in the consulting industry is highly dependent on the quality of the interaction with the consulting team. This means that an essential part of conducting the project is about interacting with the client in a constructive way. Keeping the client happy is critical.

The importance of client interactions is emphasized in a subsequent explanation of why consultants need to remain reachable by clients.

The description of interactions with clients throughout the consulting project illustrates the frequency, regularity and the predictability of these interactions. Interactions with clients are part of Sigma's work practices. Frequency of interaction can vary depending on the nature of the project, its phase, or the client; but no project can be performed without these interactions.

Clients are important to any organization and, in this specific case, interactions with clients are very important. Working directly with clients is important, but when not possible, interactions and specifically the reachability of consultants is enabled by location-spanning ICTs as discussed further below.

#### Project interactions

The following paragraphs describe the sequence of interactions consultants have with clients and highlight that these interactions are the most important and that they should be ideally conducted in proximity to the client. The **consulting work referred to as 'the project' is conducted by a team of consultants** for a client. Consulting projects involve a chain of tasks which lead to a long cycle of interactions with clients. These

range from a pre-sale presentation to a post-project implementation report and even, in some cases, a proposal for a project extension.

Meetings and interactions among team-members and with the client are frequent. Working as a team to complete a consulting mission, working with colleagues in different locations, and working on multiple projects all require significant communication and coordination. This is further illustrated with the following quote which reinforces the idea that almost any task consultants perform involves work interactions.

> There is a wide variety [of tasks] but they are mostly around (…) collecting information, validating information, meeting, sharing insights. (Nick)

While describing the tasks associated with his work, Nick highlights the extent to which work involves interacting with others as part of almost every task consultants perform. Here Nick is referring to the tasks involved in the conduct of the consulting project.

When selling a new assignment, interactions typically start with a meeting that allows the selling team to scope and understand the requirements from the client, then the proposal is prepared and presented, negotiations and contract signature may follow. Once the team is assigned, the bulk of the work starts. Consultants undertake extensive interviews and data collection from internal and external sources, including the client's organization in order to have a good understanding of the client's operations with the purpose of solving the identified problem. This often involves interviewing individuals, asking them to provide needed information, preparing reports and following up on these requests. Consultants also work together and with their clients to validate the collected information, making sure that it meets their needs. In parallel to data collection and preliminary analysis, consultants meet to develop a work strategy and plan the project,

define deliverables and allocate tasks. They also hold work sessions with clients and team meetings to discuss client priorities, plan the project, agree on outstanding work, brainstorm and develop ideas, test hypotheses, as well as follow-up on the project and steer it. As consultants perform their analyses and start developing their recommendations, team leaders remain in permanent contact with their client counterparts to discuss preliminary findings, test hypotheses, and evaluate possible options in order to identify the solution that best suits the client. Following this, the team develops the recommendations in a document for presentation to the client. Sometimes the project does not end at this stage and the client signs a project extension requesting assistance in the implementation of the solution; this extends the involvement of the team and intensifies interactions even further because implementation requires more communication, interaction and coordination. Implementation is long term, requires careful change management and consequently daily involvement. The consultants work with the client throughout the project, creating a long cycle of interactions. At all times, all consultants involved exchange formal and informal emails, and hold discussions or meetings to share ideas and insight on the project and its development.

The project manager and the Senior Associate leading the project have continuous visibility on project progress through updates, meetings with the team and with clients, document reviews and validations. This allows them to provide consultants with feedback on their work and on the project progress. The standards of operations are high, and the assessment is either good or not good. When the work of a consultant is sub-standard, the project manager is discouraged from giving him/her much responsibility on future tasks. In future projects, projects managers become reluctant to take the individual on the team since he/she represents a cost, yet does not produce

adequately. This represents a continuous evaluation of the performance of consultants working on the project. Finally, this performance feeds into the yearly appraisal. Since producing quality work requires intensity, hard work and long hours,.

These are only some of the tasks involved in the consulting project, but they illustrate the extent to which work interactions are important at all stages of the consulting project.

The following quote provides a clear description of how consultants and clients work together. This type of quote has been observed many times during the interviews, it shows that a long cycle of interactions with clients, ranging from the client soliciting Sigma to solution implementation, is required.

> The client has a problem, asks us to help him solve the problem, so we have strong interaction with the clients, have on-going meetings, interviews, [we then] come up with a proposed solution which we'll then put into a presentation and deliver to the client, (…) but there is also increasingly, clients that don't just want the consultants to give them a good solution but also want them to help in implementing. (Kevin)

In this quote, the consultant highlights problem solving, the strong interaction and his level of involvement with the client. In this particular example, the client requested help in solving a problem; the consultant describes the routine set of tasks required with the client in such a situation and highlights the frequency of interactions required throughout the project. Interactions range from the time the client states needing help to the end of implementation. This illustrates the trust the client has in Sigma.

The following quote illustrates the requirement for senior consultants to work face-to-face with colleagues and clients as they have many responsibilities and consequently requiring attending many meetings. Kevin explains:

> You always have (…) proposal presentations, you have internal or external meetings and it is more than likely that soon [you will] have more than one project to manage and then you'll be travelling multiple times in a week. (Kevin)

Kevin is referring to his different responsibilities. Commercial responsibilities require meeting existing and potential clients and presenting proposals for new projects; internal meetings are necessary for Sigma's management and the completion of tasks related to internal development responsibilities.

### 4.4.3 Work interactions mediated by ICTs

These interactions with clients indicate how important they are for the conduct of the consulting project. Consultants favour physical proximity to clients in order to have these interactions face-to-face. However consultants travel frequently and regularly, senior consultants manage multiple projects and have less time to spend at each client's site. They need to establish and maintain their connections to perform their work and must always remain reachable by their clients to be able to interact with them. While the consultant is in one client location, the other clients must be able to reach him/her, communicate with him/her, ask him/her questions and provide him/her with information. They remain reachable to clients by using location-spanning ICTs and become highly dependent on their ICTs. Interaction maintenance is ensured through the mobile phone and email. In some instances ICT-mediated interactions are considered more efficient and are preferred.

The client can send the consultants an email or call them on their mobile phone without knowing where they are. During the interviews, many consultants stressed the importance of having a mobile phone, due to the frequent interactions consulting work requires, Kevin clarifies that having a mobile phone is a necessary tool:

> I don't think there is a legal obligation in your contract that you have to have a mobile phone; however you wouldn't be able to work without a mobile phone. You constantly need to talk with people that are not where you are. And public phones are not available in [some cities] and on the other hand you work very closely with clients and you want to be accessible when ***they*** want to call (…). You have to be very accessible. (Kevin)

With the client being the priority, Kevin explains that his work contract does not require him to have a mobile phone, but the nature of the work does as it involves a chain of interactions with clients and their staff. Some have lines that they use locally in the different countries where they work. One consultant explains that he never screens his calls because somebody calling him is somebody who needs him, especially when it is a client. Another consultant explains that he has different numbers so that his clients are not required to pay a long distance communication fee when they want to talk to him. Another goes further and even provides his personal mobile number:

> I leave my US number [which is a personal number] on my email signature because some people would want to call from the US, but it is not required for work.

This consultant has different personal and business mobile numbers, but to remain reachable and allow clients to access him easily, he includes one of his personal mobile numbers in his email signature. By doing so, a personal number becomes publicly disseminated, which illustrates how important it is for him to remain reachable to clients.

Yet, others believe that having a *single device* remains the most effective way for others to reach them. This is motivated by the desire to keep the clients' life simple and avoid cluttering their mind with multiple numbers leading to uncertainty about which one to use. Giving many numbers to the client can stress them, and they can worry about not being able to reach the consultant: 'which number should I use?', 'do I need to make three international calls before I reach him?', 'will I be able to put a hand on him?' Etc.

Giving a single number to the client is easier for the client, and makes good business sense independently of the impact it has on the consultant.

> But I don't see a lot of convenience in having multiple telephone numbers to be honest. It's more of a hassle, then to lose them, we tend to lose telephone numbers and get mixed up and people don't know how to reach you. Once there's one number [they know how to reach you]. (Chris)

For Chris, the purpose is simple, be able to interact with others and be reachable to clients, his solution was to adopt a single device, a BlackBerry. This approach, he says, is the only way of being seamlessly reachable by clients wherever he is without having them wonder about which number to use. He manages all his calls on one line, all his clients, friends and colleagues know this number. To facilitate everyone's life further, he even tells them that if they do not want to make a long distance call to talk to him, they can simply send him a text message and he calls back immediately.

Work interactions cannot be maintained without the **mobile phone** which allows constant reachability and immediate interaction when needed. They all carry at least[17] one mobile phone or a smartphone. Mike like some others has multiple devices to ensure that he is always reachable.

> There are two that are with me most of the time which are the BlackBerry and the Lebanese phone. Lebanese because I am based in Beirut and a lot of people tend to call me on this number, and UAE because it is the BlackBerry and also I tend to give this number to most of my clients. (Mike)

Mike has three business devices, one BlackBerry and two mobile phones as well as two personal mobile phones. He describes how he uses these different devices to ensure that people can find him when they need him. He keeps two with him all the time, the BlackBerry and the mobile phone of the country in which he lives. He manages the others on an as needed basis. In this quote, Mike does not refer to the third mobile

[17] The majority of respondents have more than one.

phone which he also carries with him to accommodate his clients in a third location. Mike's explanation illustrates the complexity of phone management performed to ensure a high level of reachability. The mobile phone also allows team managers to reach consultants on their teams without having to figure out where they are.

At Sigma the mobile phone is used all the time and everywhere. Calling is used by consultants for instant communication and specifically for urgent and important communications. This occurs when they cannot wait for an answer by email or when the issue is delicate and complex and they do not want to address it in writing, by email. For example, Pete tries to respect the time of consultants on his team and does not call them often, however, he finds the mobile line very useful and whenever he has something urgent or important he calls them. He could be, for example, in a meeting with a client and needs a project update. He could call a consultant to obtain an immediate response. So although consultants answer their emails very quickly, calling remains the best for immediate situations. Dave also shared his experience on this issue:

> The mobile … to be able to (…) get in touch with people … at short notice or …, so people get in touch with me on the go when I'm travelling, or when I'm, (…) on the road or something, or in case (…) I need to be reached for a question or for a reply to a client or something like that. (Dave)

This quote illustrates the way consultants work and use the mobile line to have immediate access to information that is with a team-member. The mobile line bridges locations allowing consultants to feel in control despite distance. It creates a continuity that simulates a location where consultants are working together. This is reinforced by the aspect of instantaneous communications, "[The mobile] enables you to remain on top of your business at all times". This quote illustrates that being connected through the mobile phone network, being a phone call away, allows consultants to always feel in control of their on-going projects even in distant locations. In this quote, the consultant

expresses that being connected, allows him to be informed if there is any unpredictable situation and to react accordingly in the shortest time. Reachability somewhat compensates for absence and for distance. Consultants describe the mobile line as the second tool (the first was the laptop) necessary for their work

In some instances, such as when they are on a plane, in an underground parking garage or in an elevator, consultants have no mobile service coverage, to compensate for this lack of connectivity many use the missed-call alert[18] referred to at Sigma as a business call alert. This service is provided by mobile phone service providers and sends to the subscriber a text message with the number that could not reach him/her[19]. By referring to it as 'business call alert' consultants give the connotation of vigilance and a need to react quickly, with urgency. The "missed-call" or "business call alert" becomes a substitute to connectivity. In his own words, Sam describes its utility:

> Let's say you're on a flight, and your phone is closed, and you receive calls when you're on the flight so (…) you get (…) SMS messages with (…) the number that tried to call you. So basically you don't lose track of the call that you receive while you're on the flight. We refer to it as business call alert. (…) Most of the people that contact you they know that you have missed-call alert so probably even if you do switch it off you probably need to call them back again. (Sam)

Sam says this is particularly useful while on a flight – a frequent condition for consultants. After disembarking from the plane, connectivity is re-established and the consultant automatically receives a text message with the number that tried to call him/her. The consultant can then call back immediately. This allows him/her to always be aware of the calls he/she received and ensures the fastest possible response time. It was reported that many consultants use the missed-call alert service. This allows them

[18] This service is called Missed Call Alert (MCA) by mobile line providers. While Sigma employees have renamed MCA a business call alert, for mobile service providers business call alert actually refers to another service, to which Sigma does not subscribe.
[19] Because the mobile phone was turned off or because the subscriber had no network coverage.

to create a link or a bridge between interruptions in their connectivity, thus, creating continuity of service. This redefines the boundary of work to include locations that used to be excluded due to technical limitations.

For the purposes of facilitating work and its management, written communication is best supported by **email** on a smartphone because it allows them to receive and respond to their emails instantaneously regardless of their location. Email supports fast, asynchronous written communication across locations. This device allows consultants to always be connected and informed without worrying about connecting to a network while on the move. When consultants become accustomed to the smartphone, it becomes a necessity for them. Chris' comment is a good representation of how many consultants using a BlackBerry, feel about it.

> Before having a BlackBerry I didn't see the need for it. After having a BlackBerry I don't know how my life was before it. I don't know how I could manage without it. (Chris)

Since they are always on the move, consultants do not have a fixed office, to compensate they use ICTs to bridge the distance. Mobility is not possible without ICTs and it is the availability of ICTs that allows place to become secondary. Consequently Sigma provides its consultants with the ability to connect to a **local internet service provider (ISP**) through dialup, wherever they are in the world as a backup solution to prevent consultants from becoming isolated. Consultants use this option only when they are working in countries with an insufficient technological infrastructure.

Location is not important and has no impact on the work because consultants can still carry-out their work remotely. Work is performed seamlessly across locations and sometimes time zones. ICT-mediated interactions are preferred in many instances because they are more efficient (this was addressed earlier with speed).

> For me it's much easier to send emails at 2am and know that in 5 or 6 hours when I'll wake up I'll receive the answer or have the work done. (Kam)

Kam seems to perceive his work as the main continuity, and his rest time as an interruption. ICT allows him to remain efficient and on top of any situation. He sends **emails** as late as 2am and he knows that he will receive a response by the time he wakes-up. The individuals to whom he sends emails may be in a different time zone, but sometimes they are not – they may also be on-line working very late or very early.

When consultants are away, ICT is the only continuity in their work environment[20]. When the devices break down, they cannot interact with teams and colleagues, they become isolated and their work is disrupted. When Ron is in a distant location, he needs to remain connected to others and continue working as if he is in the same location.

> [Work] is disrupted if the technologies are disrupted, I wouldn't know how they used to consult without laptop and email. Today if you come and tell, me remove the laptop, remove your email and the BlackBerry and do consulting and remove the mobile, I don't know. You have first to be in the same locations. (Ron)

If any of his devices breaks down or if his connectivity is interrupted, he becomes isolated, because he cannot interact with others and must disconnect from what is happening in other locations. The breakdown or absence of ICTs disrupts their work. To convey the importance of connectivity while on the move, consultants become emotional:

> [The laptop is] provided by Sigma, absolutely indispensable (…) without that, you die. Absolutely essential to survive! Very simple: I'm travelling all the time, I cannot have tons of papers, so everything is stored on my laptop. I use email on an on-going basis. One of the main things that consultants do is write presentations. Without the laptop, you cannot function. (Roy)

[20] When they are face-to-face and the technology breaks down they can still do part of their work.

In this statement, Roy summarizes his work experience and his work pressure. In a context in which he travels many times a week to multiple locations, in which he needs to manage projects and teams in multiple countries while working on project reports and presentations, his ICTs are necessary. He highlights the importance of the laptop as a digital resource repository which allows him to write presentations or edit presentations sent to him by one of his teams. Survival is an emotional exaggeration, but this metaphor refers to the work pressure that consultants face, and the pressure they experience in moving-up the ladder of the consultant career path.

Interacting without ICTs is not possible for consultants. The following quote reinforces this idea:

> [Being mobile] you become too dependent on technology because there is not much human interaction that is sustainable, so you have to interact with people over the phone, by email. (Chris)

Here Chris explains that since he travels frequently and often to new destinations, it is difficult for him to maintain interactions with people he knows if he does not use ICTs. He just does not see those people enough. In order to be able to maintain interactions with the people he knows all over the world, he uses and depends on the phone and email.

#### 4.4.4 Concluding remarks on work interactions

The description of all interactions central to the work of a consultant, allowed to draw a number of conclusions with regards to social interactions. The *work interactions with colleagues and team-members* are intense, frequent, fast and necessary for the good conduct of work. Their frequency becomes disruptive because they have no limits, whether in terms of time or location. The most important type of interaction for consultants is *interactions with clients*. Indeed they try to always be reachable by

clients. Also, these interactions have priority over all others and are the only interactions that are not said to be disrupted by others.

The description of work interactions illustrates that they are part of the work practices of this organization; they are regular during one project and repetitive across projects. Indeed consultants have certain interactions to launch a project. Throughout the project they have other interactions that allow them to work together and conduct the project according to requirements. They must have these work interactions with each other because these are formalized work practices and with their clients because Sigma is client focussed and works closely with its clients to solve their business problems.

Consultants prefer face-to-face interactions with their clients, but ICT remains important to establish work relations with colleagues and team-members in distant locations.

### 4.5 WORK LOCATION OF CONSULTANTS

On their journeys, consultants' pass through numerous places, clients' offices, Sigma premises, transportation modes, waiting rooms and lounges as well as hotels, restaurants and other entertainment related spaces. While in such places consultants can elect to work and these places become workspaces.

In terms of work locations, the interviews indicate that there are certain norms in the organization that specify where work should be performed. Many specify that work should take place "with clients", "in the office", "everywhere" with a preference for client locations, but many interviewees do not have preferences: "I don't care", "anywhere". As long as the work is done and project requirements are met, the location is secondary.

The nature of the work to be performed can lead the consultant to choose a specific location to be close to clients, team-members or resources. Working alone versus working with others requires different workspaces. In all cases, policies and practices of Sigma shape the choice of where work must be performed. But the most important work location and the priority location to work remains the client premises.

In their descriptions of workspaces as well as in the photos of workspaces, consultants distinguish places from workspaces by explaining how they negotiate their workspaces and consequently their work boundaries. This aspect is at the core of the research question. Negotiation takes place through the transformation of the place into a workspace. This workspace negotiation is disentangled with the help of a visual analysis. In the descriptions below, consultants describe how they use the laptop, the mobile line and the email all the time and everywhere, because they need to work and be consistently reachable. These ICTs are important for consultants and using them in any location transforms that location into a work location (Greenhill 2002).

This section identifies and describes the work locations of consultants. Subsection 4.5.1 describes the client premises as the priority location for work. Subsection 4.5.2 describes mobility of consultants between workplaces. Subsection 4.5.3 focusses on the negotiation process; subsection 4.5.4 describes how consultants are not free to choose their work locations. Subsection 4.5.5 concludes.

### 4.5.1 Work at the client premises: the priority

The policy at Sigma is for consultants to spend as much time as possible at the client's location. Physical proximity is necessary to facilitate work and develop a good long-lasting relationship with the client. This is mainly resolved by working at the client's, close by in a local office, or in a local hotel. When the client is at work, the practice is to

spend time with the client, when the client has a weekend or is away from work then consultants travel back to their home office. Working at a distance with people one does not know in a new client organization is difficult, especially when projects typically include developing the client's staff by generally working with them or explicitly training or coaching them. A consultant explains,

> Our policy and practices are very clear. Usually when the client is at work you spend time with the client, when the client is on the weekend or is away from work then we want our teams to have as much fun as they want. That's why we send them back to their home offices where they do whatever they want. During workdays, our working team, which is usually Senior Project Leader and below, they're on the client site. (Sam)

This quote describes Sigma's policy for consultants to spend the entire client's work time at the client's and to spend the rest of the time elsewhere. This materializes in consultants working during late afternoons and evenings in Sigma's local office or their hotel room and spending the weekend in their home office.

In the case of junior consultants, they work on a single project and they spend as much time as possible at the clients', four days working between the client location and the local office or their hotel and come back to their home office country where they work one day and then spend their weekend. This goes for the duration of the project; the client changes, but the pattern resumes when they are assigned to another project.

Staring at the Senior Associate position, they distribute their time between different client projects in multiple locations. While at a specific client, they stay with the team, meet and work with the client, then continue the work day with the team until the late hours of the night; then they travel to the next client and do the same. They have more clients to deal with, less time for each, and the relationship becomes more privileged.

Some respondents reported having worked in up to four cities during the four days away. The typical day of a consultant involves more than a single workspace.

> I go to these [… cities] to be with (…) the team deployed at the client. (…) it also happens that we have offices in some of these cities so after I go to the client or in the late hours of the evening I might go to the firm office to do additional things. Or I work out of the hotel if there isn't a firm office in the location. (…) Sometimes if I am here [in Lebanon], I am at home, I work at home. (Nick)

Nick's identification of workspaces is typical and representative of the majority of interviewees.

In a business that involves a lot of interactions, face-to-face interactions with clients remain important, although many interactions occur by email and phone. Consultants explained, in numerous instances, that although work can be performed and facilitated over the phone and by email, nothing is really concluded without a face-to-face meeting with the client, usually at the client's. Nick's comment illustrates this further by describing how projects are signed:

> We're a telephone society, we love mobiles and calls but deals and business are not done until you sit across the table in front of somebody, stare into their eyes and transact the project. (Nick)

Nick explains, from his experience in the consulting industry, that although a lot of interactions take place over the phone and by email, finalizing a contract only happens face-to-face. Senior Associates and Managers personally travel to the client to make sure that this important commercial phase is completed smoothly. Often, clients need last minute clarifications and need to be comforted in their decision. The physical presence of Senior Associates and Managers around the negotiation table is important and demonstrates Sigma's commitment to the success of the deal and the project for the

client. Consultants recognize that the work location and consequently the need to travel are governed by the client:

> Technology [makes it] easier to handle certain things, but the mobility is governed by the client needing to see you (…), the nature of the work [forces you] to be where the client is. (Pete)

While at the client location, consultants also make the most out of being together to work and discuss the project. The more senior consultants, who are allocated on multiple projects, also need to spend time to work with the team, so scheduling is arranged in a way that the whole team spends at least two to three days together.

### 4.5.2 Mobility

Consultants are *mobile* for their work, but a person is one, being mobile in one's work also means being mobile in one's life. Mobility is more than a work requirement as it impacts their lifestyle. It is imposed by the way the organization operates and has implications on the individual. Consequently, consultants are *organized* and always ready to move and many got used to this lifestyle. For example, one consultant has two bags, a personal bag and a work bag that he always carries with him, this allows him to always have access to the most important things he needs.

Another consultant explains that when actions become habits and become repetitive in one's life, the individual gets used to them and they become norms.

> It becomes a norm. It becomes a habit. Early on, if I go back to the early days when I started with Sigma when I had to fly a lot it was something I used to think about in advance, and I used to say okay today I have to fly (…) but as well with time and with facilities that are incorporated into that makes it more relaxing and more practical. (…) I leave to the airport less than an hour before the flight. (Sam)

Sam, who has been working at Sigma for a long time, explains how his feelings toward travel evolved from apprehension to habit. At the beginning he used to think a lot about

it, which indicates that he used to worry about it, about travel logistics, about work logistics and personal logistics involved in travelling and in being away. But this anxiety faded away because he got used to it and because he is assisted by a staff member from Sigma. By travelling frequently, travel became a repetitive action for him. The need to travel became taken-for-granted and it became a norm in his behaviour.

This being said, mobility requires a personal effort from consultants to be able to adapt over time. Consultants explained that to work well, they must be rested both physically and mentally. Travel is a toll on their body, taking a plane many times a week is physically tiring. Its frequency is disruptive for them because it does not allow for the routine necessary to eat well, exercise and stay in shape which has an impact on their general well-being, a pre-requisite for good work. Staying away from their family and friends has a negative mental effect. The need to always adjust to new places and the lack of reference points also causes tiredness. Consultants must work hard, take a plane and be ready to work again upon arrival to destination.

Mobility is so much part of the lifestyle that when asked about where he works when he is not in his home office, one consultant answered “on the plane” and he laughed before adding “or in the other offices”. This statement illustrates that consultants feel that they are always on the plane between two meetings.

The practices at Sigma illustrate that indeed, consultants work everywhere. But responses of respondents also indicate that they expect the more junior consultants assigned to their projects to work everywhere. Many say they do not care where their team-members work as long as the work gets done.

> I don’t care where people work, I don’t care when people work. All I care about is that they deliver what we agreed and the level of details and depth of analysis

> that we agreed to. Then if they want to do it at night and sleep all day, if they want to do it on the beach, I really don't care. (…) I really, really don't care. (Dave)

In this quote, Dave is very explicit about the importance of delivery in terms of deadline and quality while ensuring adequate client management. This highlights the importance of work over location. Location is secondary as long as it does not jeopardize the quality of the output.

Some respondents simply work everywhere. The ICTs they use allow working in any location. The activity of working fills-up most of their time and space. For further evidence refer to table H2 in Appendix H that lists work locations of consultants.

Whenever consultants are waiting for someone or something, they work to avoid wasting precious minutes. As a result, they end-up working in unexpected locations. They refer to this waiting time and transit time as slack time, it is time in which people usually do nothing and it is usually lost. Consultants send emails using their BlackBerry in restaurants, schedule conference calls while driving in a car, and edit reports using their laptop in the airport lounge. This was repeated by consultants frequently, this is even one of the reasons for BlackBerry adoption. Kam explains how he manages his emails:

> We have many small emails that you have to respond to, (…) hundred plus emails, (…) where you need to respond by 'yes' or 'no', 'maybe' or 'yes I would do this' (…), for that I use [my BlackBerry], I like the way I do it, because I'm in the car (…), sometimes when I'm even at lunch or when I'm waiting for something, I do it, when I'm standing I do it. When I come to the office, I actually gain a few hours in a way, because if you sit and do this in a row, it takes time. When I do it every time I have two three minutes empty, it actually kills a lot of those emails. (Kam)

Kam receives a large number of emails to which he needs to provide short and quick answers. He uses his BlackBerry to answer them as soon as he has a few minutes, wherever he is. So while waiting for someone at lunch, he can expedite a few emails.

Doing this on a regular basis, allows him to save time as it prevents him from using the work hours in which he can perform longer tasks and in which he can concentrate. Consultants transform all available time they have into work time. One consultant even manages to work while he goes shopping with his wife, she shops and he waits for her in a coffee shop. He explains,

> But if I'm going let's say with my wife and she's going shopping I do sometimes take my laptop with me. I […] sit at Starbucks, shoot a few emails, review a few documents and so on. (Sam)

While in his home country, Sam tries to spend time with his family, but since he does not particularly enjoy shopping, he takes his laptop with him and waits for his wife in a coffee shop with a wireless network. He reads and answers his emails, reviews documents sent to him by consultants on his team and emails them back or simply plans his upcoming week by sending coordination emails to his team.

### 4.5.3 Workspace definition

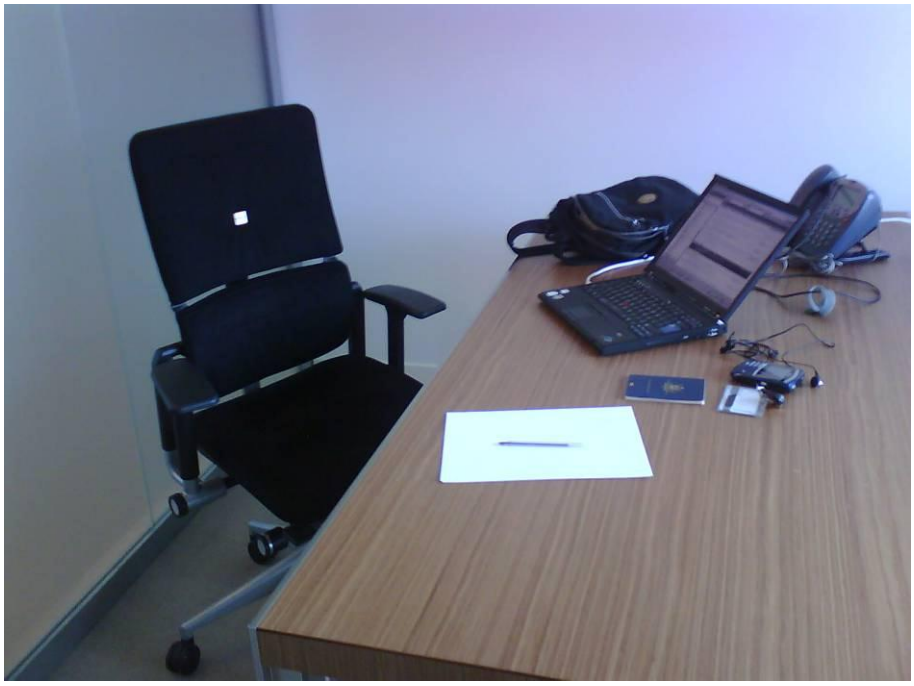
Mobility and work require consultants to select locations and work in them. The workspace definition was made very clear by Mark when he said "this is my workspace" showing his briefcase he had brought into the interview room and depicted in photograph 1. Then Mark added,

> Everything is in there. My laptop, documents, chargers, i-Pad, my Blackberry would go in there. So I could take this and go wherever I want and then I can set up my office and work. […] Typically I would have 2 bags: this one, and the other one would be my room, my closet. I don't have it with me today because I am travelling tomorrow. (Mark)

In this statement he explained how easy it is for him to set up a workplace anywhere because he has everything he needs in his briefcase. As soon as he sits in a place and opens his briefcase, that place becomes his workspace. A similar bag containing his personal belongings makes it also very easy to travel from one location to the other.

**Photograph 1: Mark's office.**

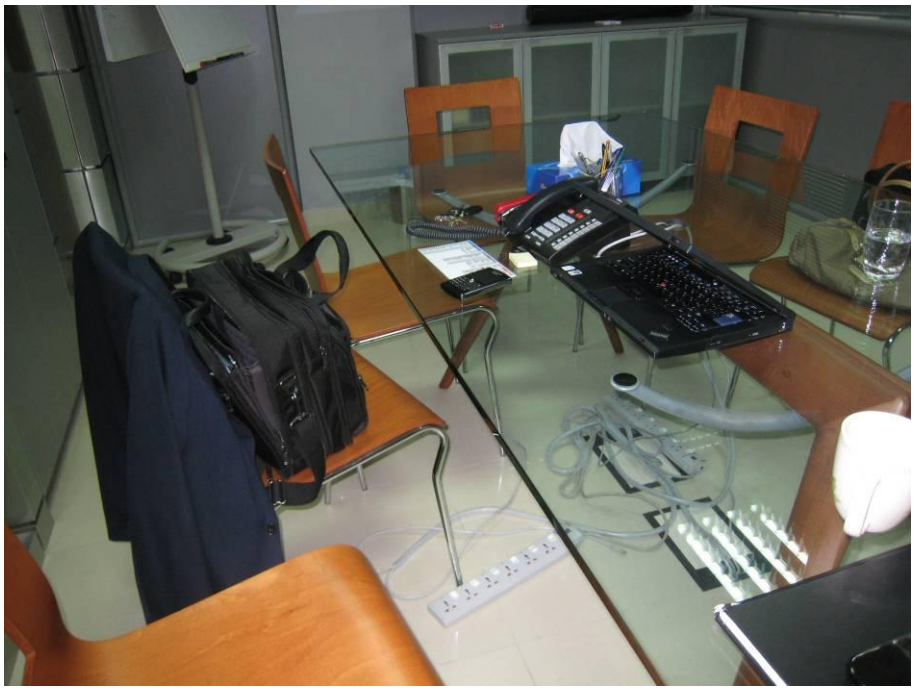
The need to be close to the client is perceived by consultants as a de facto situation regardless of the impact it has on them. Consultants are always ready to travel; this is illustrated in Photograph 1.



**Photograph 2: Always ready for the next client trip, provided by a respondent.**

Photograph 2 is interesting because it is a still-life by one of the participants and it represents his perception of his workspace. The photograph depicts a typical Sigma office with simple furniture; a desk, an armchair, and an office phone. The consultant made visible on the desk, his laptop, his BlackBerry and its headset, a passport, a notepad and a pen; all that he needs to work. These items are always with him as they allow him to work and to interact with others, wherever he is. The work bag, the car keys, the magnetic card to open the parking gate and the passport are symbols of a readiness to move anytime to the next client location.

Another important aspect of mobility and the continuously changing work environment is the uncertainty of resource availability at each site. As such, consultants have to be well organized to work well in such conditions. For instance, they need to plan ahead what hard copies they need, communicate the list to their assistant in their home office and he/she arranges that the documents are available at the right time in the right place. They need to carry all that they need with them. Many consultants use a bag pack or a briefcase (similarly to the two previous photographs) to organize and carry what they need. Having no office, their office is in their bag. This is well illustrated in the following photograph.



**Photograph 3: Consultants always on the move.**

Photograph 3 presents a global view of a Senior Project Leader's workspace. Ron is settled for the day in a modern conference room furnished with design furniture. He is using this conference room for individual work while he is in his home office because he does not have a permanent office allocated to him. Ron has brought in this conference room all that he needs to work. We see on the table his laptop connected to the local area network through a cable connection, his BlackBerry and his mobile. Other items that belong to and constitute the workspace of this interviewee, a notebook, a small pocket note pad and a big briefcase that he always carries with him – it contains everything that he needs; he carries his workspace with him. Consultants must always think ahead of what they need and have it with them, because simple details like having the wrong plug adaptor can prevent them from working.

The conference room is comfortable and conducive for work. It contains a conference table, with about eight chairs. In this conference room, there is a fixed office phone,

which is mainly used for internal calls and a data projector that is not visible in the photograph. A painting (not visible in the photograph) can be removed allowing users of the conference room to project presentations on the wall.

While on the move, the consultant needs to be in constant contact with the team and colleagues; this is enabled and supported by the laptop and the BlackBerry. Even while in the firm office, Ron mainly uses his own devices to support his work interactions, his laptop, his BlackBerry and his mobile. During the interview Ron said: "I am a full nomad, all I need is in my bag, I don't need more than that."

### Workspaces at Sigma offices

Each consultant is based in one of Sigma's four offices, referred to as the home office. All consultants spend time and perform part of their work in their home office and in offices in other cities when they travel.

Sigma's policy was to allocate a private office to consultants at the rank of Senior Associate and above in their home office, they are migrating to another policy where offices are shared by seniors, and seniors can book an office for the duration of their stay in any Sigma office. All other consultants work in open work areas. All the workstations have comfortable chairs as well as needed office supplies. Offices have nicer furniture and their advantage is that consultants can leave their belongings in the office.

In their office, consultants have all they need to work, and therefore it is the most convenient place to work. As one interview assesses the different workspaces, "The most comfortable is home, the least comfortable are typically client sites [because of lack of access to resources …]. The most convenient place to work is from the office definitely. You have all the systems, you can plug in and you don't need to change any

settings in your network or anything." When asked about the bare minimum to work he adds "The minimum I need is a power plug. But what I would prefer to have is definitely a printer and network access." On the other hand, the locations other than the organization and the home – since most consultants have a work setting in their homes, with all the necessary sedentary technologies – require consultants to adapt. These spaces are characterized by no direct access to the firm's network, in some cases no access to the internet or a slow connection and no access to printers, as well as no adequate support, "I have to write down what hard copies I need to share (…) my assistant will print it for me" (Ted).

Another consultant distinguishes his base location from other locations with "[Network connectivity, electricity availability] and the land phone and bigger workspace, bigger desk, you know; huge desk, access to all the paperwork that you have generated in the past, access to support staff as relevant of course" (Dave). For consultants the main difference between workspaces is the access to resources. The absence of these resources disrupts or prevents work.

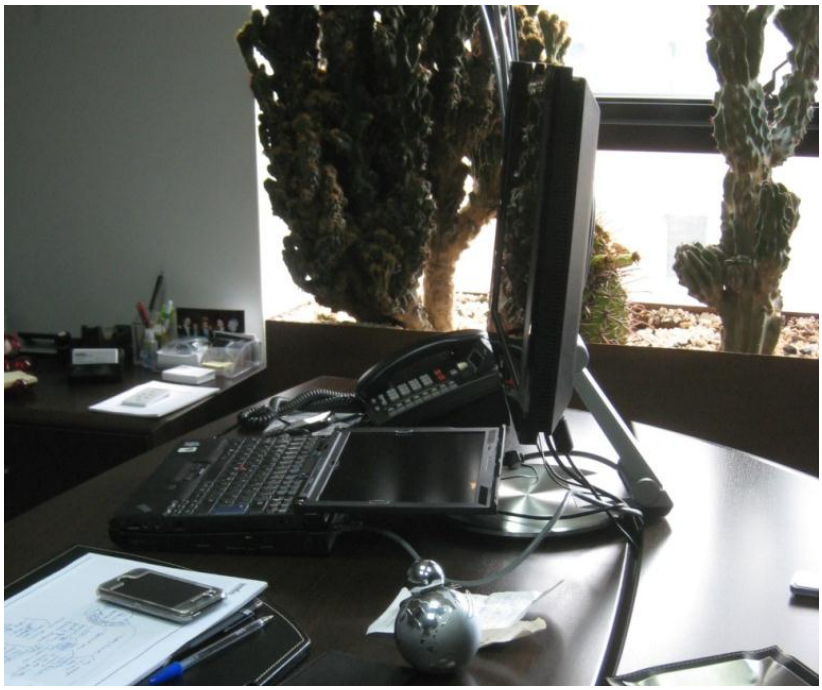
**Photograph 4: A laptop on every desk.**

This photograph is representative of the offices visited during the face-to-face interviews. There was a laptop on the desk of each consultant, all laptops were turned on and connected to the LAN through a network cable.

> Basically that's your closest office. You take it home, that's where you do all your work. The physical status is just the place you sit in, but your office is actually your laptop (Rudy)

In the above quote, Rudy explains that his office is his laptop. He perceives that he has a portable office that he can take anywhere and that allows him to work independently. Rudy does not care about the location he has to work in. His connected laptop bridges across locations and allows him to access all required resources. The consultant stops being concerned about what the location has to offer and how it facilitates his own work, because the laptop compensates for missing resources and allows the consultant to be autonomous. Similar quotes were observed numerous times during interviews.

Another consultant explains, “this is not my office, this is the office of one of the seniors in the organization. I borrowed the office for the day and plugged in my laptop to work” (refer to photograph 5).

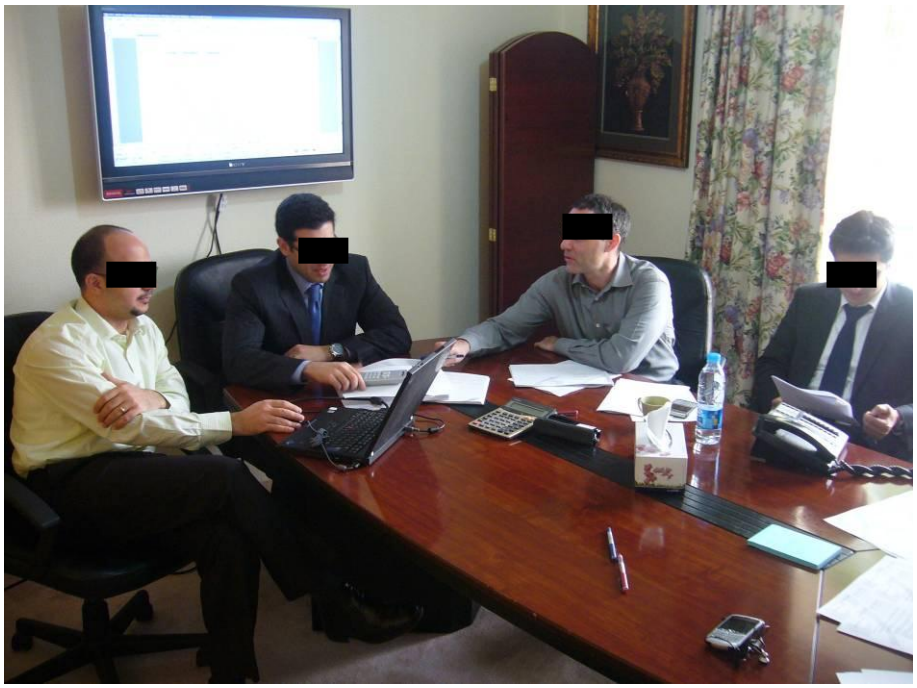


**Photograph 5: Borrowing a senior's office.**

Yet another consultant explained that he has been working throughout the morning in an empty office because he was expecting a number of phone calls. He used his two mobile lines and was able to expedite a number of emails using his smartphone. This is yet another example where ICTs are sufficient to negotiate work boundaries. His two devices (refer to Photograph 6) were all he needed to work while keeping him connected to his clients and team members.

**Photograph 6: Mobile phones define a workspace.**

Similar photographs were provided and similar situations were described about workspaces in the regional Sigma offices. The following is a photograph of an internal meeting, it was provided by a Senior Associate, Sam.



**Photograph 7: One team meeting among many others, provided by a respondent.**

Photograph 7 depicts Sam in a meeting with consultants from three other offices in Europe and the Gulf. The four consultants are discussing one of their projects. The meeting is taking place in the firm's office in Saudi Arabia. This meeting room is typically equipped with armchairs around an oval conference table, office supplies, a land phone on the table and an LCD mounted on the wall. Yet consultants cannot work in this conference room unless they bring in a laptop, which can be connected to the LCD as is visible in this photograph. Consultants also always bring in their mobile and smartphones. We see one BlackBerry on the table; the mobile phones and BlackBerry smartphones of the other consultants are not visible, because they are in their pockets. This photograph is a good representation of workplace negotiation as well as interactions that occur, on a daily basis for consultants.


**Photograph 8: A consultant reading and responding to his email using his blackberry, provided by a respondent.**

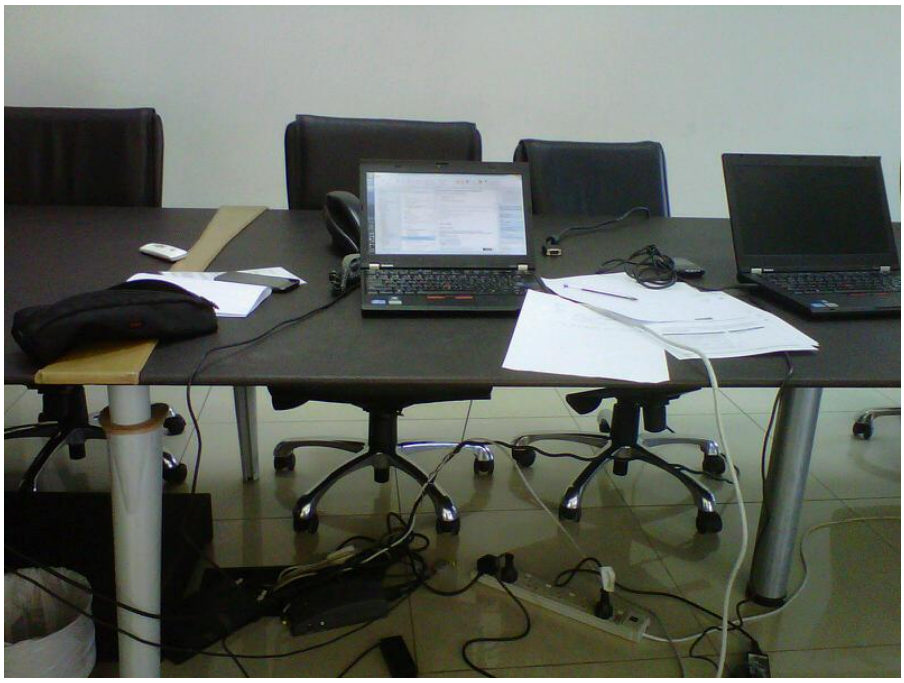
Photograph 8 provided by a consultant to describe the places where he works shows this consultant answering his emails using his BlackBerry, sitting on the front porch of the local Sigma office. While sitting to take a break and relax for a few minutes, he was reading email on his BlackBerry and responding to those that required simple ‘yes’ or ‘no’ answers. The BlackBerry makes it very easy to communicate flexibly and use any time that is available. Email, in general and specifically, via the BlackBerry offers new ways of communicating.

Finally the following two photographs (9 and 10), depict two similar face-to-face desks in the same location and illustrate the differences between a negotiated space and another that is not. Photograph 9 was taken by the consultant as soon as he arrived to this regional office before getting settled and starting to work. We see on the desk, a screen, a laptop docking station and a landline phone. This desk will become Chris workspace only after he connects his laptop or he sits down and uses one of his other ICTs to work with clients or team members. Photograph 10 on the other hand depicts Sam working on his desk and using his laptop which is connected to the LAN to work on a client’s report. The absence versus presence of personal ICTs constitutes the difference between a place and a workspace.

**Photograph 9: A desk without the consultant's belongings, provided by a respondent.**

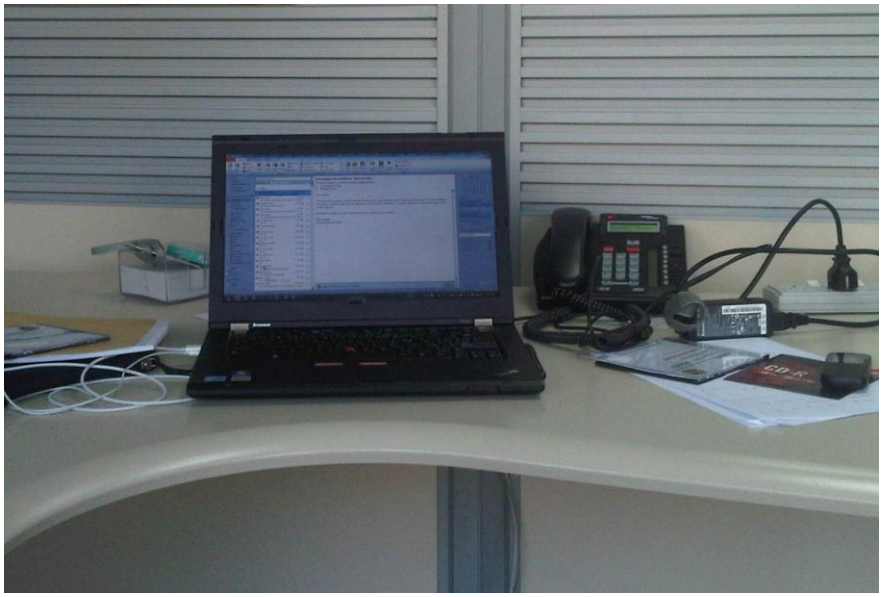
**Photograph 10: A desk with the consultant's belongings, provided by a respondent.**

Similar situations are observed in different settings, another consultant working in a team room with a colleague; photograph 11 depicts their laptops connected to a LAN, two smartphones and some documents. The consultants are working together on the development of a financial model for a client project.



**Photograph 11: Work in a team room in a regional office, provided by a respondent.**

Junior consultants working on workstations also shared similar experiences (Photograph 12). They reserve a workstation and as soon as they arrive they plug-in their laptop, connect to the LAN and start working.



**Photograph 12: Workstation in Sigma offices, provided by a respondent.**

### Workspaces at client premises

During the day consultants are mostly in client meetings or have interactions with the client. Consultants explain that they adapt to the client's work location and work hours. One consultant estimates that he spends 90% of his time when awake, with clients. Sam a Senior Associate explains:

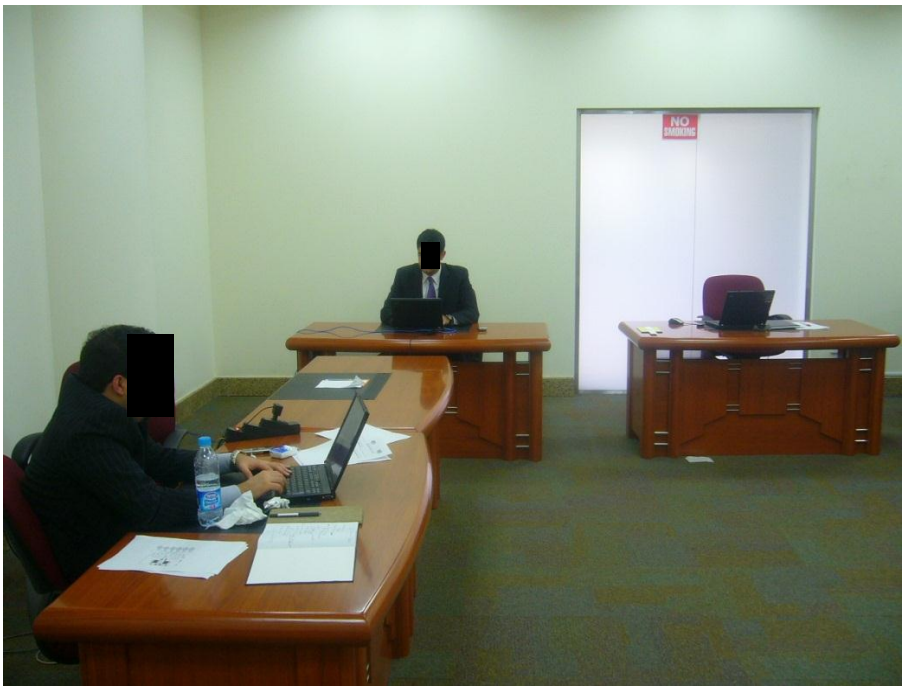
> I am managing a job which is to be seen in Saudi[21], so typically I would spend most of my time here with the client. (Sam)

This quote illustrates how important it is to spend as much time at the client as possible. Sam a Senior Associate spends most of his time working with the client. It is important at all levels of the career path although at each level, consultants work in different ways with the client.

Similarly, the workplace at the client's is set-up by the client and consultants have to work in it whatever it is; in some instances they manage to negotiate with the client to improve it slightly, requesting an internet connection or a flipchart, for example.

Work locations at the client's site vary from being a large room with cubicles, to a simple conference room. Photograph 13 below depicts a dedicated and rather well-equipped work location on the client site.

[21] Kingdom of Saudi Arabia.




**Photograph 13: Team work area at a client's, provided by a respondent.**

This is the office of the team at the site of a big client for a long term project. One Senior Associate is allocated to this project on a full-time basis. The office is a large open space, with an adjacent office (not visible on the photograph) both solely reserved for Sigma consultants. There are multiple desks; in the photograph one desk is clear because Sigma has a policy of never leaving anything overnight at clients'. Three desks have laptops on them because their owners are still working, two are visible and the third is the respondent taking the photograph. Both wired and wireless networks are available in this location and greatly facilitate work interactions. The team spends four to five hours a day on site; they go for a late lunch together and spend the rest of the afternoon at the office. All desks are similar, and can be used by any consultant. This open space is conducive for team interaction and the client site is conducive to working with the client. This being said, consultants need to constantly adapt to different client work locations; they need time to adjust, find the right chair, the comfortable seating

position, etc. Sometimes they need to change network settings or find the right plug adaptor.

On a daily basis, consultants go to the client site in the morning and work in their assigned offices at the client site. For example, a Senior Associate wanted to be close to his client who was visiting a convention in Cairo, so he went to Cairo with a team of four, stayed in the same hotel and worked from a hotel room. The consultants sat on the couch, chairs and desk and worked together late into the night to get the work done for the client before the following morning. This was not a comfortable work location. Client locations greatly differ from each other and vary in the availability of facilities and resources such as network access, printers and other amenities needed to facilitate work as well as comfort. In these locations, consultants are alone and have no administrative or technical support. Client sites provide basic resources such as chairs, desks and electricity, but are definitely less glamorous and comfortable than headquarters. Consultants say they go through the "rough and the tough to get their work done there".

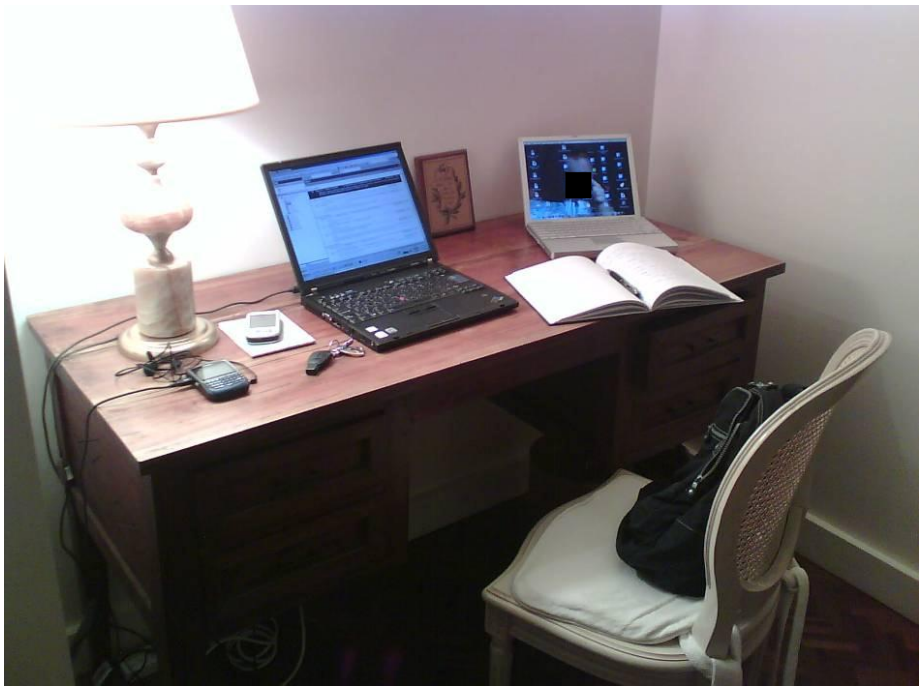
### Workspaces at home

Consultants work at home which is a location traditionally reserved for family and social interactions. Respondents have a different understanding of the importance of boundaries. Some prefer working at home instead of staying late at work. For others there are no boundaries to work interactions. Numerous consultants set up fully-fledged offices in their homes to be able to work comfortably.

> [I don't put limits] in terms of location, I work at home that's established, I have my office place [space] I have my home office [a closed room, a full office], I have a WIFI system. (Ted)

For this, consultant's work at home has become an established practice that determines how he/she works and reinforces his/her acceptance of it. Consequently he/she has set-up a full office to facilitate work from home.

Photograph 14 depicts the respondent's personal work space at home. We can see a desk, a chair, a lamp and a small frame. On the desk are two laptops, a work laptop displaying email and a personal laptop displaying the desktop with a child's photograph as wallpaper, one BlackBerry used for business interactions, one personal mobile phone used for interactions with family and friends, a notebook with a pen that he keeps with him wherever he goes to put down personal notes and his car keys. On the chair, we see the personal bag pack, a bag he uses to put his personal items. The bag he uses for work is not visible in the photograph. This photograph is similar to the one he provided to depict his work location in his own office at Sigma. This photograph highlights the importance of the work laptop which is repository of all needed resources and projects related document. It also highlights the separation that Mike seeks to maintain between the work and the personal.



**Photograph 14: Doubling up the ICTs in the office at home, provided by a respondent.**

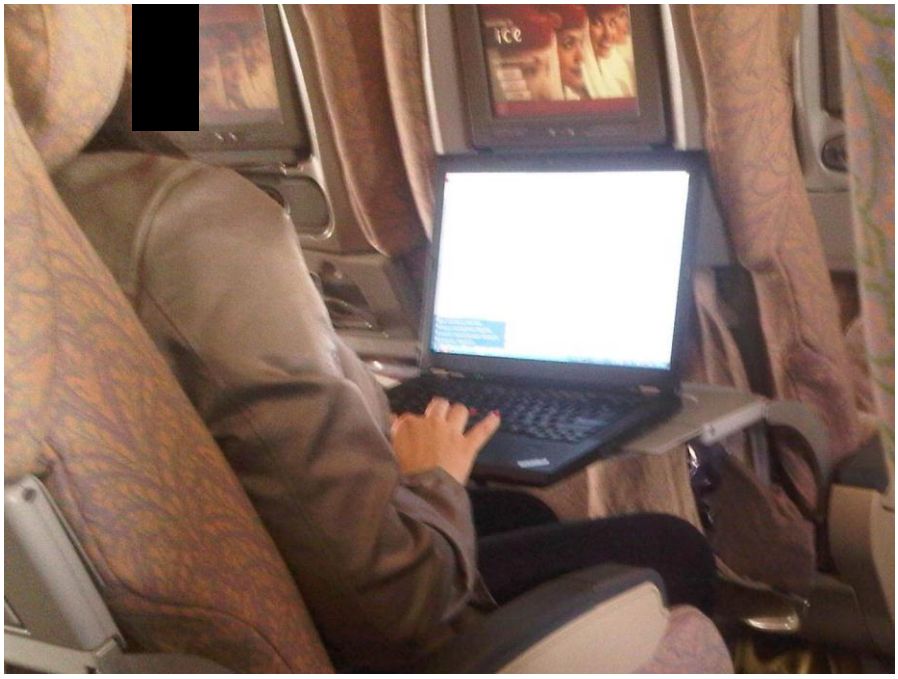
### Workspaces in transportation modes

Consultants are mobile and consequently spend a lot of time in transportation modes; trains, cars and planes. When in cars, they are driven most of the time; especially when commuting to the airport or when they are not in their home city, making it easy for them to work. They schedule conference calls on long car trips to make the most out of their time.

> You can always work in a cab, if I have to send a document and I'm squeezed in time before going to the airport. I send it in the cab. We need to optimize every single minute. (John)

This consultant uses his laptop with a 3G internet connection dongle to send documents by email to his team members before catching a plane. He works on his document till the last minute, takes a cab to the airport and sends the document in the cab. He has done it a number of times to optimize his time.

Other consultants have reported working on a plane, some by choice and others because they had a deadline to respect. The available space depends on whether the consultant is traveling in business class or economy; this depends on the rank and is defined by policy.



**Photograph 15: Working in a plane, provided by a respondent.**

Photograph 15 depicts a consultant working on a presentation while traveling in economy class. She explained that the work setting is every uncomfortable and tight and she could barely put the open laptop on the available tablet. However she did not have much of a choice as she was running late and had to email the presentation to a team member upon arrival to her destination. Another consultant who also travels in economy class, describes a different experience:

> … I love the plane, it is my perfect workplace… you are sitting for three hours, you have nothing to do, you cannot move, you don't get phone calls, no one comes and talks to you, no one asks for a meeting, no extraordinary or unexpected interruptions so there's no better place to focus and concentrate for three straight hours. (Mark)

Mark explained how he likes to work on the plane because of the isolation it creates around him, cutting him off of all potential interruptions and distractions. Since he has to sit and wait, he finds the plane to be a very good place to work, especially that there is not much else to do. The work Mark does during three hours in the plane is equivalent to what he can do during five or six hours in the office or in his hotel room.

### Work in all locations using ICTs

The consultants use their ICTs to work everywhere. The laptop allows to perform the consulting work independently of location.

> The laptop is a common thing in all workspaces, because you're doing your work on a laptop. […], at the end of the day you write decks [of slides, in consulting jargon]. (John)

John explains that the laptop is common to all workspaces. He is referring to the analysis, solution development, and report production aspects of the consulting project. The laptop allows working anywhere and anytime (refer to the taxonomy of technologies in Appendix A). Consultants work in many places, "in the office", "at the client site", "at home", to such an extent that their workplace becomes 'everywhere'. Chris explains "[with the laptop] I've been able to carry my work with me wherever I go"; in this statement "wherever" refers to 'everywhere' and Kam adds "[the laptop] is something that I have to take with me everywhere regardless if I am going on vacation or else". The laptop is used in all locations in which consultants work. All consultants use their laptop in their main office, in other firms' offices, at home, at clients' premises and in hotels. Additionally, at least one consultant has used his laptop in a café, a restaurant, a hospital, a shopping centre, an airport, a plane, a train, a car and at his parent's house. For an exhaustive list of locations that respondents identified, (refer to table H2 in Appendix H).

The smartphone enables work and is always with the consultant so it is used in even more spaces. A consultant managed to process his emails during a children movie at the theatre.

High mobility in the context of work is beyond the idea of multiple locations and involves the idea of roaming around, which means that consultants need to carry with them the equipment that they need so that they can work wherever they land. However they cannot configure their equipment ahead of time. At Sigma, consultants carry with them both personal and work-related resources. The laptop is the tool that allows them to work in these conditions. Consultants perceive the laptop as being their office and a repository of the resources they need.

When they go back home, their work goes home with them because they keep their ICTs that allow them to interact with business counterparts all the time. Going back home is not enough to allow them to disconnect from work. Reciprocally, personal space and personal time become occupied by work interactions. Personal time decreases at the expense of work time and consultants have less time to do what they like, read, listen to music and relax. The above increase work time at the expense of the time that is reserved for themselves. Although they like to disconnect at times, in some locations, it is difficult for them to do so because their location-spanning ICTs allow work interactions to follow them wherever they are.

> [With the technologies we use] sometimes you have now to force yourself to disconnect as opposed to before that you were disconnected by just going home or by whatever. Now we have to force ourselves. (Mike)

Consultants need to disconnect from work and work-related interactions to rest, release work pressure, and have a life. This is becoming difficult because when they go home they take their mobiles, BlackBerry smartphones and even laptops with them remaining

reachable and connected to work. Consultants need to make a conscious effort to turn the device off, put it on silence mode and decide not to use it for a time period. The non-work boundaries are therefore redefined by the use of ICTs that allow and promote work interactions and disrupt lifestyle.

#### 4.5.4 Consultants' preferences are not acknowledged

Consultants discussed their preferences in terms of work location and level of mobility during the interviews. Consultants have different preferences regarding work locations; they have different dislikes in terms of workspaces. Some do not like to work at home, in a hotel room, or in airports and planes; others believe that public places are not adequate places to work in; and others like to work only in an official workspace.

At the same time, consultants say that their personal preference in terms of work location and work time is not important. They devalue their preferences, which become secondary, as work always has priority; when there is work it needs doing, in any case, anyplace, anytime and whether they like it or not. One consultant said "there is not much I can do [to avoid working in locations I don't like]", in such cases there are attempts to compensate by developing social interactions with the team. The sense of responsibility seems to be more important than personal preference. One consultant explains:

> If I have to work I work, and if it's in the airplane I do it and if it's in the office I do it. I don't have a particular sort of dislike to a space that would prevent me from doing the work if it's due and if I have to do it. (Dave)

Even after describing an inconvenient workspace followed by an explanation of what he likes, one consultant concluded that his inconvenience and preference did not 'really matter'.

Mobility is a job requirement at Sigma, it even seems to be an industry norm, but it is difficult and requires consultants to make personal efforts to adapt. To mitigate this some consultants working on longer term projects for a main client took action to limit this mobility by moving to the client's city. When talking about the experience of being mobile, consultants seem to have, in some instances a positive opinion about the personal benefits of travel and mobility. It is unclear whether they are trying to convince themselves or whether it is part of the adjustment process that takes place, or even a dilemma between the emotional and the rational. They say they are happy being mobile, although they also say they have no choice and are required to be mobile. Saying that they are happy is better for their ego than admitting that they are miserable especially given their desire to stay at Sigma in return for the career opportunities they perceive. Some attempt to structure the mobility and create stability by establishing reference points with routines and personal discipline.

> Like anything that you do repeatedly and repetitively you come to certain points where you get tired of it you just want to unplug and not do any travel for a while which was my aim for this week [but I did not manage to do it]. Professionally, it is part of the job so I have to do it if I want to progress and succeed in this particular industry. (Nick)

In this quote, Nick summarizes his experience of mobility. He explains that he is tired of travelling and plans not to travel for a week working instead from his home office. Although he planned his meetings accordingly, he was not successful in avoiding travel, and ended-up travelling due to an unexpected situation on one of his projects. He explained what happened by saying that this is part of the job and a condition for success (meaning promotion).

#### 4.5.5 Concluding remarks on work location

This section highlighted the importance of working in proximity of the client and preferably at the client's. It described the high mobility of consultants necessary to

move from client to client, specifically as consultants become more senior. The numerous places consultants work in were identified and the description of these workspaces allowed the identification of the common component in all workspaces, the ICTs consultants use.

### 4.6 MANAGING BOUNDARIES

Work boundaries refer to where, when and how work takes place. Work boundary negotiation is at the core of the research question, it is therefore important to focus the last section of the case description on understanding boundary management as performed by consultants. The perception of work beyond the traditional boundaries in terms of workplace and work hours differs from individual to the other, varies from acceptance to rejection and consultants deal with it differently. The details of how consultants manage their work boundaries are described below.

Sigma assigns the responsibility of managing work boundaries to consultants by defining work-life balance as one of the criteria on which consultants are evaluated during their yearly appraisal (refer to section 4.2.1). Work-life balance attempts to maintain equilibrium between work and life, life being everything but work, by maintaining the non-work boundary. Consultants believe it is a personal responsibility to balance work and life, to set work boundaries in order to protect the boundaries of non-work, by controlling and limiting the levels of connectivity enabled by these ICTs.

It is important for them to manage their work and non-work boundaries and consciously allow (or not) work interactions into their personal locations. Each person must decide how they want to balance their life and their career. Consultants are lucid that decreasing work is at the expense of their career and their chances of success. Many feel

that it is worth compromising their personal life on the short term to do their best to become Managers. This is the ultimate reward for them financially, for their self-esteem and for their career.

To describe the management of work boundaries by consultants, this section starts by describing the perception that the boundaries of work are blurring at the expense of non-work, the second subsection presents the disruption of non-work. Subsection 4.6.1 discusses the importance of ensuring work continuity, subsection 4.6.2 describes the blurring boundaries of work, subsection 4.6.3 describes the difficulties of setting boundaries to work, subsection 4.6.4 describes approaches used by consultants to manage their work boundaries, and subsection 4.6.5 concludes on boundary management.

### 4.6.1 Ensuring work continuity at the expense of non-work

Co-opting all the ICTs described earlier (refer to section 4.3) has the purpose of maintaining connectivity and enabling work interactions as described above. Consultants use connected laptops, mobile lines (even using personal mobile lines in business email signatures), email through their laptops or smartphones. They use multiple devices to increase one's reachability, use the missed-call alert to know who calls when no network connection is available, acquire wireless internet connectivity and acquire ICTs to have a full office set-up at home.

All of these ICTs allow them to work while bridging existing boundaries and allowing the continuity of work. Many consultants are satisfied with the way ICTs allows them to receive requests for work interactions.

> The use of the BlackBerry is totally integrated with my personal life. For me there's very limited separation, I don't formally separate what's professional from what's personal. (Andy)

This quote illustrates the state of mind of many respondents who identify themselves to their work and feel that their work defines who they are. For others, ICT fulfils their need and the pressure they feel to remain connected, as illustrated in the following:

> I try (…) as much as possible not to intrude their personal lives during the weekends, however for all practical reasons we are always connected even during those times and we always work even during the weekends. (Sam)

Sam, a Senior Associate managing a large team of consultants, tries 'as much as possible' to respect the personal time of consultants working with him, yet at the same time he says that he needs to remain connected with them and that all team-members need to work during those times. Respecting the weekend is difficult due to the work pressure and the number of interactions. The differences in weekends across the different countries they work in makes respecting the weekend difficult – four different weekends exist between Europe, the USA, the Middle-East and the Gulf.

The interactions that take place in the traditionally non-work locations with family and friends become disrupted. Two important types of interactions, business and personal, take place at the same time, in the same place. The use of location and time are affected. Work interactions disrupt the continuity ensured by a personal boundary. For some consultants working at home and being always reachable while in social functions is like being in the office, although not physically. Clearly these devices increase efficiency at work, however at the expense of personal life as they blur the boundaries between personal life and professional life.

The ease of completing their work manifests at the expense of their personal life. The consequence is a disruption of their lifestyle. Indeed, although the benefits of these devices are recognized for work, some comments highlight these disruptions. For example, a consultant explained that these work practices allow him to get the work

done, which is convenient for him and pleases him, but his wife is not happy because often when they go out he ends-up spending most of his time on the phone.

For some, work interactions disrupt interactions with family and friends so much that two respondents were emotional when they talked about their experience. Two consultants refer to the need to be constantly reachable and the idea of being always at work as a 'curse'. The use of this metaphor is significant, the curse represents a misfortune that one can neither escape nor control. Another consultant explained,

> My smartphone is very important, it keeps me informed of what's happening when I'm not in front of my computer, in a sense that whenever I get back to my computer, I do not need to start from two days ago, I can start from five minutes ago. And then it takes me less time. But at the same time, it doesn't help me live my personal life to the fullest because I believe that if you want to live your personal life, you have to focus on your personal life. If I want to be with my wife, I have to be physically and mentally with my wife or my friends or family. But, you're never there, you're never physically and mentally there. (Henri)

Henri feels the dilemma that some other consultants have expressed, how to balance between work and family? Remaining connected facilitates work, but it also mean not being able to fully participate in moments spent with the family or with friends.

In addition to co-opting ICTs, this promotion of work is achieved in different ways, some consultants opt to prioritize 'quality time' over 'quantity time' with family or simply prioritize work to achieve career goals.

Consultants also use technology to improve their work locations as much as they can and try to keep offline copies of their online resources. Having all of these contingencies is necessary for them to be able to operate in a myriad of environments. This use of technology is illustrated further in the following quote:

> I (…) mak[e] sure a lot of the things [I need] are offline, meaning my emails are available offline so if I don't have email access I can still work on my emails

> offline. [I] improve[e] the access: MOBI [an access to a wireless network], BlackBerry, WIFI enabled laptops. I have at home a WIFI connection so I have Internet access everywhere. (Ted)

Since Ted is very mobile and works in locations without connectivity, he uses his own wireless modem to access an internet connection from wherever he is. With a connection in the office and a connection at home, his wireless device allows him to be connected in any location he might find himself. As a backup, he always keeps a copy of his emails offline so that he can access them whenever he needs to.

### 4.6.2 Blurring boundaries of work

Work practices of Sigma consultants described in the previous sections illustrate how work interactions have no time frame and no location. Consultants work everywhere and all the time; they work day and night, at home and at clients', during their vacation and in the car. It is difficult for them to say no to work, to resist work, and not to respond immediately to work interactions. Working under pressure and dealing with a lot of work and a lot of interactions makes it difficult for consultants to put a limit and disconnect from work.

In the section on work interactions above, the following conclusions were drawn, work interactions are frequent and intense and consultants use a number of ICTs to remain constantly reachable by their clients. Consultants are mobile for their work, so they are often away. Co-opting all the ICTs to support interactions ensures their reachability and supports their mobility. Consultants bring these ICTs back home at night or during weekends and take them to social functions. The consultant does not turn them off and the ICT crosses the personal boundary. Similar to a Trojan horse, the ICT leads the work beyond the personal boundaries impacting the consultant's life as a whole as they have no more time to rest, relax, disconnect, and no more time for leisure, or to spend doing other activities they enjoy.

In the same way that ICTs have blurred the boundaries of work, they have also blurred the boundaries of non-work. Indeed, a number of consultants have explained that thanks to the ICTs they use, they have been liberated from waiting in a workspace for a work-related response or feedback. In fact the guiding principle of their comments is that work has to be done, so they can either be tied in a single location for a long time waiting or they can go on with their life and revert back to work when necessary.

> I don't have to stay at home for the response of the email, I can go out and enjoy my life (Mark)

Mark explains that instead of waiting for the response, he can just do whatever he likes and when the response arrives he decides how to act on it and takes the necessary action by either returning to a work location or proceeding with what needs to be done from wherever he is.

> Technology liberates me from being stuck in a single place waiting for an email. (Emma)

For Emma, ICTs allow her to choose leisure during work time if she has an empty timeslot instead of waiting for her team members to tell her what to do next. Then during her leisure she can go back to her work. So for Emma ICTs remove the boundaries of both work and leisure, leisure blurs work in the same way that work blurs leisure.

> Working in a hotel, in a cab or in a plane is not ideal, but sometimes if this can buy you two hours of sleep, you do it. Because it means that instead of sleeping five hours, you're sleeping seven hours. (John)

John adds that ICTs by allowing him to work everywhere contribute to transform slack time into work time and then work time into sleep time.

### 4.6.3 Difficulties to set boundaries to work

Consultants report the difficulty of setting boundaries. Although work becomes invasive they have **difficulties in putting limits**. They plan to, but do not always succeed. One consultant says:

> Technology… It is omnipresent, the decision to make it invading is our decision right, if I want to shut it down, I shut it down. It is going to affect my productivity, it is a choice I have to make and if it affects my productivity and my career then I have to make a choice if I want to stay in this career or go to a different job, but it would be absolutely not responsible for anybody to say, oh my god technology is killing me. No it's not, you decide what to do with technology, and technology actually gives you tons of opportunity we decide what to do with it. I am happy with what I am doing with it. (Mike)

In this quote Mike distinguishes invasiveness of lifestyle from the presence of ICTs. He says they are not linked and that it is up to each consultant to redefine or maintain personal boundaries. However, he believes that the choice to limit ICT-enabled disruptions would be made at the expense of his career.

Work relations end-up having an emotional impact on them by spoiling their personal experiences. Work may interrupt their evenings at home or even their ability to take a two-day break. Work relations also prevent consultants from respecting their personal commitments. It is tough for Kam, because he tries hard and makes promises to himself, but does not manage to respect them.

> And it is very hard (…) not to respond to an email where previously (…) you did not have this technology and you were living without it and now all of a sudden you can't live without it (…), I try [to resist], I try but it's…, tough, it's tough, it's very tough. (Kam)

Putting a limit to work interactions is even more difficult when they have the BlackBerry, an ICT that brings work to them wherever they are. Consultants find it very hard to have this ICT and not check or respond to their emails. These consultants recognize that they were living without it and managing their work well, now they are

accustomed to 24/7 email access and have become dependent. Indeed they have a lot of pressure in their work and perceive that expediting work as it comes in is a way to relieve this pressure. This situation is exacerbated when intense emails are exchanged or when tense situations are experienced.

This impact of work on personal life is experienced by many consultants and they recognize that it is amplified by the ICTs they use. One consultant explains:

> [Technology has] reached to your home, to your everyday, [it is] disrupting your life. (Ted)

This constitutes a disruption because consultants cannot 'disappear' anymore on vacation or during a weekend. The people they interact with are used to interacting with them whenever they want to; it is a taken-for-granted expectation. It is now part of the existing structures. Work interactions have a negative spillover on family life.

Consultants have recognized that once they start using a BlackBerry, expectations of their colleagues increase and become aligned with the possibilities of this device, consequently setting a boundary to work by stepping back is almost impossible due to expectations.

> It sets certain expectations they know I have a Blackberry, they expect a response within the hour, they know I have two mobile phones, so they expect me to answer my phone wherever I am, they know I have a laptop so if they ask for something, there's no reason for me to tell them (Mark)

> I'm not obliged to have a BlackBerry but now that I have it, don't think I can get rid of it. (Emma)

Whether the use of the ICT is mandatory or not in the organization, using it sets a habit and creates expectations which become difficult to cancel. Indeed once colleagues know they have the device they expect them to see their emails immediately and respond and once they do stepping back looks like a deterioration of performance.

### 4.6.4 Setting boundaries to work

After describing how work interactions disrupt their personal time and their interactions with their family and friends some consultants described a number of approaches they implement to set boundaries to work.

Roy, a consultant said that "giving [the BlackBerry] back was certainly one of the best things that happened", referring to a previous experience. He explains that using a BlackBerry to cope with work requirements was "destructing" (sic) his private life, because he always had the device in his pocket which used to vibrate every time he had an incoming email, and he was "automatically prone to look at it" at all times, breakfast on Saturday, diner on Friday night…" He felt as if he was constantly at the office and did not have a personal life anymore. Although Roy needs the BlackBerry, especially when he is travelling, he opted to work without it. He explained that he never missed anything serious by not using it and is still able to manage.

At times, consultants wish not be reached. They want to relax and enjoy some time off work. In such instances they use the ICT to set a boundary either by using multiple devices or by disconnecting the ICT that enables the work interactions. ICT use becomes a form of boundary management with the aim to stop the invasion of personal life with work interactions. The practice of using multiple devices is widely spread at Sigma; the majority of consultants have more than two devices, which allows them to set a boundary and to limit – as much as they can – receiving business related communications in certain places or at certain times. This illustrates a will to create a separation between the personal and the work.

They attempt to create a boundary between personal interactions and work interactions by using multiple mobile phone numbers and multiple devices and labelling them by

type of interaction, personal and work. For example when a consultant keeps the business line at home when going out in the evening, he/she is reinforcing the non-work limits by disconnecting from work and not allowing work communication to reach him/her at this time and in this place. Sam explains:

> Hav[ing] 2 mobiles one for business and one personal (…) there are advantages. At least (…) there's a separation between [business and personal calls]. Let's say I'm going (…) on a weekend to Beirut and I'm going out at night in the evening there's really no need for me to have the business mobile at that time. But I need to have my personal mobile for whatever reason so there are advantages of having both. (Sam)

This quote describes a preference shared by many consultants at Sigma. Sam describes that he prefers to separate his business mobile from his personal mobile to be able to take the personal with him when he goes out at night and leave the business mobile behind when he knows that he does not expect any specific calls. In such situations separation is needed as it allows protecting the personal boundary.

The channelling of communications to different devices allows the consultant to consciously decide which device to silence, turn off or take along at each moment and in each location. These separations represent boundaries that consultants intend to create to have better control over where they are solicited for certain types of interactions. Consultants, for instance, sometimes go out in the evening in their home country and take only their personal mobile phone to fully disconnect from work and enjoy their time with family or friends.

By default, consultants always want to be reachable and connected. However, in certain circumstances they make a conscious decision to protect their personal boundaries by not being reachable and connected. Chris, for example, turns off the BlackBerry to disconnect and reserve some time to spend with family and friends. Ron doesn't take

the BlackBerry with him when he goes out for dinner and Ted does not schedule conference calls on Friday, his family day. Being well organized and managing their interactions well allows them to control how work invades their life and consequently the time they get with their family.

Photograph 14 (presented earlier) was provided by Mike and represents another illustration of how consultants attempt to use multiple devices to create a separation between work and the personal including family and friends. Mike has two laptops on his home desk, one for work and the other one for personal use only.

Some consultants limit their BlackBerry for email only – data functionality only, this is how they refer to it – and use their mobile line with a separate device. This also allows to synchronize the BlackBerry with their calendar and phonebook on their laptop. The consultants who opt for this alternative explain that it allows them to decide which interactions they are willing to accept given their current location and time, specifically when to have access to their email (mainly work interactions). This allows them to keep the business mobile phone with them for emergencies while preventing themselves from accessing their email. This is an additional means to boundary management. This permits taking along interactions through phone calls, recognized internally as being more ‘urgent’, where the sender expects an immediate response. The phone permits same-time or synchronous communication while limiting the means of communication described as different-time or asynchronous. For example one consultant takes his mobile business phone with him when he goes out at night, but at the request of his wife does not take his BlackBerry. Another consultant explains why he needs such a separation:

> [I use my BlackBerry for] mobile email and mobile calendar. The line is not activated. For me it is a data device only to take it whenever I need it. So I separate emails from phones. Even for weekends not to read emails, because you are always tempted to read emails whenever you have a message, [so] to force myself not to read emails, I have a separate email device and a separate phone. (Ted)

In this quote, Ted attempts to address an issue that many consultants face: being constantly tempted to read their email. In a radical move, he decided to use his BlackBerry for email and calendar, and to use another mobile phone for the line. By doing this the BlackBerry becomes a device reserved for email that he does not take with him when he goes out with his family during the weekend. Even when he is at home, he does not keep it in his pocket and only checks it from time to time.

The decision to carry one or more devices represents a redefinition of boundaries and causes continuities and discontinuities. For example when a consultant takes the business line with him/her when going out in the evening, he/she is creating a work continuity and redefining the limits of work by deciding to remain connected with work. Allowing work communication to reach him/her in this place and at this time while with friends creates a non-work discontinuity. This ICT related decision causes the personal boundary to be redefined and reduced. On the other hand, deciding not to use a device by shutting-it off, silencing it or leaving it behind allows a reinforcement of the personal boundary thus, representing continuity for the personal and discontinuity for the work boundary.

Having multiple devices requires good device management to backup, synchronize and charge all devices as well as carry them along with their accessories (charger, headset). Consultants have different preferences, some opt for multiple lines to facilitate boundary management and others opt for the convenience of a single device. Two

consultants explain why having a single device is more convenient. Kam describes his personal experience:

> I used to carry three phone all the time, now I tend to not use them, I tend to use one (…) it's more convenient and then people know where to reach you, they don't have to worry about where you've been or if you're here or there. (Kam)

In this quote, Kam explains that he used to carry multiple devices but he decided to switch to a single device because it is much more practical to manage and carry as well as it is more convenient for others to reach him because they know that he is always reachable at this number. As he uses it for both work and personal communication, he always has this phone with him.

> When I'm in Beirut, I try to be early evenings at home so I can tuck my daughter to bed and read her a story. Over the weekend I try to spend as much time as possible with her. So this is why I try to avoid working or writing emails. But during work week, I'm available up to 2:00, 3:00 o'clock in the morning. (Paul)

Paul is very dedicated to his work and remains available to his colleagues and team members till late hours in the night, but he also knows that he will be often away and working so he has set a time during his weekend in which he does not respond to emails to be fully dedicated to his family.

While describing interactions, it was highlighted that interactions disturb interactions and work. Some consultants attempt to reserve work not that is not interrupted by phone calls and emails because they need time to concentrate and reflect especially when writing a report with a tight deadline. A consultant explained,

> When I need to focus for example, sometimes I know I have to put the phone away. If I have a tight deadline, in two hours I need to deliver something, I turn my email off. (John)

### 4.6.5 Concluding remarks on boundary management

This section described the consultants' boundary management efforts. It has highlighted the importance for consultants to ensure the continuity of their work not to jeopardize their projects, which causes work to expand at the expense of non-work as well as a blurring boundary of work. This section also introduced various practices involving ICTs, consultants have adopted in order to redefine their work boundary.

## 4.7 CONCLUSION

This chapter has presented a thick description of Sigma a tier-1 consulting firm that has a worldwide presence. It has described its organizational context which can mainly be characterized by a client-focussed strategy, its operations which consist of serving regional clients from a number of local offices and its work culture. The chapter also introduced actors at Sigma, consultants and support staff; it described the ICTs consultants use as well as the places they work in. These descriptions allowed to set the necessary ground to present consultants' own definitions of their work boundaries as well as their practices to manage these boundaries and how they use the ICTs to influence the boundaries of their work. This chapter provides all the necessary elements to answer the research question using the SMT and the BOC.

# Chapter 5 – Discussion

Work boundary management is a complex activity. The need to work at different times and in different locations is the reality for many contemporary organizations and consequently many individuals. Boundary changes have been studied from different perspectives and in a breadth of manners (Golden & Geisler 2007; Golden & Veiga 2005; Nippert-Eng 2003; Perlow 1998) however some researches do not take into full consideration the context of work factors and other contingencies (Mazmanian, Orlikowski & Yates 2006; Middleton 2008; Wilson et al. 2004). This research provides an alternative perspective on the topic of managing boundary work and contributes a sociotechnical approach for understanding work boundary negotiation.

Work interactions are now often carried out through the use of ICTs (smartphones, mobile phones, laptops) which have become a core component of work for consultants. Work has changed from being predominantly confined to certain physical locations to becoming liberated and freed from a single location – or rather to becoming integrated with the consultant him/herself wherever he/she may be.

This section aims to identify how consultants bridge boundaries with a special focus on consultant interactions with ICTs to connect to resources and to connect to people for the purpose of work. In the literature, the challenge of setting work/non-work boundaries for the mobile worker derives from ICT-enabled work interactions, the incoming calls and requests, and the emails received on the BlackBerry that the mobile worker chooses to attend to immediately or defer (Bauwens & Truc Modica 2007; Mazmanian, Orlikowski & Yates 2006; Sherry & Salvador 2001; Wilson et al. 2004). These interactions require actions on technology ‘to mediate task execution’. However this case illustrates that boundary setting is more complex as it involves more than

interactions and ICTs. The reasons identified by consultants to explain their actions on ICTs indicate that they are reflexive actors (Orlikowski 1992a, p. 404) who know what they are doing; they are conscious of their goals and are self-aware.

The objective of this study is to understand how work boundaries are being negotiated by consultants. A case is studied (refer to Chapter 4) in order to answer the research question: **How do management consultants use ICTs when negotiating work boundaries?**

This chapter aims to answer the research question by presenting the research findings and critically examining them in light of the extant literature (presented in Chapter 2). This chapter contributes to understand how consultants use ICTs to negotiate their work boundaries by analysing the role of ICTs and institutional factors. This analysis contributes to the development of a conceptual model to illustrate the boundary negotiation process and provide insight on the constitution of the (abstract) work boundaries. The model draws on the concepts of duality of technology and the existence of social structures to understand the relationship between individuals, ICTs and boundaries of work. This model allows an understanding of the negotiation process.

The discussion and analysis will progress in the following manner. Subsection 5.1 discusses how the work boundary negotiation process is an outcome of the structuration process, it explores the negotiation process in order to understand its components, exposes its mechanisms and sheds light on the boundaries of work. This leads to the development of a conceptual model that will draw consideration to the definition of work boundaries in relation to the research question. Subsection 5.2 discusses the contribution of the SMT to the exploration of work boundaries. Section 5.3 discusses the boundary object concept (BOC) and the SMT and how they contribute to each other.

It discusses their compatibilities and their inconsistencies in the context of Sigma. Section 5.4 concludes.

## 5.1 BOUNDARY NEGOTIATION AT SIGMA

The tension between the goals of consultants and the standards set by the organization creates anxieties for consultants and puts pressure on them as well as influence the way they negotiate work boundaries. Indeed the competitive work environment is a source of pressure (Orlikowski 1992b) the up-or-out policy and the few promotions granted every year push consultants to continuously go beyond their limits, prove themselves and differentiate themselves from others. Work in liminal space weakens their self-esteem (Gasson 2006) and leads them to compensate by finding sources of pride for self-assertion such as their rank, their belonging to a successful organization, their work which they consider prestigious, their clients who are the largest organizations in the Middle-East and around the world.

This section will explain how consultants, the organization and ICTs interact and how consultants' actions are shaped by the three social structures during the structuration process. Consultants act hoping to influence the social structures of communication, legitimation as well as to use their authority to their advantage. The work boundary negotiation is the result of this process. Work boundary negotiation by consultants involves many contingencies that relate to the organization (work practices, projects, clients, rules, etc.), the ICTs they use and personal attributes (goals, characteristics, preferences) and their interpretive flexibility which guides their actions including their adoption and modification of technology. Boundary management is a two-way initiative process involving efforts to enable work as well as to disable work. The negotiation of boundaries is the outcome of the structuration process that takes place.

With the aim of explaining the negotiation of boundaries by consultants, elements relating to institutional properties, the agents and technology that aim to promote work or to limit work were identified and summarized. They are presented in Table 5 below along with the two dimensions that impact on work (promote or moderate) and the SMT component (institutional, individual, and technology). Table 5 illustrates how interpretive flexibility is influenced by characteristics of the consultants and institutional properties (structures and characteristics materialize in actions on ICTs to set the boundary).

Each of the three components is discussed below in relation to how it influences work boundary negotiation. It is important to note that the specific properties identified for the case of Sigma are not properties that apply to all organizations; rather the institutional properties would depend on each organizations individual context (the properties to take into account are the ones that aim to specify how work should be accomplished). This leads to the conclusion that boundary negotiation is a result of the structuration process and allows for the development of a conceptual model of consultants' work boundaries that allows understanding of work boundary negotiation. The conceptual model is represented in Figure 4. Each of its components is discussed below while drawing on the social structures identified by Giddens (1984, p. 28). The three structures, their modalities and the way actors interact through them are highly interdependent.

| | Promote work<br>Enable work | Moderate work |
|---|---|---|
| **Institutional properties** | All institutional properties of the organization, including:<br>Strategy,<br>Roles and Responsibilities,<br>Work practices<br>Control mechanisms,<br>Client service,<br>Work culture,<br>Up-or-out policy,<br>Expertise | Work-life balance |
| **Individual characteristics, goals and preferences of consultants** | Career goals<br>Prioritize work to achieve career goals Other personal needs fulfilled through work<br>Prioritize 'quality time' with family | Personal preferences and priorities<br>Prioritize 'quantity time' with family<br>'Try' to reserve a day for the family |
| **ICT adoption and modification**<br><br><br><br><br><br><br><br>**Other technologies** | Respond to ICT-enabled work-related requests for interactions<br>Use multiple devices to increase one's reachability<br>Use missed-call alert to know who calls when no network connection is available<br>Acquire a wireless internet connectivity<br><br>Technology and connectivity<br>Acquisition of technology to have a full office set-up at home | Use 'work' and 'personal' ICTs<br>Decide which ICT to carry along<br>Separate data from voice on BlackBerry<br><br>Absence of technology |

**Table 5: SMT components in relation to their impact on work in the case of Sigma**

**Human agents** – The description of consultants, their goals and preferences were discussed in Chapter 4. Consultants are diverse in their marital status, lifestyles and career goals and they have their own preferences in terms of work location and work time. Consultants also privilege different types of time spent with their loved ones. Some of their preferences lead them to promoting work and others lead them to limiting it. Consultants have their own reasons (frequent travel, working with people from diverse cultures, challenging projects) for doing the job and each enjoys different

benefits, financial, intellectual, personal, career opportunities, etc.; many, hope to be promoted and become Managers in the organization.

Consultants highly committed to reach the top work beyond typical expectations. The up-or-out policy grants ***power*** to seniors to ***sanction*** those that respect the ***norms*** of Sigma by promoting them to a higher rank. The structures of ***legitimation*** authenticate such sanctions. Seniors represent the gatekeepers of this established order through the annual evaluation process and the application of the up-or-out policy which is an obligatory point of passage (Star & Griesemer 1989) in this agent groups. By promoting hard workers, Sigma ***communicates*** that it recognizes and values such behaviour by drawing on and reinforcing ***interpretive schemes***. This also increases the ***legitimacy*** of promoted consultants**.** When consultants adopt a behaviour based on the ***interpretive schemes*** they contribute to the structure of ***signification*** by internalizing the organization's culture and goals. When they act 'responsibly', they ***communicate*** to others about themselves and their work. Furthermore, when they display this behaviour they reinforce the structures by reaffirming the behaviours that are expected as they represent a role model for more junior consultants.

Some of the policies and procedures adopted in the organization are not fully formalized, sometimes not communicated, and in many cases non-existent, yet they are known by consultants. They are part of the ***interpretive schemes*** which represent the shared knowledge at Sigma and coincide with those described by Pawlowski and Robey (2004). Consultants refer to these ***interpretive schemes*** to exercise their judgement, as ***reflexive*** agents, to best perform their work. The responses of consultants indicate that this judgement is shaped by their perception of how their actions can help them achieve their goals while respecting and taking advantages of social structures in this

organizational context. Indeed, all consultants' actions feed-back into the yearly evaluation which is decisive for their future in the organization. Every promotion is a successful step towards their goal. Reaching the managerial level is an important recognition as seniors have a number of privileges; they are provided with a BlackBerry, an internet connection for their home, a larger allowance for personal phone calls on the business mobile line, and get to travel in business class, among others. These privileges constitute an indication of participation and belonging to the seniors' group. They reify the boundary between seniors and juniors (Wenger 1998, p. 104). These benefits also communicate the status of seniors.

Consultants have their own plans and ideals with regard to their personal life. They enjoy a good financial package that allows them to make the lifestyle choices which they believe are best for them. In terms of controlling their work boundaries, some have their own personal preferences regarding locations in which they do not like to work. Sometimes they benefit from mobility and ICT and schedule work in a location that suits them for personal reasons (refer to Appendix H – Analysis tables, Table H2 - List of work locations identified by respondents). Such as spend time with a family member in a hospital, spend time with a new partner in a different city or others. These consultants develop alternate practices to negotiate their work boundary. Others set their own rules to limit work time, one consultant tries to reserve a day for his family by not scheduling any work interactions. However, with weekends differing from one country to the other this is not always easy to manage. Another consultant redefined time to spend with his family by valuing quality-time as opposed to quantity-time. This constitutes a redefinition of the non-work boundary and it is a good illustration of the routinization of a discontinuity into a continuity (Watson-Manheim, Chudoba & Crowston 2002). Others use ICTs to develop their own ways to optimize their social or

family time. One consultant uses ICTs to listen to music or watch movies while away to liberate time-off to spend with his family while he is in his home country. These are all emerging personal practices that consultants have created to redefine their own boundaries based on their own values and priorities. Moderating work is not only about limiting work interactions, it is also about creating non-work spaces within work places and times or redefining non-work to cope with the challenges of the limited time and space that are left for it. The negotiation of boundaries is discussed further in the following sections.

**ICTs** – The three main ICTs of consultants (laptop, mobile phone and smartphones) constitute a bridge across boundaries, allowing them to counter isolation and distance from clients, to re-establish connections and interactions and extend the workspace. There is continual pressure from clients to use the same ICTs as those associated with their industry, because they have become the norm and the benefits and functionalities of these ICTs are expected by clients. These ICTs also allow the clients to have access to consultants and reach them any time. In this way the client exerts ***power*** on the firm and the consultant to use the same ICTs. By using these ICTs consultants are able to illustrate that they care, thereby increasing their ***legitimacy*** in the same token. The use of ICTs in client interactions, specifically the smartphone, liberates the consultants from location since the client can reach them wherever they are, allowing the consultants to interact with clients without clients knowing where consultants are (Panteli 2003), giving the impression of always being at work. This is particularly convenient for consultants who travel frequently crossing both time zones and weekends. They communicate to clients that they are at work to serve them, recalling on social structures of ***signification***. Serving the purpose of the client is enabled by the use of ICTs. While spending time at one client they need to remain reachable through location-spanning

ICTs to other clients. The interaction with work-enabling ICTs creates or reinforces work practices that expand work by being always informed and up-to-date on projects, and responding to different-place/different-time interactions promptly. Thus the ICTs shape work boundaries to include locations and times that are not traditionally associated with work; this represents an infiltration of non-work boundaries. By acting on ICTs, consultants have a means to manage their boundaries based on needs, either to promote work or to limit it. This illustrates the duality of technology, where depending on context technology is at times an enabler of work and at other times contributes to form a boundary to work.

The laptop is institutionalized in the organization, but work practices affect the way it is used. The laptop is redefined to integrate the resources and the support consultants need in their work, consultants give it a new meaning and it becomes their office. The workspace stops being a physical location and is instead defined by ICTs; the workspace becomes itself mobile. Setting-up all the needed technology for work and ensuring the availability of all required resources creates a workspace (refer to the production of space in Lefebvre 1991). Work moved from a physical place to spaces that are "produced and reproduced" (Lefebvre 1991, p. 77) by the consultants working in them. As work requires ICTs, consultants prefer "dominated space", space transformed by the availability of mobile networks and internet access.

Some interactions with the smartphone can influence ***power***. Seniors and juniors do not manipulate power in the same actions. Consultants' actions are calculated to shape the impressions they give to clients. **For seniors**, satisfying the client by meeting or exceeding expectations is important because developing a personal relationship and building a strong relationship are prerequisites of trust (Bloomfield & Best 1992; Sturdy

1997) which can be used to increase the consultant's ***power*** and facilitate the acquisition of new business. Consultants try to be always available for clients in order to increase their dependency, becoming indispensable for the client and becoming part of the client's decision making and problem solving processes (Bloomfield & Danieli 1995). Indeed, being accessible and responding to client interactions is a manifestation of commitment which clients value (McGervin 1983 in Bloomfield & Danieli 1995). Consultants interact with ICTs to shape their role and image, for instance they use the BlackBerry to promote an image by which others perceive them well. They seek to be recognized by those who have adopted the ICT before them; adoption is implicitly expected. **Juniors** expect the smartphone to increase their ***power*** and ***legitimacy***. Although they are aware that they give-up their time and space by using smartphones, they find some satisfaction in its use and consider it is difficult to stop using it. ***Legitimation*** and ***communication*** structures have a compensating role and motivate the compromise consultants are willing to make. They give-up part of their freedom and in return are able to communicate the image of a hard worker that adopts the latest technology and this increases their legitimacy (Sturdy et al. 2009). ***Being part of the circle*** is important for consultants as it allows them to be informed by receiving all emails when they are sent and influence decision – especially when decisions are made quickly – by at least stating opinions, interests and preferences; consequently to be part of the on-going discussion and not to 'be excluded'. Some juniors acquire a personal BlackBerry to participate to the senior's interactions and be part of that circle. The use of this device is now associated with ***power*** that derives from access to information. This is related to authority, one of the social structures described by Orlikowski (1992a) and Giddens (1984). Also by improving their visibility and their relations with senior consultants, they improve their opportunities; this allows them to draw on

communication and legitimacy structures. This concurs with previous findings investigated by Schlosser (2002) who researched the use of handheld devices in relation to aspects of self-identity. The 'image' component of the BlackBerry use relates to the 'achievement of the imaged self' identified in her study. Middleton (2007) reports that users find the BlackBerry empowering because it gives them more control over their environment. This is further explored below. This analysis illustrates the view of ICT as "a highly contextualized tool and medium, which is affected by the social setting in which it is deployed and which in turn affects the social setting" (Sørensen & Pica 2005, p. 132). This reaffirms the duality of technology premise in the SMT (Orlikowski 1992a). Consultants use them to operate across locations and distance, enabling work continuity (Watson-Manheim, Chudoba & Crowston 2002) and mediating the continuation of social systems across time and space through time-space distanciation (Giddens 1984). ICTs allow work to infiltrate this location, which is consistent with previous findings on boundary blurring (Duxbury et al. 2007; Hislop & Axtell 2007; Middleton 2008).

Expectations of clients are pushed down the hierarchy from the most senior to the most junior through authoritative resources, which is an illustration of power. For instance, mobility is required because the client needs to see the consultant; it is imposed by the senior and accepted by the junior. But this is sometimes abused when the senior benefits from this accepted operational mode and the whole team is expected to travel for a number of days to accommodate a senior and meet with a client for a couple of hours only. Furthermore, senior consultants obtain a direct and ***permanent access to consultants*** by phone and by email. The smartphone becomes a means to exert domination on more junior consultant. The smartphone allows for a manifestation of allocative power and reinforces managerial power, reinforcing structures in the

organization. Smartphones allow seniors to ***draw on resources*** and to draw on juniors' time, producing and reproducing structures of domination. One manifestation is the perception that the smartphone is used at Sigma to redistribute work to others. Junior consultant also benefit as it gives them a direct access to seniors' time to obtain answers or feedback. Personal assistants make themselves available to the seniors they assist, and of course clients access consultants assigned to their project.

They use ICTs to liberate themselves from locations and from time constraints, for instance consultants use slack time, sending emails at night or work in a plane, which are not the typical time to work but they choose to do it to better to manage their time (Eriksen 2000 in Towers et al. 2006) and increase their level of control – their ***power*** – on their own time. Transform non-work time into work-time and then reversing the process by transforming work-time into non-work time is an interesting practice and is compatible with their culture in which time is money (Wilson & Howcroft 2002, p. 584). This is also compatible with the 'work hard, play hard' motto consultants believe in, as it allows them to make the most out of every minute by managing work boundaries in the most time-effective way.

Even when consultants reserve time for themselves or their friends and family, they use ICTs to remain reachable. These interactions are an entrenched part of the practices of the organization. Client projects take priority over everything else, consultants have been observed using their BlackBerry in a board meeting showing that the client is even more important than work etiquette. Ensuring that these interactions are always stable, causes spaces to overlap creating space edges (Giddens 1984, p. xxvii) and causes disruptions to other interactions and consequently leeway for conflict. Space edges

observed during client interactions are not recognized by consultants, because the client always has priority.

Because consultants are aware that the client holds the power through the contractual relationship (discussed further below), consultants know that there is a number of client-related issues they have to abide by. It was observed that consultants have a higher tolerance for work expanding beyond its traditional boundaries and invading their personal boundaries when the interaction is client-initiated. Indeed descriptions illustrate that some work interactions disrupt others but it was never the case for client-initiated interactions.

The institutionalization of ICTs, their habitual use and the increased dependence on them reinforce their necessity for work. Indeed as "operations are now much more dependent on the technology, they are also more vulnerable to technological breakdowns" (Orlikowski 1992a, p. 407). Consulting has become highly ICT-dependent, ICT facilitates consulting and its absence or breakdown disrupts it. Chris, one consultant, also recognizes that "things are changing (…) we're taking [them] for granted so quickly". Orlikowski explains the process "Over time, habitual use of such practices eventually becomes institutionalized, forming the structural properties of organizations" (1992a, p. 404). The use of ICTs is reinforced and use leads to more use.

**Institutional properties** – Two types of institutional properties contribute to shape the boundary of work, those that promote work and those that limit work. Numerous elements described in the case presentation (Chapter 4) promote work. One organizational structure limits work; the work-life balance policy sets a limit to work by balancing work and non-work. This policy is met with limited success because when consultants have work, it becomes the priority. This idea that work comes first is

compatible with the managerial perspective identified in the literature (Golden & Geisler 2007). Although work-life balance is an organizational policy, it is defined as a personal responsibility. Thus it is the consultant's responsibility to set their own work boundaries (refer to section 4.2.1).

The case illustrated that the culture of the organization, the operating model, the work practices, the roles and responsibilities, the career path, the yearly appraisal, the work procedures, are all aligned with the strategy. These institutional properties constitute the environment in which consultants operate and represent the institutional conditions of ICT use, contingent on each individual's interpretive flexibility which intervenes to influence action. The strategy requires consultants to serve clients seamlessly regardless of location, to work closely with each client and develop a privileged, trusted relationship with them. The client structure in Sigma's organization is built around the client to serve the client, it is a concretization of client service as value. It legitimates the operational mode, originally dictated by the client that holds the ***power*** in the contractual relationship. Clients sign for a consulting project, they are billed a number of consultant days, and own the time of consultants. Clients have expectations with regards to Sigma services that derive from what they know of the consultancy industry and from past interactions with Sigma. The client decides when to see the consultants and where the work takes place. They also expect to reach consultants when they need them and to get a response when they contact them. The business depends on the client. The project is for the client and pleasing the client is important. ***Client service*** refers to the set of institutional properties that shape the relationship and interactions with the client, the values (client service as a value and professionalism) and the work practices. These manifest as availability and responsiveness to clients coupled with the timely delivery of a project that 'makes a difference' for the client's business. Consultants

define their work time and place to best respond to client needs and organizational requirements. Client-related activities, whether face-to-face or ICT-mediated, place the consultant in a work mode. The requests, interactions, time and place associated with clients define work. ***Social structures*** protect and promote work, consultants work when they have work because they are professionals and act accordingly. The boundary of work becomes that of task completion which concurs with Broadfoot (2001), and by acting in line with these structures, consultants reinforce them over time. Mobility itself is governed by the client needing to see the consultant a manifestation of client power, a social structure that was identifiable in the descriptions of respondents. Consultants have a good position in the client-consultant relationship but since they always aim to keep the client satisfied, they remain at the mercy of client satisfaction.

Consultants **present** themselves as an intellectual elite, as competent professionals with a high level of integrity, self-control and expertise in line with Alvesson and Johansson's (2002) description – This presentation falls in line with one of the perspectives found in the literature and identified by Fincham and Clark (2002) as the organizational development stream. This image they want to project is important in relation to power-plays with clients since it allows them to manage the impression they give to the client and influences the social structures through their intervention (refer to section 2.5.2). By aligning their goals to the client's (Bloomfield & Danieli 1995) they seek to convey an image of objective expert and increase the trust the client has in them hoping to obtain additional work.

The culture is characterized by a **work ethic and values**, such as client service, excellence and professionalism. Together, they lead consultants to work hard and to always be accessible to the client. The work practices require consultants to work on

multiple client projects, to manage teams in multiple locations and to be mobile among the different locations. The project requirements defined in the work practices and enforced through stringent quality control mechanisms necessitate hard and intense work to complete the project on time and up to quality standards. The existing structures at Sigma create work-related requirements; consultants must be connected and be able to communicate, because connectivity and communication are necessary for on-going (and sometimes instantaneous) interactions with work partners, both clients and colleagues. They must have access to others and to the firm's resources to be able to work. In addition to these structures, the personal goals of consultants motivate long, hard hours of work. Both structures and personal goals lead consultants to use ICTs to create work continuity.

**Expertise** is important and is at the core of the consultancy activity. The consultant holds the power that derives from knowledge and expertise. In the context of advice being the provision of knowledge and expertise, a request for advice becomes a form of recognition of some knowledge deficiency (Bloomfield & Vurdubakis 2002). Descriptions by consultants of their role in relation to the client, fit the client-expert interaction identified by Nikolova et al. (2009) and the doctor-patient metaphor reported by Bloomfield and Best (1992). This presentation corroborates the descriptive literature written by consultants and critiqued in the newer streams of research on consultancy (Bloomfield & Danieli 1995; Fincham & Clark 2002; Sturdy, Werr & Buono 2009). The image consultants convey to clients influences the legitimacy of their intervention. All actions that influence image have an impact on the social structure of legitimacy. As described in the way consultants present themselves, they align their goals with the client's to gain trust and convey an image of an objective expert. They try to balance the power relationship by increasing their legitimacy. When consultants are promoted they

demonstrate that they have acquired an indisputable proof of expertise and it is a source of pride for them. Their rank in the career path is important for them, it validates their capacity and grants them additional **legitimacy** and increased **authority**. It contributes to defining who they are, it represents a structure of **signification** as it communicates to others their level of experience, knowledge and responsibility.

The ***work culture*** pervades at Sigma, it embeds a number of values that Sigma lives by such as excellence, entrepreneurship, professionalism and integrity. These stated values relate to social structures of communication and signification. This culture has an impact on the way work is performed and when it is performed. For instance excellence dictates work quality and quantity which are highly linked to the promotion of consultants. Entrepreneurship dictates individuals highly involved and dedicated to achieving results, a value that implies quality and quantity of work. Sigma seeks to recruit people said to be intellectual elites, people willing to work in its prescribed work conditions. Consequently hard work becomes a form of legitimation of the quality of consultants. This in itself communicates to current and future consultants the expectations with regards to work and behaviour in general. With recruitment, begins the process of reinforcing existing structures, by recruiting the people who fit the heavy demands of the job. The culture of Sigma is an important institutional property, it legitimates the operational mode as being the desired mode in the organization. The work culture is a form of authority since there is an internal competition for few promotions given-out every year. Respondents highlight the strict adherence of consultants to this work culture, which is a prerequisite to accepting the work practices in general, because they entail long hours of hard work.

Two main control mechanisms are of interest. The first control mechanism is continuous feedback at the project level which was described above in work practices (refer to section 4.4.2). The second is the consultant yearly appraisal in which all interactions - with seniors, colleagues and subordinates - are assessed in the 360 degree evaluation process (discussed above) and that leads to the application of the up-or-out policy (presented and described in 4.2.1). These control mechanisms attempt to enforce adherence to all the rules of the organization; they represent the safeguards to ensure that the strategy of the organization is being implemented through the multiple institutional properties and resources available internally. Social structures of legitimation manifest in the form of sanctions and are built in a way to respect client service and the work culture. Since control mechanisms are in line with the practices the organization seeks to maintain, this has the effect of pushing consultants to work harder and preventing employees from adopting behaviours that lead the social structures to change over time.

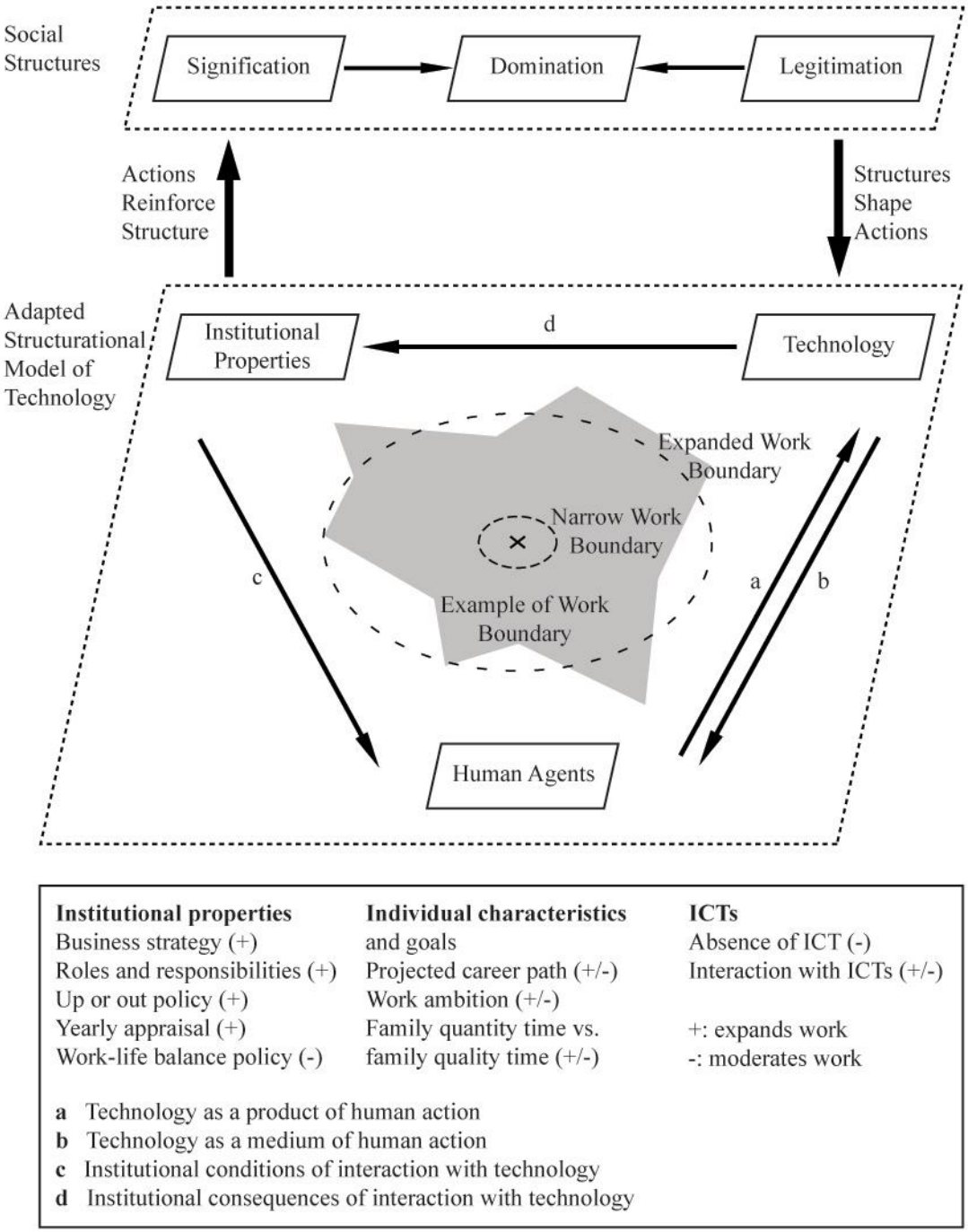



**Figure 4: Conceptual model of consultants' work boundaries**

**Boundary negotiation** – Boundary management is an active process by reflexive agents to influence their work boundaries. Boundary management by consultants involves the three components identified above, structures of the organization, the individual and use of ICTs (refer to Figure 4). The conceptual model depicted in Figure

4 is used to provide a conceptual description of the boundary negotiation process. It illustrates that boundary management is a process that is contingent on a motivation that results from the interplay of the structures of the organization and the consultant's personal characteristics. It illustrates the interaction between the three components and the social structures.

The preferences of consultants did not vary by gender or marital status, but boundary management differs from one consultant to the other. Consultants interpret and internalize organizational structures differently; they have different personal norms and take different actions. Boundary management is complex; further investigation is required to explore the relationship between boundary management and personal goals, career plans, life goals, lifestyle and gender. Lowry and Moskos (2008) conclude that boundary management differs across groups of participants. This study confirms their findings since personal characteristics are one of the components that contribute to boundary negotiation.

Consultants at Sigma seek to retain some control on their work boundaries and retain the option of boundary-switching; they achieve this in the way they use their ICTs. They carry boundary-spanning ICTs related to the mobile character of their work, they install some sedentary technologies (at home), and they use and modify their ICTs. These actions on technologies allow them to purposely reconfigure their locations (Lefebvre 1991) and alternate their purpose between work or non-work depending on need.

Schlosser (2002), in her research explores the meanings associated with ICTs. She identifies their role in "attending to the relational self" (p.142) and "adapting to an integrated self" (p.414) which are related to aspects of boundary management since the

first involves communicating with others and being reachable while the second involves dealing with work and non-work, increased expectation of availability and setting limits. Consequently consultants have the facility to self-regulate use and redraw boundaries as needed to balance work and non-work (Schlosser 2002). This separation is intended to maintain the personal boundary as well as improve the quality of personal interactions, equivalent to putting a limit to work. In many cases, boundary management is intended to facilitate work in locations that would traditionally be associated with personal interactions. This facilitation of work, even if only tacit, indirectly infiltrates the personal boundary and disrupts the personal interactions. This work highlights the role of ICTs in the negotiation of work boundaries, however the lack of information on work in Schlosser (2002), on the respondents and on the exact context of use, make it difficult to compare these findings with the current research.

Frequent boundary-switching from non-work to work and from project to project shortens the time associated with a specific boundary role (Ashforth, Kreiner & Fugate 2000), shortening the uninterrupted time allocated to a specific task as well as attention span. The micro role-changes described by Ashforth et al. that typically occur within the day, such as when arriving to work and when going back home, become nano changes in the case of consultants as they boundary-switch multiple times within the hour; these changes occur between work and non-work roles, but they also occur between different work roles. The use of time and space become fragmented as the durations protected by the boundaries are redefined and shortened. As the boundaries can be continuously redefined, it can be difficult for somebody other than the consultant to determine whether he/she is in a work frame or not. Consultants are not subjected to a traditional work understanding: a single role performed in a specified location at a specific time. The traditional nature of work boundaries has changed, work boundaries that are

typically static (at least for a work-day or a stretch of time within the work day) become fluid with the use of boundary-spanning ICTs. The same actions that protect the boundary in specific places for specific periods of time can infiltrate them in other places or at other times. In the past for example, one would disconnect from work simply by being home. Nowadays, ubiquitous ICTs allow the individual to extend the work boundary by using work-related ICTs at home and for working late at night. However, these same ICTs also allows one to reinstate the personal boundary by turning off the smartphone on Sunday morning, while, for example, having brunch with her/his family. These capabilities redefine traditional concepts such as being home, disconnecting and relaxing, the weekend, work-time, and work locations.

The findings from this research do not support the idea of segregating work from non-work. Consultants at Sigma do not want to separate work from non-work, they want to moderate work while retaining some control over their boundaries. This is in contrast to Wilson et al. (2004, p. 186) who identified a desire, of knowledge workers in a global professional services company, to "separate these two aspects of their lives, to segment them as much as possible and to have hard, inflexible and impermeable boundaries between the two". More information on their case study is required to understand the difference in opinions regarding boundaries, specifically information about personal goals and properties of the organizations in which they work.

Nippert-Eng (1995 in Golden & Geisler 2007) identified two strategies for managing work/non-work boundaries, segregation and integration. Golden and Geisler (2007) identified ten practices that PDA users engaged in with implications for work-life boundary management. They also identified four interpretive repertoires users used to account for their practices. Analysing the boundary management actions of consultants

in relation to the four interpretive repertoires developed by Golden and Geisler (2007) indicates that their actions do not fall into a single repertoire. Instead, consultants take actions that belong to multiple repertoires modifying the boundary management approach to meet their needs. Each consultant takes, at one point or the other, actions that promote work, protect their lifestyle or both. Consultants take actions that belong to multiple schemes and this further reveals the dynamic nature of boundaries. For a specific individual, their purpose can be to 'contain work', 'transition work', 'segregate work' or 'protect the private life' all at different points in time, in different locations and in different contexts. This switching from one approach to the other indicates the difficult work requirements of consultants and the challenge they face in integrating personal preferences.

Looking back at the issue of disruptions, one can speculate that all of them are caused by a lack of boundary management; no limit is put on work. Even when intended and unintended consequences contradict; for example, work interactions are enabled by and disrupted by the ICTs in use and a discontinuity is observed. This can be avoided by strict boundary management. This would require further research, to provide a broader view of the importance of boundary management.

### Unintended consequences

Unintended consequences create new work expectations with regards to reachability, responsiveness and they extend work time. With the mobile line service, permanent connection to individuals is possible and it can shape the interactions that take place, in their timing and frequency. When the organization gives a mobile line to a consultant in order to be reachable, this allows others to dispose of the consultant's time. This permanent availability to others and increased responsiveness to incoming communications causes an acceleration in the rhythm of work.

> Usually people maximum will reply [sic] the following day (…) usually they are pretty online. (Pete)

This quote illustrates the emergence and institutionalization of new expectations regarding response time and new practices in the organization (Mazmanian, Orlikowski & Yates 2006; Middleton 2007; Schlosser 2002). Prasapolou et al. (2006) suggest that maintaining boundaries and not responding to these interactions would be interpreted as "evading or not delivering on work responsibilities" (p. 283).

Work at Sigma goes on around the clock throughout the week and it is not defined in terms of work hours. Work interactions have no time frame and no location which is in line with Wilson et al.'s (2004) conclusions that traditional boundaries that were externally defined are blurred away. The ensemble of these ICTs contributes to putting the consultant in an on-call 24/7 state (Tarafdar et al. 2007) which has been compared to a 'ball and chain' (Townsend & Batchelor 2008, p. 180) and to an 'electronic leash' (Arnold 2003).

The following quote illustrates how the process of using the ICT, valuing its consequences, becoming dependent on it, and taking it for granted creates new institutional properties, in this case, increasing the rhythms of work.

> Before having a BlackBerry I didn't see the need for it. After having a BlackBerry I don't know how my life was before it. I don't know how I could manage without it. (…) If I had to wait, to access an email, to receive a fax, or to have to be in an office somewhere in order to transact my business [I wouldn't be able to achieve what I achieve in a single day]. (Chris)

This habit is often driven by a fear of missing-out on what is happening elsewhere and of being disconnected. As these expectations for availability increase (Hislop 2008; Middleton 2007; Schlosser 2002), and new work expectations are institutionalized they form new institutional properties that influence the boundaries of work. Projects are

completed in a shorter time, so “clients [get] what they want in [a] faster way”, explained (Ted). This acceleration leads to projects being sold with shorter deadlines, which in turn, puts more pressure on consultants. The acceleration of work reduces the reflection time typically available for different-time interactions at a risk of impacting the quality of decisions.

Work is expanding and there is an increasing challenge in identifying its boundary. The absence of time as a boundary to work is reinforced. Consultants who find the ability to work on the move convenient, develop a habit of doing so; a habit that reinforces multi-location work.

### 5.2 THE SMT AND THE EXPLORATION OF WORK BOUNDARIES

Structuration is a social process that builds on the duality of structure which involves the reciprocal interaction between action and structural features of society; it recognizes agency and reflexivity of the human agent. Orlikowski (1992a) developed the SMT to examine the interaction between technology and organizations by reconceptualising technology and integrating the social and the technical perspectives. An important premise of SMT is the duality of technology.

The aim was to explore the work boundaries of consultants and their negotiation. Using the SMT to understand the use of technology in an organizational context, Sigma, was helpful. The research question was addressed by identifying the components that contribute to boundary shaping and by studying the structuration process. The analysis of the process deciphers the social structures at play and reveals the pressures on consultants.

This approach unveiled that work boundary is an outcome of the structuration process and that the interaction with technology is a means to negotiate the boundary of work. Furthermore, the social structures constitute the boundaries of action (and consequently the boundaries of work, itself an action) in the organization, since they influence how work should be performed. With the frequent bridging of the time and the space boundaries of work, the traditional boundaries have become less important and new boundaries resulting from the structuration process are becoming more significant although they are abstract and only exist as memory traces.

The following analysis illustrates how the social structures could be observed as coming into play at Sigma, how they influence action, how they contribute to work, and the role of ICTs in this structuration process; it highlights the contribution of the SMT. The analysis is presented along the three social structures (Giddens 1984; Orlikowski 1992a) that are only separated for analytical purposes and will help confirm the role of these social structures in the negotiation of the boundaries of work. The process that led to the change in the nature of boundaries is outlined below.

**Signification is the first social structure observed**. The consultants at Sigma described how, during interactions, they draw on common stocks of knowledge or shared frameworks which constitute interpretive schemes to know how to interpret situations. These represent the applied reflexivity of consultants and are important for sustaining communication. It constitutes elements for sense-making and shapes communication to the outside world. Interpretive schemes are at play when consultants communicate to others who they are – self, identity and image – and shape the way they present themselves to others. Consultants, as they described during interviews, want to be perceived as being trustworthy, professional, expert, knowledgeable, and ethical. In

their descriptions, consultants refer to these attributes explaining how important they are and providing examples of how they apply to them. One of the consultants explained,

> Our aim is to make a difference in organizations and in people's lives; and we have the capacity to do that. We are experts in our field, we perform our project according to the highest standards and we expect our client to trust us in order to deliver what is best for that client. I am proud of what I do. (Chris)

Consequently they act to convey these characteristics, they behave professionally with clients, are reliable and trustworthy. By being always present at the client's they become indispensable for the client, and by working long hours they become dedicated. They act in a way as to convey the culture they identify with, the knowledge and the expertise that represent them. Their actions allow them to constitute meaning. Internally, the way the consultant acts has an impact on how he/she is perceived and consequently evaluated and promoted. And externally it affects client evaluations and success in contract signatures. While presenting themselves and building their relationship with the clients, consultants draw on their professional reputation (Bloomfield & Danieli 1995), they present themselves as objective and present their interest to concur with that of the client. The whole consultancy process is performed in a way as to convey a certain image, influence and representation; the findings of this research reaffirm that. Indeed presentation represents a rule of signification.

**Legitimation is the second social structure observed**. All actions and interactions are subject to the guidelines of the organization, the quality standards, the work method, the project conduct approach, the expectations regarding the end-of-project feedback, the expected performance on the end-of-year evaluation, the up-or-out policy. All of these represent the norms of the organizations that legitimate and sanction action. Sanctions are highly linked to the structure of domination (discussed next) since they represent structural asymmetries of domination. The project manager represents the authority in

charge of assessing whether norms are respected or not because he/she provides the end-of-project feedback – taken into account in the yearly evaluations – in which case a sanction may follow as the project manager would not pick the consultant when forming the team for a subsequent project. Furthermore, working up to standards or exceeding them leads to promotions and increased responsibility. When the consultant reaches the top of the ladder he/she becomes a manager which is the ultimate career achievement and represents the ultimate recognition and sanction.

**The third social structure observed is domination.** Power is central to social theory and the understanding of social life (Bloomfield & Best 1992; Giddens 1984) and of social relations and actions. None of the interactions would be possible without the power that provides consultants with the organizational capability to accomplish their work. The use of power is mediated via the resources (authoritative – roles and responsibilities, team assignment for the project duration, assigned tasks, project schedule, project documentation and feedback – and allocative which allocates for instance junior consultants to projects, bill travel tickets on a project account, etc., as defined by Giddens). Furthermore, resources are paired to stocks of knowledge that direct consultants' actions to use resources in expected ways, according to Sigma's standards or norms. Resources are particularly important in this research interested in the role of ICTs, this case illustrates that ICTs are resources since they fulfil the defined condition; they participate to the structuration process. In the theory of structuration technology is considered a resource only when it is integrated within the process of structuration; as Jones and Karsten (2008) clarify it is only the way it is used that constitutes a structure. Indeed a direct influence of technology on action is not possible and would equate to determinism. ICTs are drawn upon; they are the medium of action. They are also allocative resources as they are used to bridge boundaries and redefine

them, regaining power on their own time and space. Another example illustrates the role of ICTs in relation to domination; consultants report that the blinking of the smartphone is stressful, they associate it to “a call-of-duty” here the smartphone becomes an authoritative resource reminding consultants of their responsibilities and assigned tasks, leading consultants to read their mail or message with the purpose of acting on it, leading consultants to negotiate intentionally or unintentionally their work boundaries.

The descriptions of consultants with regards to client interactions reveal the power of the client and how the consultants sense it. Similarly their descriptions highlight the actions they take to increase their power and influence client decision making or manage to sell them a new contract.

The consultant communicates expertise (signification) that aims to develop good privileged and trusted relationships (domination) with the client, the latter signs the contract (sanction), expresses satisfaction (sanction). The actions involved in this process draw on ICTs as authoritative and allocative resources

This research clarifies the influence of both the technical and the social on the negotiation of boundaries. It highlights the possibilities ICTs allow, the social and work contexts and how consultants benefit from these possibilities to adapt to their work context. Bloomfield and Best (1992) expect the negotiation of boundaries between the consultant and the organization to be the result of a power struggle in the context of a system development, they assert that awareness of power gives rise to mutual negotiation. In the context of this research, consultants are self-aware of this power balance and the negotiation observed is more subtle from the perspective of the consultant; however the perspective of the client is not known.

The exploration of boundary negotiation using the SMT clarifies that boundary negotiation is an outcome of actions and practices and result from the reflexivity of individuals. It can also be the unintended outcome of other intended actions. Boundary negotiation is produced and reproduced via the action of consultants, reflexive individuals, who draw on social structures as they manifest in the organizational context but also those that manifest in their personal life.

The analysis revealed that the properties of the organization along with the individual norms and preferences – that characterize human agents and manifest through reflexivity – influence the use of technology. This is in line with interpretive flexibility, defined by Orlikowski as "an attribute of the relationship between humans and technology and hence it is influenced by characteristics of the material artefact (e.g., the specific hardware and software comprising the technology), characteristics of the human agents (e.g., experience, motivation), and characteristics of the context (e.g., social relations, task assignment, resource allocations)" (1992a, p. 409). Other research that used the SMT has studied the properties of the organization (Barley 1986; Olesen & Myers 1999; Purvis, Sambamurthy & Zmud 2001; Sahay & Robey 1996) which is of interest in studies of organizations, another focussed on the needs of individuals (Carlson & Davis 1998).

Institutional properties have a critical role in the structuration process, yet Orlikowski (1992a, p. 409) does not provide an exhaustive list of institutional properties in her paper, rather she lists indicative structures that could apply in certain institutions. In her description of institutional properties, she uses terms like "including" and "such as" (1992a, p. 409) and does not explain the foundation of the provided list, on what basis were these properties selected? How is each defined? Which are important? Are all the

properties listed necessary, sufficient? As institutional properties are related to each other[22], which properties have the most significant impact? To perform the analysis in the present case, a decision was necessary with regards to which institutional properties to consider. Based on the case, the descriptions made by consultants, the background of the researcher as a consultant and her understanding of organizations in general, she selected the properties that had the most explicit role in defining the role, goals and work of the organization; selection was based on an extrapolation from Orlikowski's original work. These properties are listed in Table 6.

| |
|---|
| Sigma's business strategy |
| The external environment of the organization |
| The culture |
| The organizational structure |
| Roles and responsibilities |
| Policies relating to human resources issues |
| Standard operating procedures relating to work |
| Control mechanisms |

**Table 6: List of structures considered in the sociotechnical analysis of Sigma**

The analysis illustrates that reflexivity of consultants is a component impacting boundaries. The SMT integrates human agents and their reflexivity which is defined by Orlikowski based on Giddens' work and it "refers to the capacity of humans to routinely observe and understand what they are doing while they are doing it. It is not merely self-consciousness, but includes the continuous monitoring of physical and social contexts, and activities" (Orlikowski 1992a, p. 404). As such, reflexivity and its limits take shape in interpretive flexibility. Individual characteristics influence actions (through technology) which are also influenced by institutional properties; yet it is the set of social structures that influence agency. However, if the influence of structures is

[22] This is expected and necessary for the organization to realize its strategy and achieve its goals; this represents good management practice.

mediated by the influence of individual characteristics (personal preferences and goals, motivation to develop personally, professional aims such as climbing the career path), understanding boundary constitution becomes a challenge and is constrained by the understanding of these individual characteristics. At Sigma, some consultants prioritized their work and were motivated by career goals in the context of the up-or-out policy. Others were keen on putting limits to work.

The literature argues that the impact on both work and non-work boundaries are a consequence of ICTs (Middleton 2008; Townsend & Batchelor 2008) and that mobile workers struggle with its consequences (Cousins & Robey 2005; Green 2002; Mazmanian, Orlikowski & Yates 2006). The argument that ICTs cause the blurring of boundaries and discontinuities does not recognize the social aspect of the relationship between technology and the organization. The sociotechnical perspective recognizes the context and human agency. Using the SMT allowed for an examination into the process that takes place as an explanation for the ICT impacts on the organization. SMT allowed the study of the micro dynamics that occur during structuration. Reflexivity and interpretive flexibility reveal that consultants have a choice shaped by their individual characteristics.

While trying to capture these individual characteristics, a contradiction was identified in the responses of consultants. On one hand, the corporate talk regarding the advantages of mobility and, on the other hand, their experiences with the difficulties this lifestyle imposed on a day to day life with family, friends and routines. In one minute, consultants were saying that they like their mobile work practices, because they contribute to self-development. In the next minute, they stated that they did not like them, because it disrupted their lifestyle. These fine line contradictions appeared

specifically when talking about their family and sustaining long-term relationships. Beyond the primary reading that recognized a contradiction, the key was to decipher who consultants are – their individual characteristics. These consultants are hardworking, highly skilled and highly paid professionals who have accepted a lifestyle spending a lot of time away from their family for the purpose of work and their career. By deciding to work at Sigma, they chose to ride on the fast track, building their career as quickly as possible. Their goal is to climb the career path and become Managers at Sigma. Some consultants were able to express this clearly. Nick briefly explained the role of work in his career,

> It's a conscious sacrifice that everyone in the family has to be ready to make, otherwise it can be a dangerous situation. (Nick)

Mike was able to articulate his ICT choices in relation to this same career goal. This quote is a clear expression of his reflexivity,

> [Technology] is omnipresent, the decision to make it invading is our decision right, if I want to shut it down, I shut it down. It is going to affect my productivity, it is a choice I have to make and if it affects my productivity and my career then I have to make a choice if I want to stay in this career or go to a different job, but it would be absolutely not responsible for anybody to say, oh my God technology is killing me. No it's not, you decide what to do with technology, technology actually gives you tons of opportunities… we decide what to do with it. I am happy with what I am doing with it. (Mike)

Work is the priority[23] for these consultants, they will either become a Manager or they will have to leave the organization at some point; and this is the most important element in defining who they are. The goal is theirs, but they can only achieve if they respect the requirements and practices of the organization. The alternative is resignation, a choice made by many.

[23] This statement is neither judgemental nor is it normative, it is a representation of the respondents' work experience. Since this research is performed from an interpretive perspective – and not from a critical perspective – there is nothing to add.

> People who try to limit the degree to which they are working in a way that is negative towards the quality of their output, will be weeded out by the system. The system thrives on overachieving, over-delivering people. (Nick)

The possibilities offered through the institutional properties appeal to many consultants who internalize them as their own individual characteristics and goals. For example, individuals are motivated by the existing career path and seek to reach the top. Consequently they work hard, prioritize their clients and their projects over their own life and become used to working all the time.

The importance of the SMT, especially in the research process, is in recognizing the individuality of the human agent and questioning the applicability of previous findings in the literature. For instance the findings contradict the literature that identifies the desire of individuals to separate work from non-work (Wilson et al. 2004). Even when consultants at Sigma mentioned their desire to set a boundary between work and non-work, for instance, using multiple ICTs, one should not conclude that the consultants are requesting a complete discontinuity, a complete separation between work and non-work. In the case of these consultants, separation is relative and refers to moderating work in some places or during some periods of time.

The analysis of the structuration process revealed the high workload of consultants, the weight of organizational structures that promote work, the role of the control mechanisms that penalize underperformance (gate-keeper protecting existing structures) and the personal goals of the consultants that shape their actions. These findings are in line with those of Ashforth et al. (2000). The cost and benefit of a domain (work or non-work) will influence the individual's decision to maintain the associated role or to switch to another more 'beneficial' role these costs and benefits depend on the personal goals, preferences and experience of the individual.

Putting this in perspective, consultants do not have a limited reflexivity, nor is their agency constrained. Resigning and finding another job is an option and they can most likely find a job easily. They are highly skilled, they acquired invaluable work experience at Sigma, and developed an important network in the business world. They will even have access to Sigma alumni who represent an important pool of potential employers.

The fluidity of the work boundary manifests in the boundary negotiation, by frequently moving from location to the other and by interacting with ICTs they negotiate their work boundaries simultaneously and define new work spaces.

Social systems exhibit structural properties. The case under study is a social system that entails ICT which mediates organizational processes; this situation has not been adequately accommodated by Giddens. Orlikowsky developed the SMT to accommodate technology in such situations and described its significant role in the processes of structuration. The use of ICTs for communication is considered as an interpretive scheme (Orlikowski 1992a; Orlikowski & Robey 1991) that translates action into routine. Modifications to technologies whether real or simply through interpretation recreate structures of meaning that modify the users' perceptions and practices for work and interactions (Orlikowski & Robey 1991). Information technology also reinforces systems of domination by institutionalizing the premises for making decisions; at Sigma, whoever reads and responds to emails influences the decision being made. Information technology enables the formalization of sanctions and the creation of an institutionalized moral order. By assisting in the codification of norms, information technology helps to control behaviour (Robey & Orlikowski 1991, p. 155).

It is important to note that in the case of Sigma there is evidence that ICT (specifically the smartphone) participates in the structuration process. As described above it is used and given meaning within the organizational context and it is the medium of human action. When acting on technology individuals are reflexive and their reflexivity is influenced by the three social structures. However there is no evidence that social structures are embedded in the smartphone. 'Embedded' is understood as a situation in which the technology is customized or configured in a way as to enforce social structures; to illustrate, had Sigma implemented a procedure to archive all email communication relating to a specific project allowing all management to refer to it if needed, it would have embedded the social structure of domination. In the current case, the interpretations and meaning associated to the smartphone are reinforcing the social structures however this remains a consequence of human action and not as a result of a technology feature or functionality. Consequently it seems that the social structures are not embedded in ICTs although they are reinforced by them, which seems to be contrary to Orlikowski's (1992a) position.

### 5.3 THE SMT AND THE BOUNDARY OBJECT CONCEPT (BOC)

This research built on the boundary object concept to complement the SMT because the latter lacked to address boundaries explicitly. These two theories revealed to be complementary on more than one level and corroborate each other's findings. The following paragraphs reflect back on the boundary object in relation to the SMT. Highlighting the contribution of each as well as their compatibilities and inconsistencies.

### The smartphone and the contribution of the boundary object

Work boundary negotiation by consultants is facilitated by the smartphones, common ICTs which serve as boundary objects. They are shared by multiple groups – consultants, personal assistants, support staff, and client staff – involved directly or indirectly in the consulting project. Consultants constitute a community of practice (Wenger 1998) clearly differentiated from other agent groups in the organization. All groups share the goal of fulfilling the client contract and ensuring the project's success; groups also depend on each other to achieve their respective goals (Carlile 2004). Their shared goal is internalized in a way that leads each agent group to perform its work. An assessment of the ICTs of consultants was performed and resulted in the identification of the smartphone as a boundary object. Therefore the smartphone is situated in multiple work practices where it plays different roles. It is associated to different meanings as it was appropriated and reified in different ways (Wenger 1998, p. 105). Table H4 in appendix H presents the interpretations and uses of the smartphone for each agent group and illustrates its interpretive flexibility.

This boundary object provides the technology for consultants to interact with other groups. Consultants and their interactions are at the core of the consultancy project, making the smartphone an important technological artefact for bridging distances and allowing consultants to extend work boundaries as needed. From the consultants' perspective, the capacity to work (or not) is linked to the shared ICT. The smartphone constitutes the enabler of interactions with its capacity to support all types of interactions. The boundary object indicates belonging and has an effect on participation (Wenger 1998) because being connected and informed are prerequisites to participation. Furthermore, access to, and power over organizational resources is available through interaction with the smartphone. One of the few limitations of the smartphone as

perceived by the majority of respondents is its lack of availability as it breaks-down which concurs with Star's (2010, p. 611) finding that boundary objects become visible upon breakdown, this also concurs with the dependence on institutionalized ICTs. In this case the absence of the boundary object becomes a boundary disabling work.

The findings of this study provide a detailed account of the role of the smartphone as a boundary object in the negotiation of work boundaries in the context of the studied organization. It is implicated in the boundary work that emerged from the analysis and consists of crossing boundaries (to interact and draw on resources), redefining boundaries (by shifting work time and workplace) and reaffirming/reinforcing boundaries (by disabling work and work-related interactions in some instances). Crossing boundaries is a routine activity for consultants at Sigma at all times of the day, to interact with others, share information and draw on resources as they move from one place to the other, across time zones and weekends; they bridge traditional work boundaries. Redefining boundaries consists of using their ICTs to transform non-work place and time into work place and time or vice-versa (shifting work time and workplace); this boundary redefinition is performed for work requirements or for personal preferences allowing them to be liberated from time and place. While being connected and away for example, the notion of work time becomes the duration of the trip as consultants remain mentally and intellectually connected to their work. Reinforcing boundaries occurs through the use and management of ICTs – multiple devices and separation of functionalities – in ways that prevent work and work-related interactions from happening in some places or at some times. Personal life coupled with the work-life balance policy (respect of that policy is an evaluation criterion) lead consultants to interact with ICTs in a way that disables work (protecting non-work) and balances work and life. This is performed in line with Sigma's priorities so that work is

not negatively affected. A case of device separation is reported by (Cousins & Robey 2005). Schlosser (2002) also identified cases in which users set limits through the BlackBerry by not answering or preventing access to one's mobile. In the reported case, Blackberry owners need to provide a PIN to those that can communicate with them through this device. The presence of shared ICTs as boundary objects is of key importance for the boundary activities, which are significant practices in the boundary negotiation process.

Boundary negotiation is socially constructed within a specific social context (the organization) rather than being systematic and generalizable. Structure and action are jointly involved in the social process of work boundary negotiation. The role of the boundary object can evolve (Nicolini, Mengis & Swan 2012), in which case its role in boundary negotiation will also evolve.

The BOC allowed the identification of the various units in the organization as well as the differences between them in terms of interests and goals (for instance consultants versus support staff). The BOC revealed the distinctiveness of the smartphone as opposed to other ICTs and the elements of significance that draws it apart from the other ICTs. The other ICTs also allow or disable work, the smartphone is however the ICT that is the most involved in the structuration process (in SMT) and it is also the ICT that benefits from many diverse interpretations allowing it to qualify as a boundary object. It compensated for the weakness of SMT in dealing with boundaries. Jointly using them was useful because they were complementary.

#### Compatibilities and incompatibilities of the BOC and the SMT

Orlikowski transposed the structuration process to within the organization and focuses on exploring the role of technology in the structuration process. The BOC focuses

specifically on boundary crossing and the capacity to reconcile divergent opinions among various agent groups. The BOC contributes to understanding interactions and reconciling differences. The theory does not address the mechanisms that explain the constitution of the boundary object or the mechanism that shapes the relationship between the goals of agent groups, the boundary object and the agents' actions. The components of these two theoretical frameworks can intersect in some circumstances, they are discussed below.

**Individuals/ Agents** – In the case of Sigma, the agents of concern are consultants. The context of agents, their agency and their power differ however leading to the identification of a number of discontinuities that make the concurrent application of the BOC and the SMT challenging. The difficulty in jointly using both resides in these differences. There is a difficulty in switching from the agent/ agent group focus in the BOC to the individual/ institution focus in the SMT. The fact that agents, consultants in this case act similarly indicates that they belong to the same agent group. In the context of the SMT this similarity in behaviour does not question agency, as agency involves the power (Giddens 1984) to act. Furthermore, existing structures lead to hiring agents that have similar goals and who are socialized in the same social world. The behaviour of agents is shaped by existing structures (remuneration, promotion) and reinforces or creates new structures that become the context of human action. The institutional properties of the organization in conjunction with the context of the agent group shape actions and decisions that relate to work. Structuration focuses on the lived experience of the individual who lives through, understands and internalizes operational rules of its organization. As rules become routinized for individuals, they become memory traces and influence actions through social structures. The boundary object however, has its meaning in the context of the motivations of the agent and his/her organizational roles;

in this case motivation shapes action. In the context of the communities of practice literature, agency is influenced by the group (Wenger 1998). The BOC does not explicitly discuss power although each agent needs to reconcile with others, to consider their interests to keep them interested and be able to work with them (in extension of the Latour-Callon model of interessment, see Star & Griesemer 1989). This is somewhat similar in outcome to the dialectic of control of Giddens which states that power is balanced over all at the social level, although this is not necessarily the case within the context of the organization. In the BOC, it remains unclear how the boundary object interpretation develops if the power of various organizational units is not balanced and how it evolves in the context of internal politics. It is also unclear how the context of the organization is factored in. In the case of Sigma, this is not an issue because the organizational context happens to create the common goal that creates cohesion between the various agent groups.

**Technology/ Boundary object** – The technology in the SMT and the boundary object are both interpretively flexible. The BOC focuses on the object which can be physical or abstract; a technological artefact can also be a boundary object. When the boundary object is a technology, both components coincide, and interpretation is eased. The interpretive flexibility of the smartphone as a boundary object is compatible with technology's interpretively flexibility (Orlikowski 1992a). In the context of the SMT, ICTs can be modified throughout their existence and continuously reconstructed. Their meaning derives from their interaction with the organization and is function of the actors and their socio-historical context. Technology is interpreted by an actor in a context (Orlikowski 1992a); the institutional conditions influence how consultants and senior consultants (the reflexive agents) interpret and appropriate (interact with) the smartphone. At the same time the smartphone mediates their actions and is both

facilitating and constraining their work, their perceptions of reality are mediated by the interpretive schemes, norms and resources (Orlikowski 1992a). However when the boundary object is not a technology, a discontinuity arises between both theoretical frameworks. In the context of the BOC and from a social world perspective, interpretations of boundary objects depend on the goals of each group. Here the SMT and the BOC can contribute to each other. The principle of duality needs however to be explored, it is not clear whether all boundary objects reinforce the three social structures. However the boundary object allows to bridge boundaries and to reinforce cohesion of each group, which is not necessarily the case of all ICTs.

**Organizational context and social structures / Social world and their goals** – In the SMT the social structures influence how institutional properties shape action. Power which is at the centre of social theory is one of the three structures. Orlikowski does not address it specifically but draws on Giddens. Structures as defined by Giddens do not exist but for Orlikowski structures are embedded in technology. In the BOC, members of the social world use the boundary object to achieve their goal. The goal (in the BOC) is one of the institutional properties in the SMT, it is however unclear on the theoretical level how it is operationalized and how it translates into action. In the context of Sigma, the exploration of the relation between the boundary object and the structures of the organization allowed to see that agents (consultants) interact with the former in line with institutional properties, to implement the organizational strategy, and it is used to bridge boundaries while respecting all institutional properties. This ties the relationship between both concepts.

The SMT is difficult to apply as it is a "Meta-theory - a way of thinking about the world – rather than a middle range theory about specific phenomena that can be explored or

tested directly and empirically" (Orlikowski & Robey 1991). It was partially applied by many in the IS field. The BOC is a low level theory, more focused and consequently easier to apply. It has been applied in multiple studies. At the practical level the BOC seems to be more useful because it is more focused. In such a setting, boundary objects and boundary spanning become more observable.

Work boundary negotiation is a social process facilitated by the use of some resources, namely ICTs as technological artefacts. It is not an individual process but rather an agent group process since the actions of one consultant creates a precedent and as actions are replicated work boundary can become an institutional structure that shapes the actions and the boundary negotiation process of consultants in the future. Practices are not produced in a 'social vacuum', rather in the context of prior actions and relationships and specific goals and interest (Levina & Vaast 2005), and boundary objects can serve to establish and destabilize protocols (Bechky 2003). Star and Griesemer (1989) have identified some interfaces between the different worlds that were becoming standardized, this is an illustration of institutionalized practices (Orlikowski 1992a). In the case of Sigma, a number of practices relating to ICTs and interpretation relating to ICTs are shared among consultants and have become institutionalized practices. These findings are in line with the duality of structure as well as with the aspect of routinization.

## 5.4 CONCLUSION

The use of boundary-spanning ICTs blurs the boundaries. It enables work to be conducted anywhere, anytime – permanently erasing traditional time and place boundaries to work. Being home physically does not mean being home in all the meanings of the word. Being home becomes a physical presence only and the consultant

continues working and conducting his/her work interactions. These ICTs have a similar impact on time. The weekend is redefined and what is traditionally understood as time reserved for the self and the family disappears; consultants have much shorter stretches of time for the personal. ICTs are used to bridge distance allowing consultants to remain connected, creating continuities across boundaries (Wenger 1998).

Consultants want and need to maintain their boundaries, yet they willingly and consciously transport their boundary-crossing ICTs to almost all locations whether these locations have a work or a social purpose. This fluidity of boundary crossing derives from their personal goals and the existing properties of the organization that they belong to. At the same time, they manage the use of these ICTs in a way that enables them to negotiate their boundaries by deciding on the number of ICTs (personal, business and data) as well as which ICTs to take and which to leave.

This case illustrates the permeability between work and non-work due to the flexible (i.e. not rigid boundaries) boundaries that result from the structuration process and are contingent on a number of elements also illustrating time-space distanciation which is clear in the case of consultants for whom the action of work is independent from place. The produced workspace is dominated in most cases by the ICTs used by consultants to bridge locations. Allowing at the same time to overlap spaces (Olson & Olson 2000) creating space edges (Giddens 1984, p. xxvii).

While using the SMT to analyse work boundary, we observe how the three components in the context of the structuration process result in the definition of the limit to action, in this context work boundary. This process led to the identification of new work boundaries that exist only in the minds of actors. The boundaries of work are not subject

to the traditional understanding of work as defined by role, place and time and other institutional properties that define how work is to be performed.

In this case of consultants with heavy work requirements (both in terms of intensity and duration), traditional boundaries of work do not apply. These traditional work boundaries are transcended and collapse as they lose their capacity to frame work, they lose their signification. Work boundaries of consultants are social constructs that have evolved; they are equivalent to the socially constructed boundaries identified by Hernes (2003) since they are subject to interpretation by the individual consultants subject to each individual's reflexivity and agency. Boundaries are important to maintain order rationality and predictability, consultants are good at continuously redefining their boundaries.

In this area the structuration theory and the work of Wenger (1998) converge in the analysis of this case. Indeed by abiding to structures consultants reinforce structures and at the same time adopt a necessary behaviour for membership and inclusion (not chosen on project team for example) as well as stability, a continuity.

This chapter attempted to answer the research question, while discussing the findings in the context of the literature. ICTs were interpreted through choices influenced by work requirements and individual norms, with an emerging role as a boundary management tool; ICT-enabled work. Boundaries of work were shaped as part of the structuration process, through ICT choices and use coupled with individual goals through reflexivity. Work is shaped as part of the structuration process by work-enabling ICTs and individual goals. Traditional boundaries of work have blurred, but they were replaced by new, internally defined boundaries. In the case of Sigma, emerging work boundaries were more permeable; work tasks had varying levels of permeability. The use of ICTs

as boundary management tools have provided the consultants at Sigma with control over their work boundaries allowing them to switch boundaries as needed. This has changed the nature of boundaries from being static to becoming fluid, contextual and dynamic. The analysis revealed the contextual nature of work boundaries. Boundaries of work are not independent constructs that exist in absolute terms; they were liberated from their traditional reference points to become contextualized and dependent on the requirements of the moment. The analysis led to the development of a conceptual model of work boundaries.

The smartphone was further analysed and found to be a boundary object in the context of coincident boundaries at Sigma that allowed the various agent groups to act and interact based on a common understanding regarding the goal of the organization. It supported communication between agent groups and within groups. The importance of communication is recognized and shared by all because it is a means to achieve the common goal. The common understanding is important as it draws action towards a single direction creating cohesion within the organization. The smartphone is a key technological artefact that allows all constituents to bridge boundaries and participate in all interactions wherever they are. It also allowed actors to access resources (including human). The smartphone is also interpreted as being a source of power as well as a way to increase work efficiency.

The SMT revealed the complex socio-technical dynamics that occur when ICTs are used in the organization and revealed the mutual shaping that occurs between the different components of the model. Interpretive research does not aim to understand causality, but rather to explain the phenomenon that is observed (Dalcher 2004). The findings unveil the process and exposes how human agents' personal goals intervene in

the process. Individuals are reflexive, they make their choices based on a tacit, and highly personal, cost/benefit analysis of available options. The blurring of boundaries, the little time left for the family, and mobility all derive from the actions the consultants take on ICTs; actions which, they perceive as adequate, given the combination of their goals and the structures of the organization in which they are employed.

# Chapter 6– Conclusion

This thesis has revealed the value of using the boundary object concept in conjunction with the SMT to shed light on the link between work systems, IT and human agency in an organizational context. The interest of the research was on work boundaries and their negotiation through ICTs. The use of these theories allowed an understanding of the boundary negotiation process and it allowed the development of a conceptual model that illustrates the interaction between technology and work boundaries. It also revealed a mutation in the nature of work boundaries. This chapter summarizes the thesis in section 6.1, section 6.2 presents its contribution, section 6.3 identifies its limitations and section 6.4 suggests potential areas for future investigation and research. Section 6.5 presents concluding remarks.

## 6.1 SUMMARY OF THE THESIS

Chapter 1 introduced the thesis by providing a general background to the research and defining the relevance of the topic in the contemporary organizational and technological landscape. Chapter 1 presented the overarching research question '***Using the structurational model of technology, how are consultants using ICTs to negotiate work boundaries?***' which was further supported by the following three sub-research questions:

- How do consultants qualify as a coherent group of actors?
- How are ICTs used?
- How are work boundaries negotiated?

Chapter 2 presented existing research in the information system literature associated with the chosen topic. After reviewing the structuration theory, a conceptualization of the relationship between society and individuals, and the conceptualizations of the relationship between technology and organizations in IS theories, Chapter 2 introduced the Structurational Model of Technology (SMT) as a background theory for the research. The literature review of Chapter 2 also gave rise to an understanding of consultancy, of boundaries, and ICTs which led to a discussion of ICTs in relation to work and boundaries. This discussion culminated in a review of the literature that relates to boundary management. The research question grew from this literature as a means to fill the gap created by the lack of theorization of work boundary negotiation by consultants.

Chapter 3 presented the research approach and methodology. The research is rooted in a social constructivist interpretive frame. The chapter justifies the choices made, the case selection, the sample selection, the data collection instruments and procedures, the data analysis and presentation.

Chapter 4 provided a detailed description of the international consulting firm, Sigma, the case study company. It described Sigma as an organization by focussing on its most salient institutional properties. It then described the actors at Sigma along with their roles and responsibilities. The identification and description of ICTs, of work interactions of consultants and of work locations followed. The description of Sigma culminated with the description of boundary management by consultants.

Chapter 5 answered, based on the results of the analysis, the research questions. It also presented a discussion of the analysis and the main findings in relation to the literature, focussing on the consultants as a homogeneous group of actors, ICTs and boundary

negotiation. It presented the conceptual model of work boundary negotiation and discussed the changing nature of work boundaries.

## 6.2 CONTRIBUTION OF THE THESIS

This thesis explores the negotiation of work boundaries in the context of ICT-enabled work. With the increasing use of ICTs, organizations have to face the challenge of managing work that is not performed within the traditional boundaries of the organization. Organizations operate and are managed to achieve their goals. Boundaries are important and removing boundaries would create chaos and undermine authority. In the organization, goals and structures reinforce each other allowing the organization to operate more efficiently.

This section addresses the significance of the theory in the findings as well as the implications of these findings for organizations and for individuals. Studying the work organization at Sigma was useful in illuminating the structuration process. Even though travel to customer sites has long been a practice in the consulting industry (Gray, Hodson & Gordon 1993), travel was never so frequent (Hislop & Axtell 2009). Today travel is fuelled by globalization and economies stalling in some locations. This trend is further supported and enabled by ICTs and improved connectivity that support any-place any-time work. All these factors require consultants to negotiate their work boundaries.

This section presents the contribution of the thesis on the conceptual, methodological and practical levels. It also highlights the contribution to the IS community.

### Conceptual contribution

This thesis has a number of conceptual contributions. They are presented in the following paragraphs, contribution to the SMT theory, contribution to the literature on boundaries and their negotiation with the presentation of a conceptual model for boundary negotiation and a focus on the role of ICTs in boundary negotiations, a contribution to the literature on consultants and a theoretical assessment of the complementarity of the SMT and the boundary object concept.

**The structurational model of technology** – This study explored consultants' work boundaries and boundary negotiation within the context of their organization, its rules and its work practices. It analysed the relationship between ICTs and work practices and their influence on work boundaries. This study took the form of theory testing of the SMT in a new research area.

As described earlier, the SMT was used in the IS literature to explore aspects relating to the relationship between technology and the organization (in Chapter 2), previous studies using the SMT reviewed in the context of this research belong to three main streams of research: systems development and implementation (Olesen & Myers 1999; Purvis, Sambamurthy & Zmud 2001; Sahay & Robey 1996; Walsham 2002), groupware (Ngwenyama 1998; Olesen & Myers 1999) and communication (Carlson & Davis 1998; Ngwenyama & Lee 1997). Their findings concurred and confirmed the duality of technology, namely the role of the institutional properties in shaping the interaction with technology as well as the influence of this interaction on the organization. The findings of the present research are in line with those findings as they reaffirmed the role of institutional properties in the way technology shapes the organization. This research, by exploring the structuration process in detail, describes how the 'individual' component makes an important contribution by reiterating the importance of reflexivity in shaping

the use of the ICTs, an aspect of the theory that was not frequently drawn-upon. Indeed, among the studies discussed above, only Carlson and Davis' (1998) addressed the individual and found that the needs of agents (individual characteristics) influenced their choices of communication media (action on technology). This study complements previous studies (Carlson & Davis 1998; Walsham 2002) and puts forward the role of culture in IS by describing how the organizational culture (an institutional property) and the individual's culture (individual characteristics) interact and shape the use of technology.

The institutional properties-technology pair, on which most past studies have focused, was valuable to recognize the impact of the institutional properties on technology choice and use, as well as to describe the blurring effect technology had on work boundaries (refer to Boundaries and their management below). However this pair did not reveal that different individuals have dissimilar work boundaries and it did not reveal that individuals take different actions and adopt different practices to negotiate their work boundaries. It is the focus on the agent and his/her reflexivity that identified that the career goals and personal preferences are important individual characteristics that shape reflexivity and the way social structures influence actions and revealed the differences in boundary definition and negotiation. Consultants gave priority to their work because they realized that their career goals require them to perform according to organizational expectations and norms. This finding is important for organizations. This also allowed for an understanding of the boundary negotiation which ranged between promoting work and moderating work, at no point during the research did a consultant indicate that he/she was taking action to limit work. These findings contradict findings that concluded that mobile workers want a full segregation between work and non-work (Wilson et al. 2004). However, the lack of contextual information on the organization

and the individuals in these studies prevents any attempt to understand the discrepancy. None of the studies conducted on boundaries considered boundaries or their management in relation to the interaction between contextual factors and individual characteristics (Mazmanian, Orlikowski & Yates 2006; Middleton 2008; Wilson et al. 2004). This research makes an important contribution by reaffirming the importance of the sociotechnical aspect in IS research as it highlights the importance of the social (the agent) in the interaction between the technology and the organization. In this research, the SMT allowed to reconcile the role of the technical and the role of the social, they are closely tied and both are important. Furthermore, this research did not find evidence that the technology (the smartphone in this case) embeds the social structures, rather it confirmed that individuals actions using technology reinforces the social structures.

The power of the 'more senior' is manifested by imposing work expectations, work deadlines and work location and is reinforced by the existing structures. The power of the 'more junior' takes form as a means to manage work space and work time as long as this does not contradict 'senior' requests, while remaining available thanks to their ICTs. Boundary spanning is due to work requirements and the nature of consulting and not to the technological artefacts.

**Boundary negotiation** – This study recognized the sociotechnical nature of work boundaries. Findings indicate that the impact of ICTs on boundaries, in the case of consultants' work, results from the sociotechnical interactions and not from technology itself. The organizational context shapes human agents' actions on technology – which in turn is dependent on their reflexivity. It is not the technology that blurs the boundary; it is the use of this technology in specific organizational contexts that impacts the boundary. Thus work practices have an impact – mediated by technology – on the

boundary of work and lead to its redefinition. Work boundaries are not associated to a time or a place but rather to a task that has to be completed, to an image to convey or a trust relationship to build for instance. These actions are influenced by the social structures which become important elements in the constitution of work boundaries in the same way that they influence or limit action. The literature identifies a blurring of boundaries, but it does not address the context of ICT use, and the agents acting on these ICTs and their characteristics and needs. This research addressed this gap in the literature by focusing on both contexts and agents. By building on the SMT, this research built on the research studying the impact of ICTs on boundaries, linked 'boundary' and 'work' and defined the core of "work boundaries". Blurring of boundaries is caused by organizational structures as well as by human agents' actions which are shaped by organizational requirements and personal goals that seek to ubiquitize ICTs as enablers of work. Indeed consultants need to be permanently connected and be able to communicate to perform their work. This leads to the appropriation and use of ICTs in ways that allow work to infiltrate non-work time and space redefining the boundary of work. With regards to boundary management, the use of the SMT allowed for the recognition of a sociotechnical character of boundaries and their changing nature, they mutated from absolute to contextual they are redefined on a needs basis and become fluid. ICTs allow agents to retain control over their work boundaries, moderating work at times. The analysis of the structuration process allowed to explain the blurring of boundaries and led to the development of a conceptual model of work boundaries which shed light on the boundary negotiation.

The **conceptual model** of boundary negotiation builds on the SMT and illustrates the social structures and their duality, the SMT and the boundary negotiation as a result of the structuration process. Social structures influence the way agents use ICTs in their

organizational context either promoting or limiting work, yielding boundary negotiation and a renegotiated work boundary. This conceptual model (in Figure 5) fills the gap of the lack of theorizing that exists around work boundaries and their negotiation. Each structure acts by redefining work practices and by shaping actions on ICTs. The boundary of work therefore results from this interaction. The actions on ICTs that seek to promote work or limit work represent boundary negotiation. To illustrate, carrying a laptop to a shopping mall represents a work boundary negotiation and indicates a desire to create a work continuity. Separating voice from data on a BlackBerry represents controlling work boundaries and the desire to maintain a possibility to negotiate work boundaries on a needs-basis, promoting work at times and limiting it at others by moderating interactions (initiated by work-related instigators). These actions on ICTs are shaped by the organizational context and the individual's reflexivity. The structures of the organization are externally defined; however the boundaries that derive from the structuration process are internally defined by the consultants (Wilson et al. 2004). They are traces in the mind resulting from the interplay of structures. The results have shown that while physical boundaries still limit the physical actions a work can carry out, ICT-enabled work is less subjected to physical boundaries. Work is more subjected to social structures – which by definition shape and limit physical action – and boundaries of work have become more abstract and can be viewed in many instances as memory traces. The vignette below in Table 7 illustrates further the reading of this model.

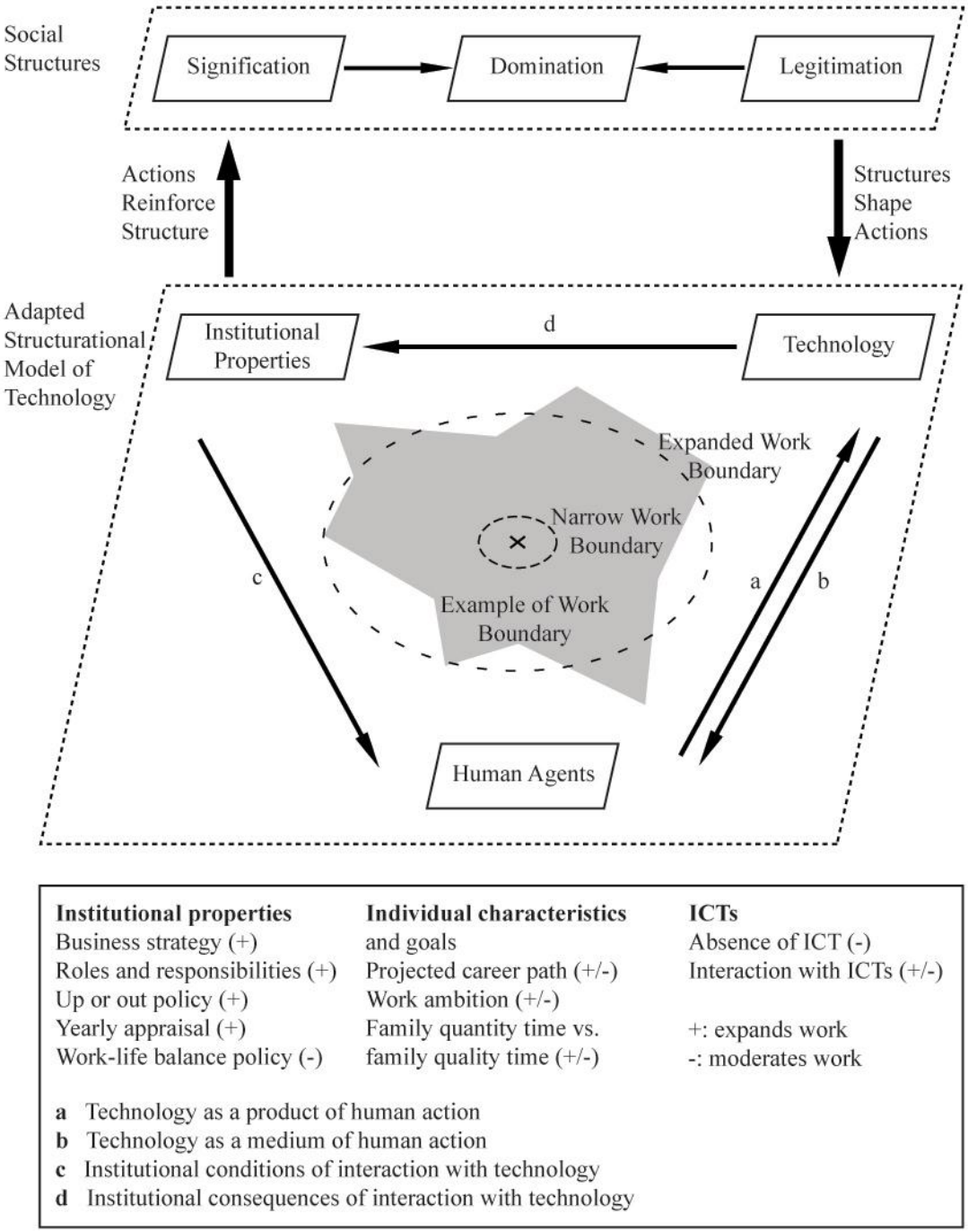



**Figure 5: Conceptual model of work boundaries.**

Some institutional properties promote work and others limit or moderate work. "Client service" is a property that promotes work via the three social structures. Client service only influences the action of the consultant through the shaping of action by social

structures. Client service requires consultants to serve clients to the best of their capacity providing quality service and delivering the project on time. Clients hold a certain power in the consultant-client relationship, they decide on project extensions and have a say in the yearly evaluations. Therefore consultants aim to keep clients satisfied (from the relationship and from the consulting service). This involves working long hours, interacting with clients and responding to their requests as they occur. But this work is recognized and when the client starts trusting the consultant, the power of the consultant increases and the power relation becomes more balanced. Trust also increases the legitimacy of the consultant. At the end of the year when the consultant is evaluated, this work qualifies him/her as having achieved expectations at his/her level leading to a promotion that grants additional legitimacy, additional power and communicates to others that this consultants is qualified.

***Note**: The above is a written illustration of the conceptual model of work boundaries*

**Table 7: Vignette for reading the conceptual model.**

This conceptual model illustrates that the interaction with technology gives consultants a greater ability to manage boundaries by connecting-disconnecting or answering-ignoring requests for interactions. The ability of consultants to ubiquitize ICTs in turn allows work interactions to fill space and time, while preventing interactions from occurring at other times. These interactions can be event-driven or contextual and change the nature of boundaries which have mutated from stable and rigid to dynamic and fluid. This mutation stems from a changing role of ICTs. The initial purpose of ICTs was to connect however the unexpected consequence of their use is the blurring of boundaries. ICTs are now used as a tool to connect or disconnect and their unintended consequence on boundaries (Golden & Geisler 2007; Green 2002; Kakihara & Sørensen

2004; Mazmanian, Orlikowski & Yates 2006) becomes a means for active boundary management. They are an important resource consultants use to increase their power on available resources, junior consultants and their own time. Boundary management is consequently the function of two aspects: impetus and means. The impetus derives from the interaction between the organization and the individual and the technology is the means. The potential advantages and disadvantages of the alternative actions on boundaries constitute this motivation (Ashforth, Kreiner & Fugate 2000).

**Role of ICTs in boundary negotiation** – The main contribution relates to the role of ICTs in relation to boundary negotiation. In this study, technology appears as a resource consultants act on, subject to the constraints and context set by goals and structures, to increase the control (power) they have on their work in relation to where they perform it, when they perform it and how they manage it. It is expected that organizations would face difficulties if goals and structures are not aligned. Boundary spanning ICTs are used by consultants to negotiate their work boundaries as it allows them to open-up spaces (Giddens 1984) or maintain them and to continuously redefine their space. Consultants use them as a means to exercise their power over a number of available resources by increasing the level of control they have on these resources. These resources are the consultants' space and time (to work or not, when and where) and work but also the time of their team members (to delegate work to others) and sometimes colleagues. ICTs allow consultants to work across boundaries seemingly. Work boundaries are redefined at the expense of time and space traditionally perceived as being non-work time and space.

Consultants interact differently with the same device and use the same ICTs to reach sometimes different goals. When goals are common, actors may make the same

interpretation and therefore the same use. This concurs with the sociotechnical characteristic of technology.

**Consultants, a coherent agent group** – The case allowed for a rich description of the research site context in an international consulting firm. The examination of work practices at Sigma led to tracing the full lifecycle of a consulting project, including all tasks required for its completion. It also described the frequent and intensive interactions of consultants with clients and team-members. Much of the research focusing on the consultant interactions have focused on their interactions with clients (De Jong & Van Eekelen 1999) although they have a lot of interactions with colleagues. This research provides insight on interactions between consultants and their impact on work boundaries. This insight contributed to a deeper understanding of the consultants' actions in relation to ICT usage. Their work organization is different from what has been researched in other studies on mobile work and on boundary management. These are management consultants, who perform knowledge work in multiple locations. The case of Sigma illustrates a work organization that is characterized by work requirements and mobility that have led to the adoption and use of technology supporting work and mobility. Furthermore, personal goals identified in this case are compatible with organization structures and led to coherent actions on ICTs. ICT is an enabler and facilitator of mobility, a situation desired by consultants. The consultants use ICTs that allow them to remain connected, perform their work and access necessary personal and organizational resources. The technology component is critical in this work organization due to the nature of work and the level of mobility. Consultants are reliant on ICTs and technology plays an important role in their organizational actions.

The case allowed to recognize that consultants at Sigma constitute a coherent agent group with clearly set goals. The smartphone as a technological artefact represents a boundary object that ensures participation in this agent group. It also allows members of the various groups to work together for the achievement of Sigma's role.

This research provides an important contribution to the understanding of consultants' work by fleshing out the sociotechnical element of these work practices. The analysis, by revealing how ICTs are institutionalized and acted upon to support a particular work organization in this case mobile work, highlighted the importance of the work system in line with Alter's (2003a) work. Furthermore the influence of the strategy, work practices and the 'up-or-out policy' in conjunction with the career goals of the human agents fleshed out the connection between work and IT as well as agency.

Furthermore this research contributes to the understanding of how consultants use a technological object to shape how they are perceived by others, increasing the trust of clients and changing the balance of power to their advantage.

**SMT and the boundary object concept** – This research revealed the complementary between the SMT and the boundary object concept. Despite their differences, their components intersect in some circumstances. Both theories contributed to the identification of a technological artefact, the smartphone, as a significant technological object for allowing actors that belong to different agent groups to share a common understanding as well as to bridge boundaries to work together. This boundary object allows the consultants to switch as needed from work to non-work for the purpose of maintaining control over their life. The smartphone as a technological artefact proves to be mainly used to manifest power: control over work, control over organizational resources, control over more junior consultants, control over support staff, control over

one's and other's time, control over one's space. The object initially designed for communication and access to resources is used to exert power. Agents in the organization use it in different ways to exert the expected influence and the meaning of technology, is constituted through its own use. In Sigma's case, the power exercised by the client is relegated down the hierarchy through the chain of interactions, from the client to the most senior consultant, and then from the senior to the most junior. The smartphone is used to negotiate power and negotiate work boundaries by the same token. However the power structure alone is not sufficient to understand the mechanisms of power relegation and manipulation since the three social structures cannot be separated and boundary negotiation is the outcome of all three. Using these two theoretical frameworks for the analysis illustrated that despite the discontinuities in the transition from the components of one to the components of the other, both frameworks contribute to understand the negotiation of boundaries. The use of both frameworks allows to understand how the consultants (agents and individuals), use the smartphone (a boundary object and a technological object) that is an important resource to allow them to exert power over resources. Boundary crossing and actions are subject to their context. In the context of the BOC and from a social world perspective, interpretations of boundary objects depend on the goals of each group. Here the SMT and the BOC can contribute to and complement each other. The boundary object concept adds value in the understanding of the role of ICTs in boundary negotiation. It builds on the use of SMT as it is more tangible, more specific. The first is valuable at the practical level due to its easy applicability. The SMT provides the analytical frame to integrate technology. Structuration which was originally developed to be used at the social theory level provides a means by which to understand the relationship between roles and interpretations. The organizational context is different from the global social

context in the sense that its constituents must be integrated and aligned for its good operations, its members must fit in, they must conform to the rules, policies and guidelines set by the organization and they are not free to act as they wish as in other social settings at the risk of sanction. Organizations assign roles, responsibility, authority and set individuals as accountable.

### Contribution to methodology

This thesis makes two methodological contributions, the operationalization of the SMT and its use in a specific organizational context to understand the relation between the organization and the technology and the use of photographs as visual data.

This work presents an original use of the SMT to answer the research question through a focus on the social, the technical and the sociotechnical components; the SMT was operationalized as a research tool. All interactions of respondents were described while identifying all impacts on boundaries. A systematic description of ICT mediated interactions was performed. The study focussed on the interaction between agents, institutional properties and technology. Both the enabling effect and the constraining effects of ICTs were identified: when use shapes work, when negative unintended consequences arise, when the use of ICTs becomes taken-for-granted, and when work becomes dependent on use. Finally, all the structures of the organization were documented. These detailed analyses allowed for the analysis of the structuration process and an understanding of the duality of technology as well as the relationship between the technology and the organization as mediated by the reflexivity of consultants.

The second methodological contribution was the use of photography to compensate for the constraints imposed by the organization which prevented the shadowing of

consultants. The gathered photographs constituted an in-depth qualitative element of the research. Although used in anthropology only few uses of photographs were identified in the IS and organization area. Photographs were taken of these work locations, as they have a visual component, and requested from all respondents for investigation (Emmison & Smith 2000). These photographs served multiple purposes, during interviews, they allowed the interviewer to concentrate on the content of the interview, while still providing a visual record of work locations to describe and analyse, after the interviews without counting on memory (Manning & Freimund 2004). The photographs provided by the participants allowed the researcher to view the consultants' work locations through their own eyes and compensated for an inability to see work locations other than the headquarter of the organization. Similarly to what was reported in the context of an action research (Young & Barrett 2001), they initiated a dialogue, increased the consciousness of participants when they used them to tell their stories (Berglund & Wigren-Kristoferson 2012; Schwartz 1989); they became an important part of meaning-making especially when it reminded them of facts they had not mentioned during the main interviews. Viewing work locations through the respondents' eyes (Young & Barrett 2001) is particularly valuable in the context of interpretive research in the area of mobile or multi-location work. This approach was based on and extended the work of Bogdan and Biklen (1992), Meyer (1991), Hee Perderson (2008) and others.

### Contribution to practice

With the increase in the uptake of ICTs, there is an increasing concern regarding the disruptions they might have on organizations and businesses. This research found that the negotiation of boundaries is shaped by the characteristics of the agent group as well as by the 'way of doing things' in the organization. These are valuable for individuals

that have similar work practices and to organizations organized as such. Since the impact of ICTs are dependent on both the organizational context and the personal goals of the individual user, as long as users have common goals and the organization is clearly communicating its modus operandi to organizational members, boundary negotiation will be in line with the organization. In other words, as long as organizational goals and personal goals are clear and are compatible, ICTs are enablers for their implementation. However if they are not clear, if they are not well communicated or if they do not fit, it is suspected that ICT might become disruptive for the organization and the individual.

The findings of this study shed light on the boundary negotiation process of individuals and allow organizations to understand it and put the necessary context so that boundaries are negotiated in line with the organization's objectives. Organizations should benefit from these findings to identify the expected impacts of ICTs, and put in place pre-emptive policies that define proper use of ICTs and set boundaries of work. From the individual's perspective, by realizing that the impact of ICTs derives from its use by each individual, he/she can learn to adopt an active boundary management strategy. Organizations and individuals alike must not generalize the experiences (good or bad) of others to themselves and use them as a basis of ICT adoption. This research demonstrates that there is no ground for predicting whether the same experience is replicated since contextual and individual characteristics change from case to case.

This research should serve as the basis for an improved dialogue between users and organizations. The active involvement of both parties will allow for the implementation of terms of use that are reasonable for all parties.

### Contribution to IS

The findings of this research are important for the IS community on multiple levels. The SMT proved valuable in yet another research area which reaffirmed its contribution to IS research. Consequently, this research updates the theory by confirming its applicability to newer work organizations. This furthers the SMT's value in understanding relationships between technology and organizations due to its wide applicability. The SMT reaffirms the sociotechnical nature of the technology-organization interaction. These findings are valuable for the implementation of ICTs as they provide important insight regarding the necessity of clearly communicating the goals of the organization, and implementing required control mechanism to ensure that these goals are respected; these would increase the chances of an implementation and adoption that respect these goals. Finally it has shed light on the role of ICTs in boundary negotiation.

## 6.3 LIMITATIONS OF THIS STUDY

Although this research allowed answering the research questions and provided valuable insight on the management of work boundaries of consultants and although the data collection methods generated sufficient and rich data to perform the analyses, it has a number of limitations on the methodological level. This research is a single case study, a single organization with a specific set of institutional properties. It would be valuable to see how a different study environment would affect the outcomes of the structuration process.

Diversity was mentioned as one of the values of the organization, it is worth noting that the sample of consultants was mainly constituted of mid-career men who are likely to be clearer about their career goals than another sample. As the total sample included

women in junior positions and in support positions, further inquiry indicated that in the Middle-East offices, few women had reached management positions in the career path. This is largely due to the fact that women cannot work in some countries served in the Gulf. It is not known whether women with children would perceive certain aspects differently, although Wilson et al. (2004) did not find any gender differences in their research.

Furthermore, the organization limited the type of data that could be collected and used by refusing consultant shadowing and by refusing to provide any written reports or documents. The respondents described their career goals, yet their other personal characteristics were not investigated in the interviews, consequently this research lacks the required empirical evidence to differentiate between perceptions of work boundaries and boundary negotiation across respondents. Many interview questions were consequently about work and boundaries, but the personal questions were limited and some participants were reluctant to answer these questions and discuss personal issues. Goals and roles were investigated and findings pointed out their impact in the structuration process as well as their relation to the smartphone as a boundary object. It is however unclear whether other data on personal preferences and experiences would have contributed further clarifications.

Analysing the impact of the use of ICTs on boundaries required revealing all the institutional structures and describing them. In some instances the practice of consultants becomes so regularized and institutionalized that it becomes invisible for them and difficult to articulate, because they do not think about it or recognize it anymore. Along the same line of thought, it was also necessary to distinguish between what is ‘habitual’ or ‘normal’ for them and what is ‘habitual’ or ‘normal’ for others.

Thus, in some cases, even when it is important, because it is obvious for them, they do not feel the need to explain. This presented a challenge in knowing whether enquiry was sufficient and having recourse to the intuitive to look behind the obvious to reveal what was really going on. To achieve this, the researcher drew on her familiarity and experience as a consultant. This highlights the importance of the role of the researcher in interpretive research (Walsham 2006).

Another limitation of this research is the fact that the data collected is consultant-centred; refer to Sturdy et al. (2009) who critique the insufficient research regarding the relationship between consultant and client. It would be valuable in future research, to interview clients to enrich the understanding of the boundary negotiation process. Indeed the client would be able to provide a different perspective and additional insight.

### 6.4 AREAS OF FURTHER RESEARCH

Based on the limitations identified above, avenues for further research are suggested to build the understanding of boundary constitution and boundary management while compensating for the limitations of the current research.

A subsequent study should strive to replicate this research in other organizations as a means to identify whether boundary negotiation changes in different organizational contexts. A replication could also include a more diversified sample in terms of age, gender and life goals, thereby allowing a better understanding of how individuals with different characteristics perceive the impact of ICTs and how these characteristics yield different actions on technology and possibly on boundary negotiation. Complementing interviews with observations of consultants working in multiple locations would allow the researcher to observe how they use their ICTs to interact with others as well as how

they handle boundary switching and negotiation. This would increase the richness of descriptions and analyses.

Another vein for future work is an exploration of the relationship between ICTs and the work-life balance initiatives in organizations. These policies provide, a priori, good opportunities for users to manage their own boundaries. This can provide a framework to identify the responsibility of boundary management, is it a personal responsibility? Is it an organizational responsibility? How should this responsibility be operationalized? Indeed, Sigma's work-life balance policy and the corresponding evaluation criteria in the yearly appraisal revealed to be insufficient as a boundary management policy.

The analysis revealed the same contradictions that were previously highlighted in the literature review (freedom and flexibility vs. addiction; productivity and flexibility vs. interruptions; positive image vs. not-so-professional use). These require further research to identify how boundaries should be defined to keep the experience of the agent from switching from the positive to the negative. It is suspected that these contradictions derive from insufficient or lack of boundary management and consequently the absence of a clearly defined work boundary.

It would be interesting to further explore the relationship between the SMT and the BOC by investigating whether other boundary objects reinforce the three social structures.

Considering the numerous critiques of structuration theory and the SMT, it would be interesting to do a comparative analysis and assess how results would differ if Actor Network Theory (ANT) or sociomateriality were to be used.

## 6.5 CONCLUDING REMARKS

This thesis reaffirmed the value of the SMT. It showed that the relationship between technology and the organization is complex and results from the sociotechnical interactions and not from the technology itself. Although traditional work boundaries are blurring in the case of consultants work, new boundaries are forming. This thesis yielded a conceptual model of work boundaries, and it illustrated the changing nature of boundaries which are becoming fluid and dynamic. It identified the role of technology, a resource actively used for boundary management. Finally, this research linked work systems, IT and human agency.

This study revealed the influence of ICTs on consultants and on the boundaries of their work. Most importantly, however, it explained the reasons behind this impact in the form of the structuration process. The reflexivity of these individuals emerged as critical in understanding the observed phenomenon in this organizational context. Researching these work practices led to significant findings in terms of understanding the impact of ICT-enabled work on boundaries in the context of the interaction between the institutions' characteristics, the technology in use and the individual employee, the user of technology.

Although the mobile work phenomenon is expected to increase, only a small fraction of the world labour force has these work patterns. As such, it remains a rather unique phenomenon. It is therefore interesting and possible to understand these work practices in-depth. All of the factors discussed are not specific to consulting, but can characterize many individuals and businesses in numerous service industries. It is expected that these work practices are generalizable. In addition, since ICT use is strongly associated with job type (Duxbury et al. 2007), it is suspected that similar ICT use and boundary

management would be found in professional jobs and at managerial levels in other service industries that are client-centric and interaction intensive. While this study was completed in the Middle-East, the organization in which it was conducted is an international firm with operations all over the world, including an important presence in Europe and the United States. Consultants themselves have lived, studied and worked all over the world. This and the literature suggest that these findings are significant for other organizations in other locations.

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# Appendices

## APPENDIX A – TAXONOMY OF TECHNOLOGIES

| | | Allows time flexibility "Anytime" | Allows space flexibility "Anywhere" | Supports mobility |
|---|---|---|---|---|
| **Hardware** | | | | |
| Portable computers/ Laptops | (Davenport & Pearlson 1998) (Gray, Hodson & Gordon 1993) (Chen & Nath 2005) (Towers et al. 2006) (Kleinrock 1995) (Oulasvirta & Sumari 2007) | ✓ | ✓ | ✓ |
| PDAs | (Chen & Nath 2005) (Towers et al. 2006) (Kleinrock 1995) | ✓ | ✓ | ✓ |
| Modems | (Davenport & Pearlson 1998) (Towers et al. 2006) | ✓ | ✓ | ✓ |
| USB sticks | | | | ✓ |
| CDs/DVDs | | | | ✓ |
| **Applications** | | | | |
| Intranets | | | ✓ | ✓ |
| Web applications | | | ✓ | ✓ |
| Email | (Davenport & Pearlson 1998) (Gray, Hodson & Gordon 1993) | ✓ | ✓ | ✓ |
| Groupware systems/ CSCW | (Gray, Hodson & Gordon 1993) | ✓ | ✓ | |
| Videoconferencing | (Gray, Hodson & Gordon 1993) | | ✓ | |
| Work-specific applications | | ✓ | ✓ | ✓ |
| High bandwidth video and audio | | | ✓ | ✓ |
| **Telecom** | | | | |
| Telephone/ Telephone line | (Gray, Hodson & Gordon 1993) | ✓ | | |
| Cellular/ Mobile phones | (Davenport & Pearlson 1998) (Gray, Hodson & Gordon | ✓ | ✓ | ✓ |

| | | Allows time flexibility "Anytime" | Allows space flexibility "Anywhere" | Supports mobility |
|---|---|---|---|---|
| | 1993)<br>(Chen & Nath 2005)<br>(Towers et al. 2006)<br>(Prasapolou, Pouloudi & Panteli 2006)<br>(Lowry & Moskos 2008)<br>(Townsend & Batchelor 2008)<br>(Palen, Salzman & Youngs 2000) | | | |
| Pagers | (Davenport & Pearlson 1998)<br>(Gray, Hodson & Gordon 1993)<br>(Broadfoot 2001)<br>(Kleinrock 1995) | ✓ | ✓ | ✓ |
| Fax machines | (Davenport & Pearlson 1998)<br>(Gray, Hodson & Gordon 1993) | ✓ | | |
| Videophones | (Gray, Hodson & Gordon 1993) | ✓ | | |
| Desktop videophone | (Gray, Hodson & Gordon 1993) | | | ✓ |
| ISDN/ digital network | (Davenport & Pearlson 1998)<br>(Gray, Hodson & Gordon 1993) | ✓ | | ✓ |
| Voice messaging service/ Voice mail | (Davenport & Pearlson 1998)<br>(Gray, Hodson & Gordon 1993) | | | ✓ |
| Conference calls, Itemized billing, Calling line identification | (Gray, Hodson & Gordon 1993) | | ✓ | |
| Call diversion | (Gray, Hodson & Gordon 1993) | ✓ | ✓ | |
| Smartphones | | ✓ | ✓ | ✓ |
| BlackBerry® | (Middleton 2007) (Mazmanian, Orlikowski & Yates 2006) (Towers et al. 2006) | ✓ | ✓ | ✓ |
| Wireless networks/ Cellular data networks | (Davenport & Pearlson 1998); (Chen & Nath | | ✓ | |

| | | Allows time flexibility "Anytime" | Allows space flexibility "Anywhere" | Supports mobility |
|---|---|---|---|---|
| | 2005)<br>(Lyytinen & Yoo 2002b) | | | |
| VSAT | (Davenport & Pearlson 1998) | | ✓ | |
| Wifi, Voice-over IP and Virtual Private Network | (Chen & Nath 2005) | ✓ | ✓ | ✓ |
| Wap and Bluetooth | (Chen & Nath 2005)<br>(Lyytinen & Yoo 2002b) | ✓ | ✓ | ✓ |

## APPENDIX B – PROPOSAL

# Research project proposal:
# Assessing the impact of ICTs on nomadic telework practices at Sigma Consulting, Beirut Office

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## Introduction

Randa Salamoun Sioufi full-time AUB faculty and PhD candidate at the Manchester Business School and Dr Anita Greenhill PhD supervisor from the Manchester Business School would like to make a research proposal to Sigma Consulting Beirut office to assess the impact of Information and Communication technologies (ICTs) on work practices of consultants who are attached to the Beirut office and travel to perform their consulting missions; hereafter referred to as nomadic telework practices.

This document is presented to request access to conduct the research project at Sigma Consulting, Beirut. It briefly introduces the research and presents research activities. This document is open to negotiation.

The objective of this research is to assess nomadic telework practices from the consultants' perspective (the word consultant is used in a generic manner and refers to all positions in the consultant career path from Consultant to Manager), to explore how these work practices are impacted by ICTs in use – mainly relating to workspace and workspace management. The outcome of the research will allow a better understanding of how ICTs in use can impact work practices, this will provide insight in the selection and development of ICTs and will allow assessment of current work practices. The researchers will also be able to provide suggestions and recommendations to improve nomadic telework practices at Sigma Consulting, Beirut. The outcome of the research will also allow making recommendations regarding current and future ICTs, assessing current work practices and formulating recommendations. Research findings will be delivered to Sigma Consulting through a presentation.

## Purpose of the research

This research will explore and assess the impact of ICTs on nomadic telework practices. Specifically how new work practices impact workspace.
This question will be explored by answering the following subsidiary research questions:

1. Which ICTs are being used by nomadic teleworkers and for which purposes?
2. What are current nomadic telework practices?
3. How were work practices structured before the use of these technologies?
4. What is the impact of work delocalisation on work practices?
5. Does the constraining effect of these technologies impact work practices?
6. Are there differences in these impacts when these ICTs are used inside as opposed to outside of the organization?
7. Do other institutional properties affect how technology impacts work practices?

This research project is part of Randa Salamoun Sioufi's thesis for the degree of PhD in Management Sciences at Manchester Business Schools, University of Manchester.
Utmost levels of research ethics, professionalism and anonymity will be observed in the conduct of this research, its publication as a PhD thesis and any other subsequent publication that may derive.

## Research activities and schedule

The research plan, conceptual model, research strategy, data collection, analysis and reporting will be performed by Randa Salamoun Sioufi (the primary researcher) under the supervision of Dr Anita Greenhill.
Data collection will be mainly conducted at the consultants' work location. Data will be collected through questionnaires, unstructured interviews and studying documentation.
A tentative schedule of the research activities is under preparation and will be communicated to Sigma Consulting as soon as possible. The schedule will be organized in a way as to minimize the impact of the research on the consultants' work.

## Request for access

The researcher requests the following in order to be able to conduct the research project described above:

- Formal acceptance of the above described project. This acceptance should be communicated internally to facilitate data collection. It is up to the organization to decide whether the acceptance of this research project will be communicated to all employees or only to the people involved in data collection.
- Permission to conduct surveys/ questionnaires with selected consultants.
- Permission to conduct in-depth interviews with selected consultants. Interviews will be recorded and transcribed for analysis.
- Permission to "shadow" one or more consultants for a predefined period of time (including at client's premises if required).
- Permission to study internal documents and take notes as needed for the purpose of analysis.
- Permission to quote data collected from Sigma Consulting in the researcher's PhD thesis.

The researchers promise the following during the period of the research:

- This research project and the data collected during this project have academic and research purposes only.
- Unless permitted, the name of the company (i.e. Sigma Consulting) will be anonymous in the project report, thesis and future publications.
- Data collected will not be disclosed to any third party.
- The data collection activities will keep its impacts on normal work to a minimum.
- Research findings will be delivered to Sigma Consulting through a presentation.

## Summary

This document briefly introduced the research project being conducted by Randa Salamoun Sioufi under the supervision of Dr Anita Greenhill.
The purpose of this document is to seek access to perform the research at Sigma Consulting. The research seeks to assess nomadic telework practices from the consultants' perspective, to explore how these work practices are impacted by ICTs in use – mainly in terms of workspace. The outcome of the research will allow making recommendations regarding current and future ICTs, assessing current work practices and formulating recommendations.

## APPENDIX C – DATA COLLECTION SCENARIOS

| Scenario | Description | Data sources |
|---|---|---|
| Best case scenario – Rejected by organization | Full access allowing the interview of consultants that provide a full representation of the organization | Interviews<br>Shadowing<br>Documents<br>Logs<br>Photographs |
| Alternative scenario 1 – Preferred scenario | Access through interviews of only a specific level of consultants, with interviews taking place in work location | Interviews<br>Observation of workspace<br>Observation of interviewee in workspace<br>Observation of interviewee interacting with physical artefacts<br>Photographs of interview site and physical artefacts by researcher<br>Photographs by consultants of their work locations |
| Alternative scenario 2 | Access through interviews only, with interviews taking place outside work location. Interviewees accept to take photographs of their workspace | Interviews<br>Photographs by consultants of their work locations<br>Interpretation of physical artefacts through photographs<br>Interpretations of work locations through photographs |
| Worst case scenario | Access through interviews only, with interviews taking place outside work location. Interviewees don't accept to take photographs of their workspace | Interviews |

## APPENDIX D – PILOT INTERVIEW REPORT

As I needed to have some insight on Sigma Consulting, I started by explaining my research question to Pat, I asked her to maintain the confidentiality of our discussion and of my research project and explained to her that she would probably be excluded from the sample (to avoid any bias caused by my explanation of the research question or caused by information provided to her and not to other participants).

Research question: This research will explore the use of the structurational model of technology (SMT) to assess the impact of ICTs on nomadic telework practices. Specifically how new work practices seem to cross and even violate time and space work boundaries.

Pat explained that by contract consultants spend 3 days in their base country and 4 days in the customer's country. This policy was not systematically applied, but it is being applied now. Pat usually spends Thursday and Friday in Beirut as this is the week-end in the Gulf as well as Saturday as it is the first day of the week-end in Beirut to go out with her friends. She works on Saturday (regular business day), goes out at night, then travels back to the customer's country.

This is interesting as a clear boundary is defined. I will need to investigate whether all consultants have this distinction and whether this policy is applied.

"An average day is around 14 hours of work. Sometimes we work 18 hours per day throughout the project (10 weeks for example)", she said. "This can be the case, if the project workload is misestimated or if we lack resources: the project is planned as requiring 3 consultants + 1 and we end up being 2 consultants."

Sigma Consulting conducts a work-life balance survey on a regular basis, the purpose of this survey is to measure work-life balance and consultant satisfaction; the results are presented to consultants, but they don't have access to the report. The enforcement of the above policy is said to be a consequence of this report.

**I organized below the ideas that were discussed. I also added my own comments in *italic*.**

1. **Which technologies and systems are used by consultants (referring to consultants at all career path stages) at Sigma Consulting?**
    - **Technologies in use**
        - Conference calls to work with other team members in a different location
        - Phone to call colleagues and clients
        - Email to communicate with research team and clients
        - Mobile phone to be reachable
        - Devices integrating phone and palm functionalities - to avoid carrying 2 devices - such as BlackBerry, although not provided to consultants in the Middle-East because generally not compatible with networks
        - Laptop to work and to be able to check mail
    - Systems/ Web applications
        - Knowledge management system
        - Administrative applications to log in time sheets and expenses

CDs and DVDs as data storage devices are not used.

*All the technologies used at Sigma Consulting were identified in the literature as technologies used for telework, refer to Chapter 2.*

A few comments formulated by the consultant:
"Mobile phones and laptops are provided by the organization to all consultants"
"Use is not an option: not being reachable is not an excuse"
"I only turn off my mobile when I sleep"
"I take my laptop with me wherever I go to be able to check my email. This applies even when I am on vacation (for eg., I was on vacation in Cyprus last weekend and took my laptop with me)"

*It is worth noting that Pat was carrying 2 phones, a phone with a UAE line provided by Sigma Consulting and her personal phone with a Lebanese line.*

*These technologies will surely affect how the work is performed. Technology was identified in Chapter 2 as a component of SMT and will act as a structuration factor. Therefore working face to face with colleagues and working through technology will yield different work practices and will generate different techniques to maintain boundaries. The use of the laptop is affecting work practices and attitudes as will be further illustrated by the consultant's answers below.*

2. **How were work practices structured before the use of these technologies?**

The consultant was not able to answer, she doesn't know because the technology was already in use when she was recruited.

*Other consultants might also not know because consultants work on average for 2 years in consulting firms and move on in their careers. And although many consultants might not know how work was organized before the use of technology, this question is important because it will allow us to understand how work processes have evolved. The past is always significant as it contributes to what the present is.*
*I will be using the hermeneutic circle (refer to Chapter 3) as a research tool to help me understand how technology has affected the evolution of work practices.*
*It will be interesting to ask them about what they think the work practices were before the introduction of all the new technologies.*

3. **What are current nomadic telework practices?**

Some persons in the organization don't care about 'time' and would just call anytime and expect you to be reachable. Other people are more sensitive to this issue and would not call on a weekend.
This issue exists only in relation to Sigma Consulting employees, the client doesn't call, the client typically sends an email because it is more official, and the communication is documented.

*The aspect of time will be reduced and the aspect of space will be emphasize as previously highlighted in Chapter 2, however it is expected that many consultants will have a difficulty of dissociating both constructs.*

4. **How do work practices of nomadic consultants using technology differ from work practices of nomadic consultants not using technology?**

*Probably not applicable as the use of technology is not an option. But it is still interesting to ask whether they know of someone who doesn't use technology.*
*This question focuses on work outside the organization.*

5. **How do nomadic telework practices differ from nomadic work practices (inside)?**

Inside the organization, there is no specific work area (i.e. place) assigned. We work where space is available.

*Further to that answer, I have identified the following questions that will help me answer this one.*
*- Identify your work locations.*
*- Can you describe your working space?*
*- How do your work locations differ? i.e. how does this differ when you are on the road?*

*I would expect the boundary applied to define the work space to be the technology. i.e. the work space is where the laptop is, or the work space is were the mobile is.*

6. **Do the nomadic teleworkers who have worked with these technologies since they started consulting recognize a need to negotiate time and space boundaries?**

We are generally annoyed but this is the culture and we can't do much about it. When a project manager calls, it is possible to 'evade' but if it is someone more senior (Manager or Senior Associate) it is impossible to do anything about it.

*In the answer above we notice a situation of disempowerment. The answer is social rather than technical.*
*At the analysis stage, I will have to disentangle the relational aspect (i.e. social) from the technical aspect.*

7. **What is the impact of work delocalisation on work practices?**

We do try to work during slack time, in airports, while waiting for an appointment
During transit, there are times where we are disconnected (from email) and I check my email as soon as I arrive to my second destination.

We don't use scanners: scanning is complicated and cumbersome, scanned files are heavy, not practical. If the client doesn't provide us with a digital copy – which is the case most of the time – we carry the physical documents around.
We often travel with a suitcase of documents.
We often realize that we have forgotten to take with us an important document and we have to manage without it until we go back.

When we are working at clients' premises it is possible not to have access to an internet connection or to have a slow one; in such a case we use the connection as best as possible and we wait till we come back to the hotel to do all our online work. In the case of knowledge management system, I write down everything I need and then download all files when I come back.

Even when there is a connection, it gets complicated because we need to adjust the settings of our laptops, outlook doesn't work and we need to use webmail and this is annoying.

On Saturdays I am not required to work in the office, but it is more practical for me because the required infrastructure is available: phones, printers, fast internet connection, etc.

8. **How do nomadic teleworks manage their time (time management is part of work practices) to optimize its usage? How does the use of ICTs affect "work time"? How do nomadic teleworkers negotiate these changes in work time? Does work globally require/ occupy less or more time with the use of ICTs?**

*Interestingly, time sheets are designed to input time spent (in duration) but the policy is to input time in duration to represent time distribution rather than absolute time.*

*Eg. If the consultant worked 12 hours and spent 9 hours on project 1 and 3 hours on project 2, time is logged as 9/12*8h=6h for project 1 and 3/12*8h=2h for project 2.*

9. **Does the constraining effect of these technologies impact work practices?**

Brainstorming ➔ flipchart
Discussing document/ presenting document ➔ document projection and printout if necessary
Refer to work delocalisation and internet connection above

*I will add some questions to complement this one:*
*- What are the constraining effects of these technologies?*
*- What happens and what do you do in case any of these situations happen?*
*- How do you feel about such situations? What do you miss?*
*- Do these situations differ when you are inside vs. outside of the office?*

10. **What other institutional characteristics impact the technology-boundary interaction?**

*Clearly culture as highlighted above.*
*Possibly internal politics as some answers seem to suggest.*

**Other comments**

*Although I expected that consultants would use tactics to protect time and space boundaries, first level analysis doesn't seem to corroborate this initial premise and it seems that I would be able to demonstrate that IT is used within the organization in a way as to reinforce the organizational culture. However, further analyses of Pat's answers indicate that this protection occurs but it is less obvious and transparent than initially expected: it occurs but it is shaped by the culture and the internal politics.*

*It is also worth enquiring whether IT and IS implementation and use is accompanied by other elements that work in consensus to reinforce the culture.*

*It would be interesting to look at consultant level and level of responsibility (actual or perceived – to be determined)*
*As level **increases**, I expect the consultant to:*

- *be disturbed less frequently*
- *disturb more or less, depending on "own principles"*
- *perceive the importance of boundary violation as being less of a problem*

*Analysis of the data collected during the interviews will be performed along different axis including the literature on telework and a critical perspective.*

*The analysis of the role of the technology in the context of the structurational model of technology will contribute to the understanding of the social context i.e. the organization: the technology constitutes a structure and without structures meaning is lost. In the context of SMT, it is important to have these structures.*

*The sociotechnical boundaries have to be maintained.*

## APPENDIX E – INTERVIEW GUIDE

**1. *Introducing yourself - Background information***
**RS: I will start with a few background questions regarding you and your work. I would like to go through this section as fast as possible.**

Name
Gender
Age
Marital Status
Date joined
Position
Background: Summarise in sentences your background and work related past experience
Roles and responsibilities
Describe your work and how you accomplish it (if not covered in previous question)
What is your base country?
How often do you travel?
How many days a week do you spend in your base country/ away?
Is this a regular pattern?
If you had to explain to someone else how it is to work at BAH, how would you do it?
How many consultants is your team constituted of?
Describe the hierarchy below you
Is consultant allocation permanent or by project?
Describe your management style

***2. The interview location, your workspace? (Spatial information)***
**RS: Now I want to ask you a few questions about this room we are having the interview in**

Do you ever work in this room? How often?
Is it a good room to carry up your work? Do you like this room?
**If not**,
- Where do you work?
- How is it different from places you work in?
- Is it conducive to working?

Do you like working with other people?
Do you prefer open or closed spaces?
Do you work with the door open or shut?
Do you prefer when co-workers are too close or too spread out?

**Observation**
How do they interact in that location?
Try to have a feel of real life interaction in that space

**3. *The technologies you use - Technology & self***
**RS: We will now fill up this table to allow me to have a full picture of the technological landscape. Then I will ask you a few questions regarding how you use your technology.**

Which devices do you use and for which purposes?
Are they required or optional?
Are these devices provided by the organization? Are they yours?
What advantages do you seek when you use these technologies?

| Technology | In use? Yes/No | Required/ Own choice | Provided/ Own | Advantage | Purpose achieved? Yes/No |
|---|---|---|---|---|---|
| **Hardware** | | | | | |
| Laptops | | | | | |
| PCs | | | | | |
| PDAs | | | | | |
| BlackBerry® | | | | | |
| Mobile phones | | | | | |
| Smartphones | | | | | |
| **Applications** | | | | | |
| Work-specific software (applications) | | | | | |
| Online software (Intranets/ Web applications) | | | | | |
| Email | | | | | |
| Groupware systems | | | | | |
| Videoconferencing | | | | | |
| **Telecom** | | | | | |
| Videophones | | | | | |
| Desktop videophone | | | | | |
| Voice messaging service/ Voice mail | | | | | |
| Network access | | | | | |
| Type of Network – technology | | | | | |
| Private or public | | | | | |
| Wired wireless | | | | | |
| Audio | | | | | |
| Video | | | | | |

Is there any other technology that you use and that is not listed?

**<u>In relation to self</u>**

If provided, how are specifications decided on?
What are the specifications of your laptop (technology, power, size, software, wireless network)?
And mobile?

Do all consultants get the same laptop?
Mobile?
How do you use your laptop?
How do you feel about using it?
Do you consider the laptop as an essential part of your work tools?
Is your work enabled by the technologies you use? How? Ex.
Is your work disrupted by the technologies you use? How? Ex.

**4. *Interaction with artefact***
**RS: Since my research is primarily focussing on the use of technology I would appreciate if you can show me how you use your technology**

***If technology exists in the interview location***
Is the technology in this location similar to the one you use?

**If yes,**

My research is about how mobile consultants use technology, can you please show me how you use your laptop and what you do when you are about to start working? How do you check your email? Log on to Sigma online? Etc.

| | |
|---|---|
| Researcher assesses: | Confidence |
| | Energy |
| | Familiarity |
| | Ease of use |
| | **Other** cues |

**If no,**
***If they brought their laptop with them***
My research is about how mobile consultants use technology, can you please show me how you use your laptop and what you do when you are about to start working? How do you check your email? Log on to Sigma online? Etc.

| | |
|---|---|
| Researcher assesses: | Confidence |
| | Energy |
| | Familiarity |
| | Ease of use |
| | **Other** cues |

***If neither situations apply and workplace***
Ask them if they can get their laptop for demo.

**If yes,**
My research is about how mobile consultants use technology, can you please show me how you use your laptop and what you do when you are about to start working? How do you check your email? Log on to Sigma online? Etc.

| | |
|---|---|
| Researcher assesses: | Confidence<br>Energy<br>Familiarity<br>Ease of use<br>**Other** cues |

***If neither situations apply and location not related to work -*** Nothing

**5. Managing others**

**Work**
Can you describe to me the type of tasks your subordinates accomplish?
How do you expect your subordinates to do these tasks?
How do you manage your subordinates?
How do you evaluate the work of your subordinates?
How do you assign tasks to the people that work with you?

**Technology**
Which devices do your subordinates have to use to do their work?

***If devices are provided by the organization and if there are varying specs (issue identified earlier during the interview)***

> What are the specifications of their laptop (technology, power, size, software, wireless network) and mobile? Do all consultants get the same laptop?

Is your subordinates' work enabled by the technologies they use? How? Ex.
Is your subordinates' work disrupted by the technologies they use? How? Ex.

**Location**
Where do you expect your subordinates to work?
Where do they work?

**Mobility**
How do you feel about your subordinates' mobility?
Does mobility enhance their work experience?

**Boundaries**
What do your subordinates do to limit mobility? How do you feel about that?
Are work boundaries pulled down by your subordinates? How do you feel about that?
How do you make the work of your subordinates more flexible? How do you ensure this?
Are there any work boundaries you would not allow your subordinates to change?

**6. *Managing your own work***
**RS: Now I would like to ask you a few questions about your work (if not already covered)**

**Work**
How are tasks allocated to you?
How is your work evaluated?
How do you feel about your managers' management style?
Do you think your managers have a full visibility of what your job requires? In relation to the technology you use? In relation to mobility?

**Location**
Identify the different locations in which you have worked during the past quarter?
Describe your own workspace in 2 of these locations.
How do your work locations differ? How does your base location differ from visiting locations?
How do you feel about working in these places?

**Mobility**
How do you live the experience of being mobile?
How do they feel about technologies dissolving your workplace boundaries?
How does mobility impact on you?
How does mobility impact on your family?

**Boundaries**
Do you pull down your workplace boundaries? How? Why?
If you're not happy working in some of these locations, what do you do to avoid working in these locations in the future?
What type of workplace boundaries to limit mobility do you attempt to erect in your work? How? Why?
Do the technologies that you use allow you to change workplace boundaries? How?

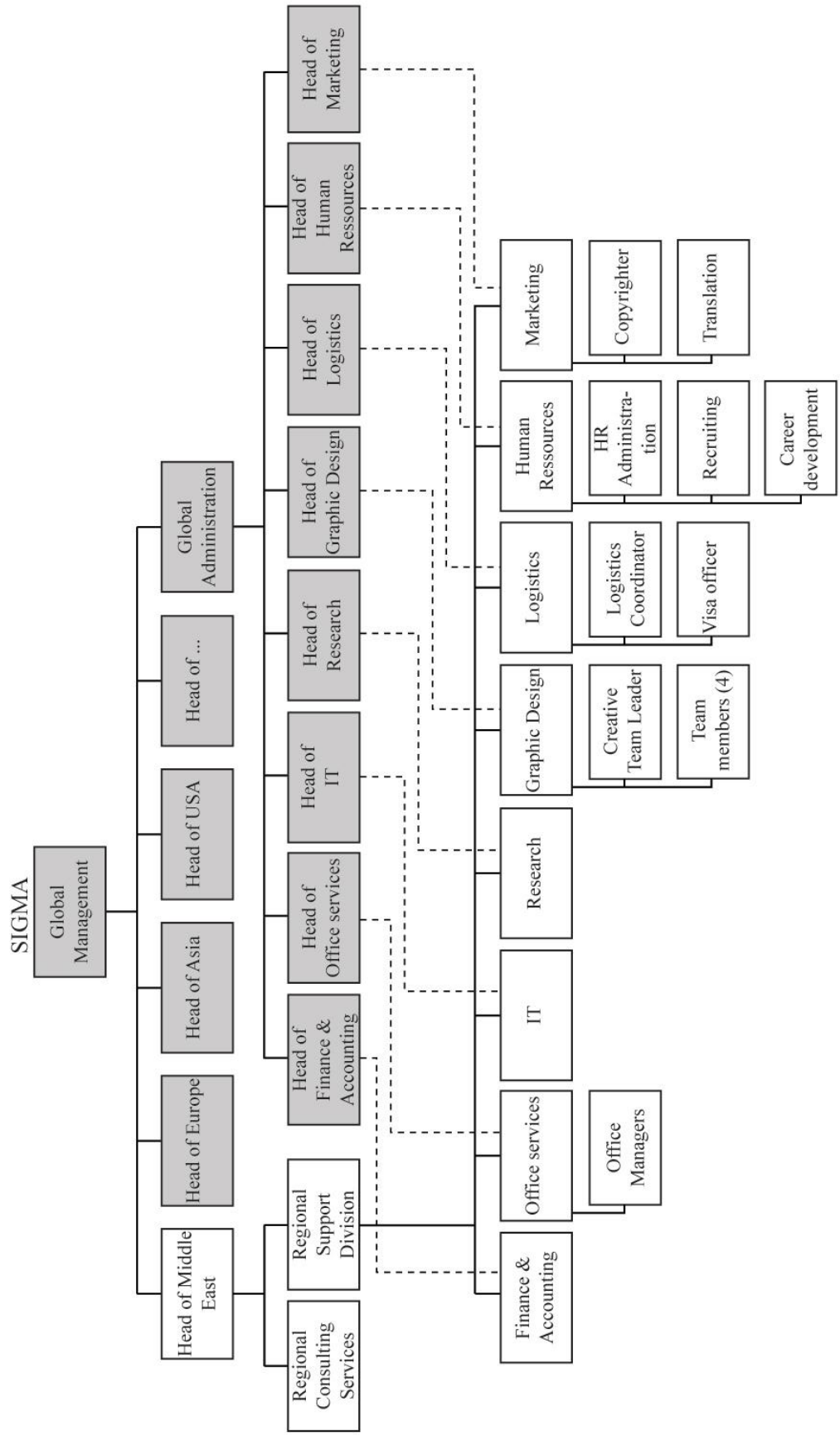
## 7. Other issues, including 'new' technologies

How have work practices evolved with the introduction of 'new' technologies?
Would you like to add any comments or clarification regarding the different issues that we discussed?

## 8. Pictures of workplace

Since my research is about the use of technology on workspace, it is important that I see the place you work in and assess how it is impacted by the technology you use. I would appreciate if you can take pictures of 3 places you work in during the coming two weeks, take these pictures to tell me a story about where you work.
I have disposable cameras available, or you can use your camera of phone to take the pictures whatever suits you best.
I will contact you in 3 weeks to collect the pictures and discuss them with you.

## APPENDIX F – SIGMA'S ORGANIZATION CHART



## APPENDIX G – CODING

| Category | Topic | Code |
|---|---|---|
| **WM** | **Work and its management**: management of work of nomadic workers | |
| WM | Type of work/ tasks performed: Talk over the phone with, Meet with, Write, Review | WM-T |
| WM | Work of subordinates | WM-TS |
| WM | Work allocation | WM-A |
| WM | Work evaluation | WM-E |
| WM | Coordination | WM-D |
| WM | Work scheduling | WM-WS |
| WM | Communication | WM-C |
| WM | Self-evaluation | WM-SE |
| WM | Organization | WM-O |
| WM | Positions & responsibilities | WM-PR |
| WM | Management style | WM-MS |
| WM | Subordinates work | WM-SW |
| | | |
| **TU** | **Technology in use** | |
| TU | What hardware is being used by nomadic workers? | TU-HW |
| TU | What software is being used by nomadic workers? | TU-SW |
| TU | What communication devices are being used by nomadic workers? | TU-MO |
| TU | Use of technology<br>➔ How technology is used<br>➔ How it shapes consulting | TU-UZ |
| TU | Deterministic benefits of technology | TU-DB |
| TU | User's benefits of technology | TU-UB |
| TU | Feelings about using technology | TU-FE |
| TU | Technology enables work | TU-EN |
| TU | Technology disrupts work | TU-DI |
| TU | Negative impact of travel and mobile technology – on personal level | TU-NI |
| TU | Technology related procedures | TU-PP |
| TU | Laptop/ mobile specs | TU-SP |
| | | |
| **FM** | **Flexibility and mobility** | |
| FM | How do nomadic workers experience the need for **flexibility**? | FM-NF |
| FM | Flexibility is necessary (a **must**) | FM-FM |
| FM | How do nomadic workers experience the requirement that they be **mobile**?<br>How do they feel about their subordinates' mobility? | FM-NM |
| FM | Frequency of travel | FM-FT |
| FM | Work in own office | FM-OO |
| FM | Good workplaces | FM-WP+ |
| FM | Bad workplaces | FM-WP- |

| | | |
|---|---|---|
| FM | Mobility & quality of work experience | FM-WE |
| FM | Negative impact of travel | FM-NT |
| **FM** | How to decrease mobility | FM-LM |
| | | |
| **WL** | **Work Location** | |
| WL | Where do nomadic workers work? (Identified workspaces) | WL-P |
| WL | Workspace is defined by technology | WL-WT |
| WL | Words, ideas, objects used/ listed/ identified while describing workspaces | WL-PD |
| WL | Work locations not liked | WL-NL |
| WL | Interaction in interview location | WL-IL |
| WL | Working with people | WL-W/P |
| WL | Open-closed workspace | WL-O/C |
| | | |
| **BO** | **Boundaries** all that is used or undertaken to stop work. | |
| BO | Technology blurs boundaries | BO-TD |
| BO | What workplace boundaries are blurring? | BO-B |
| BO | Are other workplace boundaries replacing blurred boundaries? | BO-A |
| BO | To **help** work boundaries to blur | BO-SH |
| BO | To **define new** boundaries | BO-ST |
| BO | Team/ office effort to counter boundary blurring | BO-CT |
| BO | Decisions regarding **matching** between location and type of work, i.e. what work to do where | BO-MT |
| BO | Their action and **explanation** of their action on boundary management | BO-EX |
| | | |
| | **Orlikowski's model - other** | |
| **IP** | **Institutional properties** | |
| IP | Culture | IP-C |
| IP | HR policy | IP-HR |
| IP | Nature of industry | IP-I |
| IP | Employee selection process | IP-SP |
| SI | Sigma description/ Work at Sigma | SI-D |
| SI | Mission, Vision | SI-M |
| SI | Perception of role of Sigma/ job by consultant | SI-J |
| SI | Sigma impact | SI-I |
| SI | Role of individual | SI-R |
| SI | Clients | SI-C |
| SI | Gender diversity | SI-G |
| SI | Consultant skills | SI-CS |
| **IA** | **Individual & Agency** | |
| IA | Personal characteristics | IA-PC |
| IA | Personal motivation | IA-PM |
| IA | Individuals sets the boundary of 'technology impact' | IA-TB |
| IA | In reality /**External** interpretation, **view** | IA-EV |
| IA | In reality /**Internal dilemma** | IA-ID |

## APPENDIX H – ANALYSIS TABLES

### Table H1 - List of all the tasks performed by consultants using a laptop

List of work related tasks performed using the laptop (based on the analysis of interviews)

| Information gathering | Document development and delivery | Written communication |
|---|---|---|
| – Research<br>– Read latest articles | – Gather data<br>– Build a spreadsheet<br>– Analyze data<br>– Write reports and presentations<br>– Review documents<br>– Edit or sign documents, possibly using annotation capability<br>– Give presentations at the client's site | – Exchange email<br>– Exchange information<br>– Exchange documents |

### Table H2 - List of work locations identified by respondents

List of locations in which the laptop is used (based on the analysis of interviews)

| All respondents mentioned using their laptop in the following locations | At least one respondent mentioned using his laptop in the following location |
|---|---|
| Home office/ allocated office when applicable<br>Conference rooms<br>Other firm offices<br>Hotels in client country<br>Client site/ Clients' premises in client country | Someone else's office<br>Home<br>Parent's house<br>Hospital<br>Café<br>Shopping center<br>Pubs<br>Kids' playground<br>Sports club<br>Airport<br>Plane<br>Train<br>Car<br>Business centres in hotels<br>Hotel room<br>Hotel lobby |

**Table H3 - List of all the purposes for using email identified by respondents**

| Uses |
|---|
| Synchronized calendar |
| Synchronized address book |
| Email (receive, read text, read attached files images, respond) |
| Exchange with team members |
| Be always connected |
| Respond to immediate inquiry |
| Forward emails |
| Use short periods of free time to respond to many short emails (optimize time usage) |
| Receive news feeds |
| Read or listen to magazines |

**Table H4 - Interpretations of the smartphone by the different agent groups at Sigma**

| Senior consultants | Junior consultants | Clients |
|---|---|---|
| To communicate with others<br>To be reachable by clients<br>Access organizational resources<br>Reach junior consultants<br>Exert power on junior's time<br>To satisfy client<br>To develop good relations with clients/ acquire client trust<br>Give impression of being always at work<br>Manage email workload<br>Manage own time<br>Make informed decisions | To communicate with others<br>Be informed/ aware<br>Access organizational resources<br>Access to management time<br>Show dedication<br>To promote image of self<br>To be liberated from location<br>Be part of the circle<br>To manage own time<br>To plan ahead | To communicate with others<br>Reach consultant to enquire about project<br>Reach consultant to obtain advice about |
| **Support staff** | **Personal assistants** | |
| To communicate with consultants regarding their requests<br>Be informed of consultants' requests | To communicate with consultants regarding their requests<br>Be informed of consultants' requests<br>Remain reachable by consultants | |