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Problem solver or private life killer?

Mobile Telephony and Work-life Balance in Hungary

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1 Introduction

According to U.N. statistics, out of the world's estimated seven billion people, six billion have access to mobile phones, representing a rate of penetration of eighty-five percent of the population of the planet as a whole. Considering that only four and a half billion people have access to working toilets (U.N., 2013), we can conclude that the hygiene-related situation of many people is worse than their opportunity to communicate. Within just 40 years, mobile telephony has spread across and networked the globe, becoming an important part of our everyday life, almost invisibly. Technology allows people to extend communication in terms of time and space, or— using the expressions of Manuel Castells— materially supports 'timeless time' and the 'space of flows' (Castells, 2009). With a single smartphone, one can use 'dead time' spent commuting by calling a family member or check emails during a holiday. The strict barriers between working time, family time and leisure time as defined elements of our days and the physical and mental borderlines between working place and home are fading away. Just how individuals balance the requirements of their careers and their private sphere is in itself an old area of academic enquiry, the role of information and communication technologies (henceforth: ICTs) in work–life balancing strategies has only begun receiving scrutiny in the past few years.

Creating work-life balance (hereafter: WLB) is a problematic field in most of the countries despite increasing consciousness, and generous policy initiatives (Hochschild, 2001) in the field. ICTs open and widen communication channels and support efficient coordination, thus human interactions have changed within the domains of work and private life resulting in the transformation of both domains and of their relationship alike. First of all, ICTs support many major changes in general working conditions. The possibility of telework (e.g. Othman et al., 2009; Tremblay et al., 2006; Maruyama et al., 2009), the extension of work *flexibility* (e.g. Valenduc & Vendramin, 2002) and the possibbility of new forms of organising business processes, such as *crowdsourcing* or *open source* innovation have emerged and have become increasingly prevalent in many jobs[1]. Mobile phone, as an element of the '*ICT*

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[1] Although other jobs (like manual or physical workers, whose work is not incorporated by internet and ICT infrastructure) are partially or completely unaffected that is a matter of this research field.

cluster'[2] allows individuals to keep in touch, share information, and work together despite spatial distances and time constraints. Over the last twenty years these new circumstances have made significant adjustments to where people are physically located during work and how they carry out their work. The speed of communication and amount of communication has increased, and new types of work practices have emerged as a result of these changes. Home has turned into an alternative workplace, which can be also called a 'portable humanoid office' (Challenger, 2002), and new concerns have arisen about how to limit the expansiveness of work (Currie & Eveline, 2010).

Second, ICTs also have changed the patterns of communication and information sharing within the family. This affects within-family communication activities, tasks and responsibilities related to children, spouses, elderly people or other relatives (e.g. Chesley, 2005; Christensen, 2009). ICTs also influence time and coordination problems in everyday life by giving more flexibility, autonomy and control, to some extent. For crisis management mobile telephony has definite potential, while internet is considered as an information source (Frissen, 2000). The increasing use of ICTs result in new coping strategies (e.g. work from home, making work calls outside office hours, searching product information on the Internet), that rather complement than substitute old strategies (e.g. buying time-saving domestic appliances, choosing childcare close to home or performing domestic tasks faster) (Hubers et al., 2011). ICTs also affect parental style and the intergenerational power relations within the family (Cabanes & Acedera, 2012). ICT use modifies children's peer relations (e.g. Kaare et al., 2007; Kreiss, 2011), while mothers and fathers have different level of expertise and insights into their communication technology use. So, defining their level of control, involvement, and the home rules can be a challenging task for parents, resulting in new types of problems in the private life domain (e.g. Ribak, 2001; Madianou & Miller, 2011; Leung, 2012; Sorbing, 2012; Stevenson, 2011).

Finally, some scholars have also concluded that the strict barriers between working time, family time and leisure time as defined elements of our days and the physical and mental borderlines between working place and home are fading away due to the heavy

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[2] The group of technologies (Internet, email and portable communication devices) is referred to as the *'ICT cluster'* based on Tennakoon (2007).

changes in ICTs use, which also cause serious challenges for the individual (Chesley, 2005). The way in which one balances the requirements of career and private sphere is in itself an old area of academic enquiry (e.g. Desrochers & Sargent, 2004). Some scholars handle the two life domains as two tensioning, separate and mutually exclusive realms, that have 'mental fences' (e.g. Zerubavel, 1991, Nippert-Eng, 1996, Clark, 2000), while others 'demythologize' the 'false' public-private dichotomy (cf. Kanter, 1977, Martin, 1990, Edley, 2001) and suggest, that people never leave one domain to enter the other one.

The role of ICTs has major importance in changing of borders between shperes and people involve ICTs in work–life balancing strategies. This research field started receiving scrutiny in the past few years and now has extensive literature, but is however not consistent. On one hand, there is a range of research about the 'cyberspace sweatshop' (Hill et al. 1996), i.e., the overload sourcing from constant accessibility and availability (e.g. Vendramin and Valenduc, 2002, Edley, 2001). On the other hand, some scholars point out the beneficiaries such as mothers (cf. Edwards and Wajcman, 2005), who can combine employment and childcare this way, teleworkers (e.g. Maruyama et al., 2009) and those parents and children who live in distributed families (Christensen, 2009). Many papers incorporate conceptions related to the quality of life in general, such as life satisfaction (e.g. Chesley, 2005, Currie and Eveline, 2010, Leung, 2011), distress (e.g. Martinengo, 2007, Chesley, 2005), burnout (Leung, 2011) or anxiety (Chesley, 2005).

The expressions 'ICTs' or 'ICT' have broad meaning. ICT covers many technological innovations, such as software (e.g. mobile emailing application), hardware (e.g. notebook, tablet) or other infrastructural elements (e.g. Internet network). As a recently and fast prevailing technology, Internet is at the centre of interest generally, but sometimes hardware also comes into the focus.

Mobile technology has two significant characteristics, that make it worthwhile to be investigated from the aspect of work-life balance in Hungary: mobile telephony has a relatively high, 116.9% subscription penetration in Hungary (HNMIA, 2014), which foregoes Internet penetration (76%, HCSO, 2015). Additionally, mobile phones play the most important role in inter-personal communication within the *'ICT cluster'*.

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Moreover, due to a heavy increase in the number of smart phone users,[3] for a significant group of people, a wide range of communicational platforms are available (phone calls, SMSs, e-mails, voice over Internet applications, social networking sites, chat applications).

The aim of this research is to unveil the multifaceted relationship between the use of mobile technologies and WLB, more precisely this research investigates the effects of mobile use on the perception of spillover. The narrow technological focus allows us to separate the social consequences of mobile telephony from the effects of the also prevalent communication infrastructure: internet, and investigate how people interpret the mobile phone's role from the aspect of work and private life domains, as well as the relationship between these domains. Although the research population consists of Hungarian inhabitants between 18 and 65, the results can have international relevance too. In order to unveil cause–and-effect relationships and interactions in this complex question, our research applies a carefully designed methodology and a choice of suitably structured variables. This way the analyses can discover and explain unknown hidden patterns and details.

After introducing the theoretical framework and discussing the most relevant ICT and WLB-related middle-range theories, a focused empirical literature review follows, which summarizes the main findings about the effects of mobile telephony (and ICT use) on the practice of creating work-life balance. Based on the theoretical and empirical grounds, this thesis phrases a research question in connection with the relationship between mobile phone usage; namely, how mobile phone use affects spillover between the life and work domains and then applies a mixed methods approach to answer the question (Creswell, et al. 2003; Tashakkori & Teddlie, 1998; Creswell & Plano Clark, 2007). The hypotheses of the research apply the structure of the spillover categories, and cover all the possible qualities (positive/negative) and directions (work-to-life/life-to-work).

The main advantage of a mixed methods designs is, that it combines the generalisability and explanative nature of quantitative methodologies with the explorative intentions of qualitative methodologies (Hesse-Biber 2010) and provide

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[3] 30% of households and of individuals possessed smart phone in 2013 (HNMIA, 2013)

comprehensive results. This research follows an explanatory sequential design, thus the findings of a national representative survey serve as inputs for a forthcoming qualitative phase that helps in explaining and explicating the preliminary quantitative results. A mixed methods approach makes it possible to phrase conclusions based on a combined overview that reflects what was learned during the two strands of the study. This means, that besides giving insights into the findings of the two research phases (qualitative and quantitative), the conclusion section provides a joined interpretation of the findings, which gives an added value to the separate qualitative and quantitative concluding remarks. Finally, a discussion follows that details four basic ways in which this study challenges the available empirical literature in the field, and points out the most surprising and unique results. In addition to this, a list of limitations is also given together with some suggestions for future research.

2 Background

This section[4] aims to provide a structured overview of those sociological theories and empirical literature, that are directly connected to the research topic, and that can serve as point of departure. The section consists of two segments: first there is a discussion about the relevant middle-range theories providing justification for selecting spillover theory and border theory as theoretical bases; the second part reviews the empirical literature, and discusses their measures, research questions, methodological choices and finally, synthetizes the key findings. The critical analysis summarizes the findings of related papers and discusses several problems in connection with conceptualisation, sampling strategies and discrepancies in results.

Although this thesis focuses on the use of mobile telephony, the empirical literature review is less specific, and considers a wider set of info-communication technologies, i.e., it also covers Internet and other elements of the '*ICT cluster*' (e.g. portable communication devices such as tablets, personal computers, personal digital assistants, BlackBerries, etc.); the reason being that the empirical literature usually does not reduce its scope to one tool, but investigates a bigger group of ICT devices. These papers argue that ICT tools are not used separately, but as a part of an extended ICT portfolio. In order to understand the user effects of a device (i.e. mobile phone) it is worthwhile to examine its technological context. As a consequence of this broader and complex view, however, we obtain relatively little knowledge related to the distinctive role of mobile technology.

2.1 Theories in the literature

The problem of creating WLB exceeds the barriers of business organisations and is related to several societal phenomena; for example the increased labour market participation of women (Schultz, 1990, Jaumotte, 2003), higher job flexibility (e.g.

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[4] In this section I draw heavily on my paper published in socio.hu (Dén-Nagy, 2013)

Alwin et al., 1992; Higgins et al., 2000; Hill et al. 2001), penetration of part-time employment (e.g. Tilly, 1991, Kalleberg, 2000; Bosch et al., 2010), alterations in the domestic division of labour (Paksi et al., 2008; Takács, 2008), the appearance of new life strategies (Hubers et al., 2011) that are influenced by the uncertainty of the general social and economic environment (e.g. Bauman, 2000; Beck, 2003; Blossfeld et al., 2012), and of the labour market (e.g. Bauman, 2000, Kohler & Kohler, 2002). These changes in life styles, values and structures are supplemented by ICT tendencies, as the modifying effects of Internet on children's education (e.g. Tripp, 2011; Plowman et al., 2011), on the unpaid household labour (e.g. online shopping, online administration, etc.) (e.g. Smith & Graham, 2012) on relationship management within the family, e.g. between parents and children (e.g. Madianou & Miller, 2011; Tripp, 2011; Ribak, 2001), and outside the family, e.g. communicating with friends and acquaintances (Kaare et al., 2007; Palackal, et al. 2011; van den Berg et al., 2012).

Several modernity theories [e.g. post-industrial society by Daniel Bell (1974), systems theory by Niclas Luhmann (1975), liquid modernity by Zygmund Bauman (2000), risk society by Ulrick Beck (2003) and network society by Manuel Castells (2005)], interpret the relationship between work and private life, and the technological changes not in themselves but embedded into long-term social processes. They give differing weights to the institute of family, the action of wage-earning, and the role of technology, and put them into differing contexts. Although grand theories can help in placing the research problem into complex social, economic and political systems, and can offer different perspectives focusing on different factors, like risks, communication, global economic or social networks, they cannot be connected to the research topic of this thesis directly, so this chapter does not discuss them in details.

Compared to grand theories middle-range theories have 'different relevance potential', if we want to use Merton's words. From them we can conclude concrete, empirically verifiable hypothesis that are about some certain, well defined parts of social phenomena (Merton 1968). The following subsection discusses those middle-range theories that are related to the issue of this research, thus to the relationship between work-life balance and the use of mobile technology.

As Figure 1 shows, the interaction between family and ICTs as a research topic stands

in the cross section of the set of middle-range theories that describe the problem of WLB and the set of constructs that elaborate the social consequences of ICT development. This subchapter provides brief introduction to both theoretical sets and gives more details about the applied theoretical framework.

Figure 1: Grand and middle-range theories in relation to the research field of this thesis
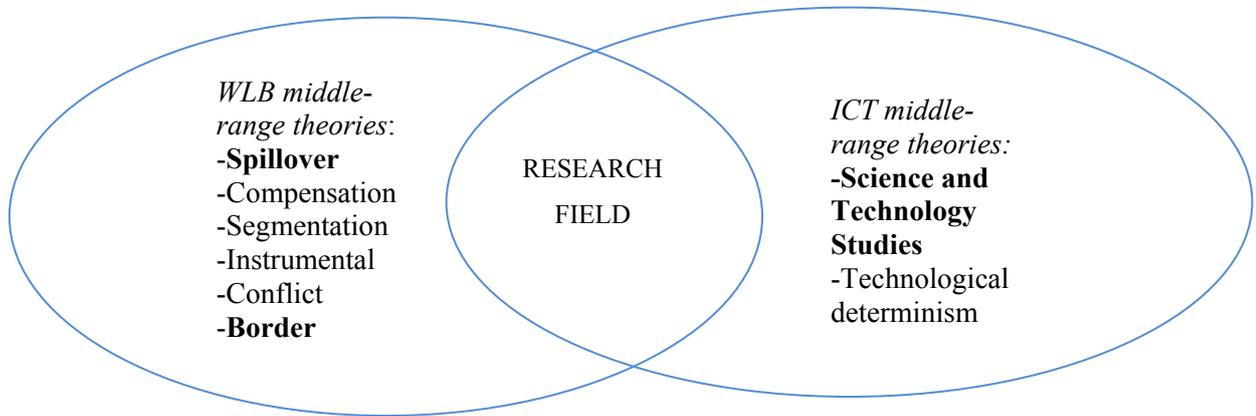
2.1.1. ICT-related middle-range theories

Science, technology and society or the more prevalent expression for this scientific field, *Science and technology studies* (STS) is concerned with the social aspects of technology. STS covers a wide range of theoretical directions and empirical research (Király, 2005). All of them criticise the theoretical concept of *technological determinism,* which suggests, that individuals only react to huge technological changes, thus innovations induce social processes (e.g. Perrin, 1979).

According to technological determinism technology is a separate, independent field from society, and is neutral in terms of politics and ethics. Its evolution trajectories are not influenced by community needs, problems, or political decision making. The most extreme one-way explanatory model, which is usually called as *technologic utopism*, assumes that technical innovations have positive results by default, because of the inherent characteristics of technology (Mody et al., 2010). A prominent theory is Everett M. Rogers' Diffusion of Innovations Theory, which models the dynamics, speed and patterns of adaption, but does not describe its long-term social consequences (Rogers, 1995). This conception presumes, that technology is given, innovation itself is stable and constant and puts more emphasis on the effects of innovations on the community. The social effect evolves only through communication and the adaption

mechanism of the novelty, and has sense as far as it proves to be successful and penetrates across the society.

In the '60s several critiques were published in connection with technological determinism. Critics of the approach usually point out that the deterministic approaches vary in the degree of determinism they reflect, and some critics argue that a distinction should be made between *soft and hard* technological determinism depending on the extension of human intervention and the scope of human control. *Soft technological determinism* is widely accepted by scholars. An example for this is the interpretation of communication technology. Several papers apply the foundation implicitly or explicitly, that communication technology provides new opportunities for a society, and supports progress, while its absence becomes a barrier for development (Verhulst, 2010).

Recognising that people are participants as well as establishers of technologic development, paved the way for STS research. The wide range of theoretical conceptions and empirical trends- covered by the term 'STS'- agrees that the relationship between society and technology is an interrelation (Király, 2005). STS has constructivist epistemology, and emphasizes more heavily the importance of human decisions. It states, that technological innovation is not neutral politically and ethically. Technology is not an independent agent, a 'black box' or an external aptitude, but a factor, that interlocks with social processes. The representatives of this school are Wiebe E. Bijker, Thomas P. Hughes and Trevor Pinch.

Within STS, *Social Construction of Technology* (henceforth: SCOT, Bijker, et al. 2012) covers sociological analyses of technology. SCOT focuses on the dynamics of technological changes, the alternatives that are available for designers, developers and users during a development process (Király, 2008). It assumes just like technological determinism that there is a linear relationship between the two spheres, but in a reverse direction: society affects technological development unilaterally, totally determining it. They argue that the ways a technology is used cannot be understood without understanding how that technology is embedded in its social context. SCOT states, that different social groups can interpret technology differently (Lievrouw, 2010).

Although SCOT seems to be a feasible theoretical framework, there is an important

barrier for using it in this thesis. Just like all the other ICT-related middle range theories it focuses on the changes of technology, on the process of innovation and on the penetration patterns. SCOT can be especially fruitful theoretical framework, if we want to understand the reasons for acceptance or rejection of a technology, and investigate social groups and interests that contribute to the construction of technology. SCOT can help in explaining how technologies arise, but is an insufficient framework if we want to research the consequences of the technologies after their permeation.

The only item that this research can reasonably incorporate from STS and SCOT is the assumption, that there is an interactional relationship between technology and society instead of a unidirectional cause-effect mechanism. Info-communication technology is not only an aptitude, but a factor that is altered continuously by the social needs. Empirically the most relevant aspect of this innovation-oriented framework is that it urges the researcher to handle the relationship between technology use and WLB as stages of a fast-changing process instead of a steady-state[5].

2.1.2 WLB-related middle-range theories

Sociological researchers have investigated the relationship between work and life since the 1950s. Using the term 'private life' or most recently 'non-work' instead of 'family' in contrast to 'work' became prevalent in sociology in the 1990s. The new terms cover the expectations, family-related needs and career patterns of both men and women, and cover also the aspects of people, who have no children or other familial commitments (Geszler, 2012).

The interaction between the two spheres (work and private life) can be described by four parameters: integration (or scope of segmentation); direction (which domain affects the other); context (the perspective of investigation, micro or macro level, and the exogenous surrounding that affects the individual); and quality (positive or negative effects, resource withdrawals, scarcity, enrichment or facilitation) (Rantanen,

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[5] Thinking in processes was not only useful but also inevitable in case of this two-phased research, since the changes in technology use were so rapid, that they affected data collection directly. Although the time shift between the qualitative and quantitative phases was relatively small (2 years), the change in user habits was so drastic, that it became a methodological issue. Phrases and questions about mobile calls and mobile emailing required special attention in case of some focus group discussions because new forms of communication opportunities appeared and became widely prevalent during this period (for more details see chapter 6.7.1).

2008). Middle-range theories (also called as hypothesis in literature, e.g. Staines, 1980) on this field can be distinguished based on these four aspects. Sheldon Zedeck and Kathleen L. Mosier (1990) list five approaches[6]:

 (1) *Compensation theory* assumes that the connection between work and life is inverse: Success realised on one domain can compensate the shortcomings of the other one (Staines, 1980). In order to utilise this compensation, individuals execute investments. If one misses something in the work domain, one thensubstitutes it with something on the private life domain. If one fights with strong deprivation at his workplace, he can compensate his negative emotions with satisfaction experienced at home with his family. Two types of compensation exist: the individual can decrease participation in the domain, which offers less advantage, and increase involvement in the other one. According to the other compensational strategy, individual substitutes scarcities on one domain with achievements on the other one (Geszler, 2012).

(2) *Instrumental theory* exceeds *compensation theory*, and assumes that activities in one environment can support successful operation on the other one. Thus, here we can talk about a double utilisation of assets. If one makes efforts to produce money, it will make it possible to maintain a successful private life (Evans & Bartolomé, 1984). The relationship can obviously be valid vice versa too: a satisfactory private life supports the efficiency of earning activity. *Instrumental theory* presumes strong interaction between work and private life in opposite to the following model.

(3) *Segmentation theory* suggests that work and non-work domains separate sharply from each other, and activities carried out in the two spheres do not influence each other. Thus, successes on one domain can be achieved without any effects on the other one. Preferences can change during life course, e.g. in the beginning career dominates over family, but this changes later on (Evens & Bartolomé, 1984). The timely, spatial and functional separation makes it possible for the individual to create clean-cut categories and to determine definite preferences. Thus, according to this theory, earning activities and private sphere separate necessarily and there is no integration.

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[6] Other classification is also feasible, e.g. Geurts and Demerouti (2003) structured WLB theories as (1) classical hypotheses about the work/non-work interface (segmentation, compensation ans spillover theory), (2) the role strain hypothesis, (3) the role enhancement hypothesis and (4) recent perspectives on the work/non-work interface (conservation of resources, fit model, border theory, ecological systems)

(4) *Conflict theory* has the extreme statement that work and life cannot be harmonised, and the commitments on one sphere require sacrifices on the other one (Evens & Bartolomé, 1984). Family commitments might cause absence and slowness in work. Thus, this theoretical model provides framework for empirical investigation of role conflicts (Zedeck & Mosier, 1990). Conflict model basically builds on two hypotheses: according to the *scarcity hypothesis* time and energy are scarce resources for the individual, while *role conflict hypothesis* assumes that role commitments affect each other in a stressful way (Geszler, 2012).

(5) The concept of *spillover* is probably the most common in the international and in the Hungarian literature alike. It does not consider the barriers between work and private life sharp or tight. Although they are separated fields in terms of time and space, individual's behaviours, emotions, attitudes and capabilities can be transferred from one domain to the other easily. Workers' experiences carry over into the non-work arena, and vice versa, such that there develops a similarity in the patterning of the two domains (Staines, 1980). As for the direction there are two types of *spillover*: work-to-life *spillover* and in the reverse direction: life-to-work *spillover*. Both can be interpreted in positive and negative context from the aspect of the individual, and both types assume the integration of the two life domains (work and family), based on the argument, that the individual cannot be divided into an employee and a parent (or a partner) (Martinengo, 2007). It is important to note, that positive and negative spillovers are not mutually exclusive terms. One can experience negative work-to-life spillover, i.e. one can think about work-related issues too much to enjoy time at home, but in other situations can also perceive, that one gets on better at home due to work-related success, which is a form of positive work-to-life spillovers. (The measurement of the different spillover dimensions is introduced in chapter 5.2.1.2)

This thesis focuses on mobile communication technology that is able to connect work and private life. Mobile telephone use can be a form of interaction between the two domains. If one uses it for work-related purposes during private time, the interaction happens from work to life, while private-related mobile communication during work time enables life-to-work directed interaction. Spillover theory describes mechanisms (spillover of thoughts, feelings, skills or habits) that can be enhanced by technology use. Since spillover theory interprets the relationship between the two life domains by

differently directed transfers that have positive and negative consequences on the individual, it can provide sufficient basis for operationalising both the positive and the negative effects of mobile use, both in work-to-life and in life-to-work directions. Based on this framework the analysis can consider the degree of behaviour, time, stress, skill and emotional interference from work to family and from family to work (see chapter 5.2.1.2).

(6) Besides these models, we can refer to a relatively new conception, viz. *border theory* (Clark, 2000). According to this idea the fields of work and home are permeable, and actors can shape the two domains to some extent and can contribute to their balance. This approach handles the problem of demarcation-line-management, the way how individuals, "who make daily transitions between the two worlds" (*border-crossers*, Clark, 2000:748) negotiate with *border-keepers* (especially influential and defining members of the domain) and how they create balance in their life (Clark, 2000). Covering both positive and negative effects, border theory is more similar to integration theories, and stands the closest to the spillover theory's approach, however unlike spillover theory, it does not cover only mechanisms (the differently directed transfers between the two domains), but provides a wider interpretative framework. Border theory exceeds the question whether there is any spillover or not between the two domains, but deals also with the question how social groups construe the domains and the borders. In other words, according to this concept individuals are not passive sufferers of the interactions that happen on the interface of the two domains, but active participants, who are interested in establishing balance between them. Border theory interprets physical and spatial flexibility and permeability of the border (that allows spatial, temporal and psychological transitions between the two domains) similarly to spillover theory. Clark also involves an extra item in his notion. This is the so called 'blending', when high levels of permeability and flexibility appear at the borders. In this case the area around the border does not belong exclusively to one of the domains, but becomes a border-land.

According to Clark there is no agreement between individuals about *border permeability* and *flexibility*. A disagreement is more typical (as *conflict theory* also argues), and there is also a lack of consensus about what constitutes each domain. For instance family-related commitments cause difficulties not only for parents with small

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children, but for people who nurse ill or elderly people, although these last groups are usually left out of consideration by employers. It can happen, that a corporate decision maker proves to be rigid with regard to the problems of such employees because he/she is missing any personal experience (Hochschild, 2001). It can also happen that one has to ask for leave or home office because he/she has to take care of a sibling's ill children, which also raises questions in connection with tolerance. Here the communication between border-crossers and border-keepers matters, and it is also a significant question whether the problems of the other domain (the problems of family in our example) becomes conscious for them.

A further advantage of this theory is that it takes into consideration the individual's influence on values and culture created within a given domain, and the domain members' identification with the border-crosser's commitments related to the other domain. The level of tolerance and supportiveness of the colleagues can have major importance in the extent to which e.g. an individual can utilise the *flexibility* provided by ICT usage when one gets back to work after parental leave. ICT tools provide several opportunities in principle, but the practical realisation depends on the co-operation of several actors. Border theory's interpretation about the border between private life and work is similar to spillover theory, and the transfers between the two domains can be operationalised the same way based on the two conceptions. Border permeability can be interpreted from both directions just like spillovers, and can have positive and negative consequences alike. Even its dimensions are similar to the commonly conceptualised dimensions of spillover. But while border theory and spillover theory overlap each-other, and have no contradictory notions, the scope of border theory is wider and involves domain characteristics and border specificities also in context. The shortcoming of border theory from the aspect of quantitative research is however, that based on Clark's paper the operationalisation of border flexibility is not straightforward: it is hard to observe the difference between the flexibility of the border and the flexibility of the two domains. Additionally, the most significant extra element of border theory, viz. '*blending*' covers an atypical situation, and can be a topic of a specific research investigation just like the roles of border keepers. Since this thesis focuses on the transfers between the two domains, it is useful to apply primarily spillover theory as the main theoretical departure, but also to consider the wider

conception of border theory during the interpretation of the qualitative strand and the final results.

In sum, this thesis applies the following theoretical framework: In terms of the interactional mechanisms between the two domains, *spillover theory* can provide appropriate points for departure, when we want to investigate the relationship between mobile use and work-life balance. Since it is a prevalent concept in the empirical literature for conceptualising the transitions between the two domains, it can be fruitful primarily for the quantitative strand. On the other hand, the even more complex *border theory* can help in interpreting the detected spillover mechanisms in wider context.

Closing this subsection I shall note, that the other five WLB approaches also have their strengths and relevance depending on the researched social groups. They have different foci and suppose different preconditions, so they can be relevant for different research questions. It can also be an aspect whether we research a certain profession or a well-defined group of professions. The researched population (and its ICT use patterns) can, therfore also orient our selection. It is also useful to consider whether we have basically optimistic, neutral or pessimistic approaches -while phrasing our hypotheses.

Without elaborating the ICT relevance of the other theories (*segmentation, compensation, instrumental and conflict theories*), table 1 provides a summary in connection with the possible selection criteria. Empirical literature usually prefers spillover theory as point of departure, but implicitly other conceptions also show up, like border theory, mainly in qualitative research, and segmentation theory (see chapter 2.2.2).

Table 1 Characteristics of WLB theories and their ICT-related interpretation

Theory	Central question	Assumptions	ICT-related interpretation	Research population	Point of view
Spillover Theory	Work-to-life, life-to-work effects and their results	High level of integration between the domains (work and private life), blurred boundaries	Contribution of ICT tools to the emergence of *spillover* effects	People, who are ICT users at work and at home as well.	Neutral
Segmentation Theory	How the two domains delineate from each other,	Low level of integration between the two domains	The role of ICT tools on the two separate domains	People who have a job that does not require ICT use.	Neutral

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	and what kind of strategies arise from this				
Compensation Theory	Aims and tools of the two domains (focusing on the contradictions)	There is an emphasis on the differences in behaviour within work and life domains and differences in goals and preferences	Explanation of the differences in ICT use on the two domains	People who use ICT both at work and at home	Optimistic
Instrumental Theory	Aims and tools of the two domains (focusing on the complementary elements)	Tools and achieved results on one domain can be tool on the other domain	Explanation of identical ICT user behaviour on both domains	People who use ICT both at work and at home- those who have identical ICT user behaviour	Optimistic
Conflict Theory	Problems and strategies that arise from different requirements and opposition of the two domains	The two domains are normatively irreconcilable	Explanation of tensions sourcing from ICT use	People who use ICT both at work and at home	Pessimistic
Border Theory	Requirements, resources, actors (e.g. border-crossers, border-keepers) of the two domains, their role in forming domains and borders	Different levels of integration or segmentation between the domains can evolve; consensus is not obvious about setting borders and domains	Role of ICT tools in forming borders and domains, and in managing the problems of border crossing	People who use ICT both at work and at home	Neutral

(Dén-Nagy, 2013)

2.2 Scope of empirical literature review

The following chapters[7] cover an overview about international empirical papers related to the relationship between mobile phone use and creating WLB. These papers question what kinds of cause-effect mechanisms prevail, and whether they have positive or negative consequences on individuals. The following literature review not only synthetizes the key findings of the relevant international papers, but provides an overview of their conceptualisation, operationalization and offers a critical outline of the most important discrepancies in the applied theoretical concepts and

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[7] In this section I draw heavily on my paper published in New Technology, Work and Employment (Dén-Nagy, 2014)

methodological problems.

Although there are literature reviews available that cover the field of general WLB, these systematic analyses do not take a technological perspective. Casper and her colleagues (2007) reviewed empirical research published within industrial–organisational psychology and organisational behaviour journals between 1980 and 2003, while Chang et al. (2010) provide a critical study of 245 empirical articles published in a wider range of discipline-based, peer-reviewed journals from 1987 to 2006. Gatrell and her collegues review work-life balance literature from the aspect of parenting and suggest to define parenting and employment as potentially life-enriching, and propose a wider definition for WLB including marginalized parents and argue for a transdisciplinary approach (Gartell et al., 2012). Neither of these reviews separately discuss the role of mobile telephony from the perspective of WLB. In 2016 Gargi Roy published a review of discourses about the impact of mobile communication on the work-life balance of working women focusing on the information technology sector in India (Roy, 2016).

This review also maintains a narrower focus and does not aspire to provide a widespread quantitative analysis of the literature. Without aiming to provide an exhaustive summary, this literature review concentrates on the most relevant sociological articles published recently and is designed to reveal consistencies as well as contradictions in the literature. This review offers detailed introspection into a specific research field and not only synthesises the key findings but offers a critical outline of the most important differences in the applied theoretical concepts, and identifies methodological problems. It summarises how the theoretical bases are conceptualised, what the methodological choices are, how the research questions are formulated, what kind of variables are defined, how these are operationalised, what the sampling strategies are and finally, describes the main findings of selected articles published internationally between 1998 and 2016. It covers those articles that have described research into a larger group of ICT tools, including mobile phones, but does not cover articles that deal with ICT usage in general (i.e. those that do not take the WLB perspective), those that deal with the non-WLB-related content of ICT or mobile phone usage, and those that deal with the role of ICT and mobile telephony in

maintaining family relationships or social capital, with parental control, with education or with work-related practices. The wide range of literature that discusses the social aspects of telework has also intentionally been left out of consideration.

2.3 Constructs and measures in the literature

Most of the empirical studies do not pay too much attention to clarifying explicitly the supposed relationship between technology and society. However, the hypotheses they employ and the applied research design they utilise can allow us to make inferences. One group of articles is based on the presumption that ICT affects society, thus technology is one of the elements that shapes major social trends. This indicates an unexpressed commitment to technological determinism (Mody et al., 2010). This approach mainly relates to quantitative studies, e.g. Chesley, 2005; Diaz et al., 2012). Another portion of the studies considers technology to be interrelated with society, thus applies STS frameworks. This group mainly involves qualitative studies, e.g. Golden and Geisler, 2007; Heijstra and Rafnsdottir, 2010, Matusik and Mickel, 2011 or Cousins & Robey, 2015 and a few quantitative studies, e.g. Hubers et al., 2011; Wajcman et al., 2008; Wajcman et al., 2010, Chekwa & Daniel, 2014. These papers state, that people who have different perspectives about work–life relationships employ different mobile use-related strategies to handle conflicts between these two life domains (Sarker et al., 2012); moreover, the same person can approach mobile technology and work–life boundary management differently in different situations or at different times (Hislop and Axtell, 2011).

2.3.1 Measures of mobile phone use

Although WLB–ICT literature usually does not discuss ICT-related middle-range theories in detail, it does clarify the applied technological terms. ICTs usually involve more technological innovations: Internet-based communication, mobile devices, computer generated telephony or other related solutions such as transaction systems, groupware, workflow or multimedia (Valenduc and Vendramin, 2002). The Internet is at the centre of interest generally, and most studies only touch on the issue of mobile technology. The mobile phone as a device appears in two formats: a tool for voice-based communication and SMS messaging, and as a smartphone or a Blackberry, which provides mobile internet, particularly email communication. Mobile internet

connection over computer (notebook, tablet, etc.) is discussed as a separate technology, as are convergent mobile devices (CMDs) such as personal digital assistants (PDAs). Articles thus have relatively standard definitions for the domain of ICT and operationalise usage generally in terms of frequency (e.g. average number of text messages sent or received per day, number of incoming or outgoing phone calls a day) or time (e.g. hours spent on using the Internet). Because mobile technology does not exist in isolation but as a part of a variety of communication technologies (Palackal et al., 2011), researchers usually handle mobile communication with other ICT uses together. Thus, mobile phones usually appear as an element of the 'ICT cluster', and many findings refer to this bigger group of tools (e.g. Currie, Eveline, 2010; Diaz et al., 2011, etc.) Leung (2011), for example, uses a multidimensional construct, the 'ICT connectedness index' (ICTCI), which reflects a multilevel and contextual approach. ICTCI includes not only the frequency but also the scope and intensity (e.g. range of applications, job requirements related to media use), centrality and goal (subjective evaluation of the importance of ICTs), and breadth (access to different technologies) of ICT use at home.

2.3.2 Problems with conceptualisation

In focusing only on one tool with the goal of unveiling its autonomous role, we must face up to the fact that ICT tools are used in an integrated way, and also deal with the phenomenon of media convergence. Media convergence means the integration of data communications, telecommunication and mass communication into a composite infrastructure that uses a combination of sign systems and data types (Baldwin et al., 1996).

Within mobile communication, the smartphone is an example of this phenomenon: a single device that enables (1) data communication (access to emails), (2) telecommunication (receipt of phone calls) and (3) mass communication (access to online news). Some mobile phones provide more opportunities for communication (Skype, Viber, email, Facebook Messenger, etc.), while it is also true that the ability to 'make a phone call' no longer exclusively refers to the use of a mobile phone (i.e. Voice-over-Internet Protocol, VoIP). Users are usually not aware of the infrastructural backgrounds behind these options but they can make distinctions between the devices

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and the functions. Accordingly, WLB–ICT research does not apply an infrastructure-based analytical perspective but categorises the use of mobile phones according to the purpose they are used for. Using this approach, the smartphone provides (1) access to information, (2) entertainment and (3) relationship building. Empirical studies related to the WLB focus on this last function and generally treat the mobile phone either as a device that provides the opportunity for receiving or initiating phone calls and text messages, or as a smartphone that makes Internet, most particularly email communication, available. Articles show a kind of uniformity in this regard, although some of them deal with specific devices and others with groups of devices. In sum, we can state that the conceptualisation of ICT or mobile use does not seem to be problematic in the literature.

It is also noteworthy, that the most recent studies that focus on mobile phones (or mobile phone and internet use) from the aspect of WLB specify technology routines even further and distinguish work-related calls, emails or text messaging (e.g. Ragsdale & Hoover, 2016; Cavazotte et al., 2014; Kuhlmann et al., 2014; Wright, et al. 2014) compared to private use.

2.3.3 Measures of WLB

The definitions applied to WLB and the related theoretical frameworks are on the contrary more diverse and result in problems with consistent conceptualisation and operationalisation. The distinction between the realm of 'work' (which covers earning activities usually related to different forms of employment) and the other realm, usually called 'life' or 'domestic life' (e.g. Diaz et al., 2012), 'private life' (Frissen, 2000), 'nonwork' (e.g. Tennakoon, 2007), 'home' (e.g. Clark, 2002; Wajcman et al., 2008) or 'family' (e.g. Chesley, 2005), varies depending on what is emphasised. Some studies stress the family unit and focus on the activities, tasks and responsibilities related to children, spouses, elderly people or other relatives (e.g. Chesley, 2005; Christensen, 2009). Other studies call the domestic life arena 'home', indicating that the separation is more physical and temporal (e.g. Clark, 2002; Wajcman et al., 2008). Here, the role of 'breadwinner' and 'homemaker' can coincide or conflict. The exact terminology that is used has major importance in empirical analysis because it also appears in questionnaires or interview guidelines and thus influences the answers of respondents. Interpretations of the relationship between the two life domains are also

diverse and depend on the applied theoretical frameworks.

As was mentioned in chapter 2.1.2, spillover theory dominates the empirical literature. Negative work-to-family spillover is captured in statements like 'because of my work responsibilities I have missed out on home/family activities that I would have liked to have taken part in' and 'because of my work responsibilities my home/family time is less enjoyable and more pressured' (Wajcman et al., 2010) or 'your job keeps you away from your family too much' (Leung, 2011). The extent of negative family-to-work spillover can be captured by agreement with sentences such as 'to what degree do worries and problems at home cause you to spend less time at work than you need or want to'; 'personal and family worries and problems distract you when you are at work'; how much 'activities and chores at home prevent you from getting the amount of sleep you need to do your job well' (Leung, 2011); or to what extent a respondent agrees that 'because of my home/family responsibilities I have to turn down work or opportunities I would prefer to take on', or 'because of my home/family responsibilities the same time I spend working is less enjoyable and more pressured' (Wajcman et al., 2010). Although positive forms of spillover can theoretically also exist, empirical articles pay less attention to them. Other theories also appear in the literature, such as border theory, but these papers apply similar measures for permeability as spillover papers. For example communicating with, dealing with or thinking about family members at work, or the opposite, communicating with colleagues, dealing with or thinking about job-related projects at home are measures of permeability (Clark, 2002; Leung, 2011). Although border theory also defines border characteristics like the strength of the borders as a combination of permeability, flexibility and blending, these extra measures are usually left out of consideration. Sometimes other theories also arise in the WLB–ICT literature, for example, conflict theory as applied by Sayah (2013), but these are more exceptional.

As for the domain characteristics, widely used quality indicator is flexibility. Freedom to choose when one's working time starts and finishes and its location (e.g. Heijstra and Rafnsdottir, 2010), the option of choosing when to take a vacation or doing non-work projects during spare time at work are common variables that are used to measure flexibility (e.g. Leung, 2011).

To bring more aspects into one study, and referring to Ashforth et al. (2000), Bulger et al. (2007), and Clark (2000), Nam uses a work-life balance typology. He applies two dimensions; permeability and flexibility and distinguishes integration, autonomy, life-interference with work and segmentation types of WLB, and studies whether the use of the Internet and mobile technologies raises the likelihood of belonging to any type (Nam, 2014).

Besides these measures, further variables are involved in the literature, either as dependent or independent variables. They include quality of life (e.g. Valenduc and Vendramin, 2002), family satisfaction (e.g. Chesley, 2005; Leung, 2011), work satisfaction (e.g. Currie and Eveline, 2010; Leung, 2011; Diaz et al., 2012), burnout (Leung, 2011), anxiety (Chesley, 2005), distress (Chesley, 2005), flexibility of the domains (Valenduc and Vendramin, 2002; Heijstra and Rafnsdottir, 2010; Leung, 2011), flexibility of ICT use (Diaz et al., 2012), coping strategies (Hubers et al., 2011) and gender (e.g.Chesley,2005; Golden and Geisler, 2007; Tennakoon, 2007; Heijstra and Rafnsdottir, 2010; Wajcman et al., 2010).

2.3.4 Problems with conceptualization and operationalization

As the concept of spillover is interpreted similarly to border theory's notion of permeability, choosing between the two theoretical frameworks is not always easy or clear cut. Some articles use permeability as the most important characteristic of the border and call two-way permeability spillover. Others conceptualise spillover as a separate term. For example, Leung (2011) uses the perception of permeability as a variable and creates hypotheses about the connection between permeability and negative spillovers through borders, while Tennakoon (2007) uses the interactivity of the two domains as a measure of permeable borders and characterises it with work-to-family and family-to-work spillover. My interpretation is that the use of ICTs makes borders permeable because it makes it possible for the individual to remain available to her employer any time, anywhere. This creates the opportunity for a work-to-family spillover. The use of ICTs can do the same in the other direction too (family-to-work spillover) when e.g. they enable parents to keep track of their children during working time and to attend to household activities through third-party intervention (e.g. to manage a babysitter).

2.3.5 Problems with explanations: going beyond technological determinism

After having discussed how ICT use, border permeability, flexibility and spillovers as distinct variables can be measured, it is worth investigating how the connection between ICT and society can be statistically revealed and interpreted. If we experience that a greater amount of mobile phone use is correlated to a higher incidence of job burnout or a lower level of family satisfaction, this does not necessarily mean that the two variables are causally related. While, for example, Diaz et al. (2012) connects ICT flexibility (the perception that communication technologies provide flexibility in conducting work) and ICT usage (in terms of quantity) directly with work satisfaction and work-to-life conflict, different structures for the variables are also imaginable. For example, Leung (2011) builds up a regression model that implies causality from ICT connectedness through permeability and flexibility that affects spillovers and finally job burnout and job/family satisfaction. His regression analysis identifies other variables that explain family satisfaction and job burnout (such as age, family income and working hours). The relationship between ICT use and general WLB is even more problematic statistically. In order to handle the effects of several neglected factors, researchers can use one combined variable to examine the relationship between ICT and the perception of WLB. For example, Judy Wajcman and her colleagues analysed data from a survey question asking about the impact of the Internet (Wajcman et al., 2010) and mobile phone use (Wajcman et al., 2008) on respondents' ability to balance their work and home life, and Currie and Eveline (2010) operationalised this question by asking to what extent respondents agreed that 'Using e-technologies at home made it easier to manage a young family alongside work tasks'. The advantages of these survey questions are that they do not make it necessary to filter out the effects of other variables because they indicate a perceived ICT–WLB relationship directly, and they can thus be used in regression analysis in a simple way. The other advantage of this approach is that it does not treat the individual as someone who suffers from the impacts of technological development, but puts the emphasis on the choices humans make. Mobile phone use can increase permeability between the two domains, but at the same time can also be a tool for controlling 'over the border' activity and can help delineate the two domains (e.g. switching a phone off outside working hours). Greater use of mobile phones can mean both higher and lower levels of WLB so the main

questions are whether the individual perceives the use of a mobile phone to be supportive or a hindrance in terms of creating WLB and what kind of strategies one applies to utilise the advantages or reduce the disadvantages. This has relevance to the selection of the applied theoretical frameworks: viz. to the importance of considering the role played by human choice instead of applying an overly simplistic approach that assumes a unidirectional relationship between technology and society. In closing this section, it can be stated that the two problems that arise in the literature discussed are related to the applied theoretical constructs and their operationalisation and conceptualisation. Firstly, theoretical assumptions are usually not made explicit, and studies do not show consistency and transparency from this perspective. Secondly, the majority of articles disregard the range of options that the individual has in terms of their use of technology. Correspondingly, research that puts the emphasis on human choices paves the way for development in this field. After having overviewed and identified the theories, concepts and measures applied by the reviewed articles, we now step forward and address their concrete subject matters.

2.4 Research questions in the literature

This section summarises the main research questions in the ICT–WLB empirical literature. Because ICT use has changed a lot over time, research questions and hypotheses have also developed. Early research projects are less focused; they cover more issues and discuss more general questions. Representatives of this early literature include Leslie Haddon and Roger Silverston who developed a user-oriented perspective (e.g. Silverstone and Hirsch, 1992, Silverstone and Haddon, 1996). These studies provide insight into the adoption of the mobile phone during the late 90s. They apply the concept of 'domestication' to analyse the complex process by which technology has modified household routines and practices. The qualitative empirical studies conducted by Haddon and Silverstone in the UK unveil the role of the mobile phone in (1) work-related mobility, (2) the management of contactability through mobile phone and (3) the rules of using mobile phones in public spaces (Haddon, 1998). The first issue covers the consequences of permanent availability and the potential for flexible work that became major interests for later organisation-oriented research and WLB literature. The first issue also involves telework, which was developed later into a separate area of investigation. The second direction is more

about how people can influence each other at a distance. Questions such as how intra- and extra-family relations are modified belong here. Later in the literature, the discovery of family networks and their embeddedness into the wider social network became a separate issue. The third topic is about the symbolic dimension of ICTs and is more related to the consumption literature.

2.4.1 Domestication and user-oriented research questions

The concept of domestication unveils the ambivalent and paradoxical processes of acceptance and the use of ICT.A qualitative study conducted by Frissen (2000) among Holland dual-income families with children focused on everyday practices and routines: the patterns, acceptance, use and meaning of ICTs. In terms of use, a central question is whether households use ICTs for solving time and coordination problems in everyday life. In terms of acceptance, the factors of the slow-down effect are investigated (such as ambiguous feelings related to continuous accessibility, or the social unacceptability of using ICTs in public spaces and the positive potential of telework). In terms of patterns of use, gender differences are discussed. They include consideration of the differences between men and women in how they experience the shifting boundaries between home and work through ICTs.

The explorative study of Tennakoon (2007) investigates how employees use ICT devices, whether there are any differences among users and what the role of ICTs in managing WLB is. The user-oriented study focused on the boundary-blurring phenomenon and applied the notions of border theory and spillover theory. Another user-oriented piece of research was conducted by Wajcman et al. (2008) in Australia. This focused on how individuals and households use mobile phones to integrate the different dimensions of everyday life. The study gathered detailed information about how dependent users are on their mobile phone for work or other purposes, how important mobile phones are for coordinating their personal lives and under what circumstances users attempt to control contact via the device. The research described in the article also asked the question whether mobile phones help or hinder individuals' efforts to manage work and family. A similar research question was asked by Heijstra and Rafnsdottir (2010) who analysed whether the Internet and other ICT technologies, like mobile phones, support the work/family balance of academics, while

Currie and Eveline (2010) investigated the effects of ICTs on the WLB of academics with young children in Australia. The association between the frequency of use of mobile phones and the composition of the core network (the share of family and work relationships) was studied by Palackal and his colleagues (2011) in India. This network approach allows us to reveal the potential effects of technology on the maintenance and building of professional and family relationships. The impact of cell phones and internet on life styles was studied by Emmanuel Chekwa and Alana Daniel. Their survey allowed participants the opportunity to suggest ideas about how people can manage work-life and lifestyles using the internet and cell phones. Participants were also asked to comment on how cell phones and internet technology are changing the lifestyles of people in America (Chekwa & Daniel, 2014). The effects of work-related cell phone use on emotional exhaustion, work engagement, and work-family conflict was researched by Ragsdale and Hoover (2016), and the effects of work-related cell phone use on work-family conflict and family role performance was studied by Daantje Derks -and her colleagues (2016).

2.4.2 Organisation-oriented research questions

In the frame of a European research project (FLEXCOT), Valenduc and Vendramin (2002) go beyond user-centrism and provide an organisational point of view. Their research questioned how ICT contributes to the expansion and diversification of flexible working practices, and how these can improve quality of life and help design the concept of socially sustainable flexibility. The study conceptualises work flexibility in terms of time, location and function. Diaz and his colleagues (2012) examined the relationship between employees' attitudes to ICT flexibility (the extent to which respondents think that communication technology can provide employees with more flexibility to do their work), ICT use, work–life conflict and work satisfaction. In their exploratory study, Matusik and Mickel investigated users' experiences and reactions with CMDs within the work domain and identified a number of different factors that influence users' reactions. Although the work environment is at the focus of this research, it has implications also related to WLB. Other work-centred research has been undertaken by Hislop and Axtell (2011) who investigated how non-managerial engineers make use of work-related mobile communication technologies both during working time and outside it, and by Townsend and Batchelor (2005), who investigated

the convergence of work and non-work domains and the role of mobile phones. Sarker and his colleagues (2012) go beyond the perspective of the individual and investigate also the strategies of organisations regarding how they address WLB issues related to the use of mobile technologies.

2.4.3 Family-oriented research questions

A family-oriented point of view is applied by Christensen (2009) who investigates the role of ICT, more precisely, how cell phones are used in communication between parents and children and how the device is used to mediate a feeling of closeness while family members are physically separated. Adeoye and his colleagues (2010) researched Nigerian families to examine the nature of ICT use in their lives and to see whether ICT tools (cell phones and Internet) had positive or negative effects on families, and what are these positive and negative effects.

2.4.4 Boundary-related research questions

The relationship between spillover and ICT connectedness seems obvious, if we keep theoretical frameworks clear. In principle, ICT devices are able to extend communications over time and space and increase availability of individuals. ICT use can be correlated as an independent variable directly to negative or positive spillovers. Positive spillover then can be the explanatory variable for higher quality of life or a decrease in feelings of anxiety, while negative spillovers can be the explanatory variable for job burnout and increased job or family dissatisfaction. Chesley (2005) tests whether ICT usage is related to changes in levels of personal distress and family satisfaction through increased levels of spillover. Leung (2011), meanwhile, mixes the concepts of spillover and border theory and links ICT connectedness as an explanatory variable to negative spillovers (work to home and home to work) through increased permeability and flexibility. The author also investigates the effects of spillover on job burnout and job and family satisfaction. The border theory concept has paved the way for new research questions on this topic. In an article from 2002, Clark (2002) examined the amount of communication that takes place across home and family borders. Instead of employing a user-oriented, tool-centric approach, she takes a thematic focus and questions the effect of work or family-related communications with family or work domain members on the feeling of being valued in a domain, being

empowered to carry out domain activities and the perception of work/family balance. She investigates the effect of border flexibility and permeability on the frequency of WLB-related communication. Based on this concept, Golden and Geisler (2007) research work-life boundary management and focus on one particular device, the PDA. ICT-related coping strategies and their adoption are the focus of research by Christa Hubers and her colleagues who questioned whether new ICT-enabled strategies are being adopted, by whom and how this affects the adoption of other kinds of strategies. Additionally, the research investigated whether ICT usage complements or substitutes for other coping strategies (Hubers et al., 2011).

2.4.5 Problems with research questions and hypotheses: handling complexity

As it can be seen by the diversity of research questions and the investigated phenomena, the intersection of ICT use and WLB as research fields results in a narrow but quite complex arena of interest. The variety of ICT tools used by the individuals (e.g. the use of mobile phones and the internet for different purposes and with different patterns of use, sometimes complimentary but sometimes supplementary) produces an interaction between factors that make it difficult for the researcher to focus on a single device. The WLB-question can also be approached from different perspectives (e.g. life coordination, quality of life, work or family satisfaction, job burnout, etc.), which leads to the need to include a wide range of variables that may have causal relationships (e.g. between negative work-to-life spillover and life satisfaction, between border permeability and negative work-to-life spillover, and between negative work-to-life spillover and job dissatisfaction or job burnout). These relationships can be also influenced by other non-ICT or non-WLB-related (e.g. demographic or situational) factors that should be also taken into consideration. In closing this section, it can be stated that handling such complexity is one of the greatest challenges that a researcher has to face in this field. Well-designed research methods can help to overcome these challenges. This conclusion leads us to the next section of the article.

2.5 Methodological choices of the literature

Empirical articles from the literature can be divided into two groups, qualitative and quantitative, based on the methodological paradigm they follow. Because most of the research takes the form of explorative studies in this field, qualitative methods such as

semi-structured interviews (e.g. Christensen, 2009; Heijstra and Rafnsdottir, 2010, Palackal et al., 2011, Sayah, 2013; Cavazotte et al., 2014; Ninaus et al., 2015), case studies (e.g. Frissen, 2000; Valenduc and Vendramin, 2002; Townsend and Batchelor, 2005; Hislop and Axtell, 2011) and field research (Sarker et al., 2012; Cousins & Robey, 2015) are widely found throughout the literature. They offer rich depictions of the discussed social phenomenon and help with understanding the role of ICT in harmonising or managing conflicts between the life domains of work and family. These small-scale studies provide detailed examples of individual strategies; they help with understanding patterns of behaviour, with placing the ICT-related practices into a wider social context, eliminating the contradictions in quantitative findings, phrasing hypotheses that can be tested quantitatively in the frame of later research and giving hints about possible future trends. These methodologies, however, do not provide data that would allow scholars to generalise about larger populations. This, however, can be accomplished using large-scale quantitative research. Telephone surveys (e.g. Chesley, 2005; Golden and Geisler, 2007; Wajcman et al., 2010; Leung, 2011) and online surveys (e.g. Kuhlmann et al., 2014; Ragsdale & Hoover, 2016) make it possible to interview employees who are spatially distributed. ICT usage diaries (Frissen, 2000; Wajcman et al., 2008; Currie and Eveline, 2010; Derks et al., 2016), phone logs (Wajcman et al., 2008), observations (Frissen, 2000), mental mapping (Frissen, 2000) and network diagrams (Frissen, 2000) are also applied as supplementary methodologies in the frame of methodological triangulation. The first two can provide significant added value to a survey or to in-depth interviews because they give objective and reliable information about (for example) the frequency, the length and the purpose of mobile communication or Internet use; these variables are difficult to measure using a questionnaire as respondents' estimations do not necessarily accurately reflect reality. The advantage of employing mixed methods is that it allows researchers to consider multiple viewpoints, perspectives, positions and standpoints. Mixed methods combine elements of qualitative and quantitative research approaches for the broad purposes of adding breadth and depth of understanding and corroboration. One of their disadvantages, however, is that the design process can become a challenge because of the inherent complexity of these approaches (Johnson et al., 2007).

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2.6 Sampling strategies

Considering that the problem of WLB is most evident among families with children living at home, many studies focus on this specific target group (e.g. Frissen, 2000; Christensen, 2009, Maruyama et al., 2009). This results in a reasonable but yet significant reduction in the statistical population as relevant groups of people who have other but still significant family responsibilities (i.e. taking care of another family member such as an elderly parent or a disabled spouse) or who have significant amounts of work (more than sixty hours per week) are not involved systematically. In other cases, the availability of the sample determines sampling strategies. For example, university workers (Adkins & Premenaux, 2014) or university students may be asked to participate in a quantitative survey (Adeoye et al., 2010), a qualitative study for extra credit points (Clark, 2002) or the population may consist of non-academic managers of a university (Diaz et al., 2012). Although the sample size was 290 in the first, 570 respondents in the second example above, 179 respondents in the third and 193 in the fourth case, these convenience samples do not demographically represent a larger population, which gives rise to problems in interpreting them more widely. The voluntary nature of online survey can also limit the generalizability of study findings (e.g. Wright et al., 2014 or Ragsdale & Hoover, 2016).

Selecting a sample from different organisations that represent a range of industries and sizes (Chesley, 2005, Palackal et al., 2011) can generate a pool of relevant data about individuals who are currently employed. Besides availability, characteristics of family structure (e.g. 'have children' in Currie and Eveline, 2010) and characteristics of employment are also used as selection criteria. Non-managerial workforce (Hislop and Axtell, 2011), executive level employees, who are usually not covered by overtime legislation (Tennakoon, 2007), individual contractors (Sayah,2013), mobile workers, who work away from home (Sarker et al., 2012; Cousins & Robey, 2015), paediatric hospitalists (Kuhlmann et al., 2014), who have low levels of work flexibility and academics, who generally have high levels of work flexibility and autonomy (e.g. Currie and Eveline, 2010; Heijstra and Rafnsdottir, 2010), prove to be sensible target groups because they usually have conflicting work and life domains and are heavy ICT users, thus their experience with the effects of ICTs on WLB is more intense than average. Findings in connection with these target groups cannot be generalised to a

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wider population, but can reveal social practices. In conclusion, it can be seen that the fourth problem that may be identified in the literature is that research in this field has tended to focus on certain groups of society, while others are left out of consideration completely. Researchers select populations primarily based on the assumptions they make about the level of tension between work and life domains and ICT use patterns. Including other populations from outside, these typically affected social groups can lead to surprising findings and generateing- promising avenues for future research. After having provided a critical review of the applied conceptual frameworks, the nature of the research questions and the methodological choices made in WLB–ICT literature, their findings can now be summarised. Although comparison and synthesis are often hindered by conceptualisation and/or population-related issues, it is possible to delineate some basic trends and relationships.

2.7 Findings from the literature

This subchapter now covers the main findings of the reviewed empirical articles organised into four sections. First, the early studies and their findings are summarised according to the role of mobile communication and ICT tools in the everyday lives of individuals and how the importance of work and home environment and their relationship have changed over time in the literature. Then details about the general evolution of the relationship between using ICTs (and mobile phones) and creating WLB follow. After unveiling how mobile phones and ICT affect work and life satisfaction through border permeability and spillover, and describing what kinds of other factors have to be taken into consideration, details about research findings are presented that unveil how mobile phones and ICT influence the management of the work–life border.

2.7.1 ICTs: work versus home

Silverstone and Haddon (1996) distinguish three stages in the domestication process of ICTs (bringing the technology home): commodification (technology appears as a product on the market), appropriation (consumer takes the technology home and gets familiar with it) and conversion (signalling consumption to others). When mobile penetration was low and increasing quickly, studies focused on these stages of the domestication process and revealed the reasons for buying new ICT tools and

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described patterns of use. It was plausible to consider mobile phone as alternatives to landline phones. As work instruments, they changed the lives of 'nomadic workers' and their use was described as a way to facilitate efficient, short, official communication (De Gourney et al., 1997). During the next stage, when technology became more familiar and individuals were giving it a place in the physical and sociocultural environment of the home, the process of the incorporation of mobile phones into the everyday lives of households became an issue. Later research showed that the initially 'work-centric' mobile phone had become a device used more for social contact than for work (Haddon, 1995; Tennakoon, 2007; Wajcman et al., 2008; Cavazotte, et al., 2014). As mobile penetration increased, the different spheres of life became equally important in terms of ICT usage, and the blurring of boundaries between work and family became a major issue (e.g. Cousins & Robey, 2015; Derks et al., 2016).

2.7.2 ICTs: positive versus negative effects

Articles generally interpret the relationship between using ICTs (and mobile phones) and the creation of WLB as a social compromise, recognising both the positive and the negative sides. These analyses typically avoid being either extremely optimistic or pessimistic, but aim to present a realistic picture that includes describing a combination of the advantages and disadvantages of ICTs. According to a non-representative quantitative research by Chekwa and Daniel (2014) people tend to believe that cell phone technology has greatly altered their lifestyle, and thirty-two percent of the research participants say that both their family life and work life have improved because of cell phones and the internet technology (Chekwa & Daniel, 2014).

The positive effects of the use of ICT (including mobile phone usage) are that it can solve time and coordination problems in everyday life, can increase the users' sense of autonomy (e.g. Cavazotte et al., 2014), flexibility (e.g. Heijstra and Rafnsdottir, 2010; Cavazotte et al., 2014, Ninaus et al., 2015) and control (Golden and Geisler, 2007), support collaboration (Matusik and Mickel, 2011) and have the potential to increase mobility and interactivity (e.g. Townsend and Batchelor, 2005; Cousins & Robey, 2015) as well as save time. Maintaining a distance from work and strengthening kin

and informal relationships, as well as working from home and managing tasks that fall outside official working hours (Wajcman et al., 2008), can all be facilitated using mobile phones. The question whether users indeed perceive the effect of the use of ICT to be positive is, however, a separate issue (Frissen, 2000). Articles that explore the negative effects of mobile use on WLB (e.g. Matusik and Mickel, 2011; Sarker et al., 2012, Ragsdale & Hoover, 2016) highlight the fact that mobile phone use raises the expectation that one should be constantly available, blurs work–life boundaries, decreases efficiency and enhances feelings of conflict and of work-related stress around the clock.

2.7.3 ICTs versus other factors

Empirical evidence shows that ICT use and life satisfaction can be linked to positive spillover, while tensions and distress can be correlated to negative spillover; however, many other factors also have an influence. Chesley's (2005) empirical results show that persistent use of communications technology is associated with greater work/family boundary permeability and with increased spillover that appears to take on primarily negative forms. Persistent use of communications technology (rather than the use of computer-based technologies themselves) is associated with increases in distress and decreases in family satisfaction that can be explained by increases in negative work-to-family spillover. Wajcman and her colleagues (2008) go further and provide evidence that mobile phone usage cannot be associated with increased work-to-family spillover in itself. This type of spillover is influenced more by job characteristics, family type and age. Empirical research also proves that people who use ICTs more flexibly are generally more engaged in ICT use, which is associated with higher work satisfaction on one hand, but a higher level of work–life conflict on the other (Diaz et al., 2012). Through negative work-to-family spillover, ICT can be connected to burnout and job dissatisfaction, and decreases in family satisfaction too. The evidence presented in Leung's study, however, proved that ICTs are as important as other factors (such as demographics, permeability and flexibility) in predicting negative spillovers in both directions. Through ICT use, people are continuously connected to their working environments, so ICT has an impact on feelings of burnout and also job and family satisfaction. Leung (2011) identified a total of eight predictors to explain job satisfaction: age, family income, work hours, flexibility of work

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environment, border permeability, work-to-home spillover, the perception that Internet helps accomplish work-related tasks and the use of traditional media to relax after work. People who are satisfied with their jobs tend to be older and have impermeable boundaries that help them prevent work from penetrating their homes. Data also show that young females with mobile phone access are the most likely to become burned out with their jobs because of the high level of negative spillovers in both directions, with highly permeable boundaries between work and home and little flexibility at work. Increases in negative family-to-work spillover can be also related to persistent use of communications technology, but this occurs primarily with women, not men, according to the findings of Chesley (2005), which indicates that communication technology use is reinforcing gendered work/family boundaries. Tennakoon (2007) proved that from all the types of ICT, the main family-to-work spillover is experienced through mobile phones when they are used in family-related matters. For academics, mobile phones give a sense of security in that the users are easily accessible to their children and phones help them stay in close contact with home when they are abroad for work (Heijstra and Rafnsdottir, 2010). The material features of mobile technologies offer five specific affordances that mobile workers use in managing work-life boundaries: mobility, connectedness, interoperability, identifiability and personalization (Cousins & Robey, 2015). Additionally, mobile phones provide new ways of managing interpersonal relations within the family. They can mediate feelings of closeness while family members are physically separated, as parents and children can make frequent calls to each other. This leads to the experience of 'connected presence' (Licoppe, 2004) where management of relationships happens through mediated communication during physical absence. Connected presence brings people together (Adeoye et al., 2010), but it can also act to disperse family members (e.g. Christensen, 2009).

2.7.4 ICTs: integration versus segmentation

Research shows that as a response to intensification of work, academics are trying to erect barriers to stop work from affecting their private lives (Currie and Eveline, 2010). 'The invasion of privacy' (Tennakoon, 2007: 559) and the desire to not 'be out of touch' during holidays can create tension for individuals. Research by Heijstra and Rafnsdottir (2010) shows that academics would prefer to go on holiday somewhere

where there is no Internet or mobile phone connection at all in order not to be tempted to check work-related items. In these situations, having control means that people maintain a distance between home and work (Wajcman et al., 2008). Articles about managing work–life boundaries draw our attention to the fact that ICTs provide new strategic tools for coping with everyday difficulties in fighting for a better WLB. According to a descriptive study by Golden and Geisler (2007), users interpret their use of PDAs as being a way to control the work–life boundary through integration and segmentation of work and personal life. Individuals seem to be managing the flexibility and permeability of work–life boundaries in both directions. Another study shows that wireless Internet and mobile phones give academics the opportunity to optimise their flexibility and make available alternative places to work, like their homes (Heijstra and Rafnsdottir, 2010). In contrast, Matusik and Mickel (2011) find that in response to responsiveness–accessibility expectations, converged mobile device (e.g. smartphone, BlackBerry) users engage in behaviours and strategies that may result in work–life conflict. Derks and her colleagues show, that individual's segmentation preference (whether they are integrators or segmenters) qualifies the relationship between work-related smartphone use in the evening and work-family conflict. They have provided supporting evidence, that segmenters may succeed in enacting their segmentation preference, since their work-family conflict is not affected by smartphone use (Derks et al., 2016). On the other hand, Hislop and Axtell (2011) state that people cannot be considered consistent 'segmenters' or 'integrators' as they may adopt different boundary management strategies at different times. They have provided evidence that the way non-managerial engineers use their mobile phones during working hours results in the work/non-work boundary becoming blurred and unclear on a regular basis.

A recent qualitative study by Cavazotte and her colleagues (2014) confirm, that technology helps to intensify the organisation's hold on employees outside of regular working hours, reaching into new settings, time slots and social contexts. Respondents expressed concerns regarding demands from superiors that negatively affected their private spheres, yet many of them paradoxically requested more efficient smart phone connectivity.

Sayah (2013) also suggests that individuals actively use multiple ICT-mediated tactics

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to shape their temporal, spatial and psychological work–life boundaries, and they may have diverse preferences with regard to both the dimension (temporal, spatial or psychological) and direction (work to life or life to work) of boundary permeability. Sarker and his colleagues (2012) suggest that these preferences and the different perspectives on work–life relationships should be considered in workforce management by organisations and a tailor-made plan should be put in place for each individual employee. According to Hubers and her colleagues (2011), these ICT-related strategies supplement other work–life strategies so they can be examined in conjunction with the non-ICT-related coping strategies that people have adopted. Three conditions- possession, affordability and ICT skills- may also influence people's choices. In conclusion, it can be said that comparing research findings is sometimes difficult particularly because of the discrepancies that arise in the conceptualisation and operationalisation of measures, because of the limited range of ICT tools that have been investigated and because of the diverse yet limited variety of research populations. Correspondingly, although general research trends and variable relationships may be identified, there are contradictions among research findings.

2.8 Lessons from the international empirical literature

Besides the key findings, empirical studies about the relationship between mobile use and creating WLB provide us four major lessons. These are related to our four major critiques related to the international literature. First of all, they often use different WLB-related theoretical foundations, which results in inconsistency in the research approaches and hinders comparison of results. The message from this literature review in this regard is that researchers should be more transparent about which theoretical framework is being applied and avoid mixing terms and definitions that can lead to inconsistency in interpretation and difficulties with comparing findings.

Second, the majority of the studies are predicated on technological determinism, an approach which neglects or undervalues the impacts of human choices, although it is clear that society accommodates itself to new opportunities and difficulties. Although qualitative research seems to be successfully handling the interrelationship between technology and society (e.g. Hislop and Axtell, 2011; Matusik and Mickel, 2011), there is a room to embed this theoretical approach both into quantitative and

qualitative research. Research questions such as how do people create new coping strategies, manage borders and maintain control over life domains (e.g. Hubers et al., 2011; Sarker et al., 2012) take these factors into consideration and help with identifying not only present challenges but future developments too.

Third, research in this field has to handle a high level of complexity in terms of social and technology-related factors. This creates significant methodological challenges for researchers. Even if we narrow the examination of ICT's social effects to the relationship between mobile phone use and WLB, it remains a highly complex issue that involves the intense interaction of several factors that are hard to independently define.

Fourth, even the results of the application of well-designed methodology can be of restricted validity, if the investigated population is too strongly fitted to commonly or easily available sample populations, or to the assumptions of the researcher about the most affected social groups. Thus, selection of population and design of sampling method are also problematic. It can be seen that some applied sampling selection methods (e.g. researching the employees of one organisation as in Diaz et al., 2012 or researching students of a faculty as in Adeoye et al., 2010) are effective from a financial perspective but can result in limits being placed on generalisation. Some selection criteria [e.g. family type (Currie and Eveline, 2010) or job (Hislop and Axtell, 2011)] can have greater explanatory power and information content, but these studies neglect significant masses of people who are also affected by phenomenon under investigation.

In sum we can state, that correct theoretical frameworks, well-designed methodology and a choice of suitably structured variables are equally important for unveiling cause–effect relationships and interactions. This literature review highlights the fact that research has employed both qualitative and quantitative approaches, but papers have typically introduced their methodologies as an 'either-or' decision. Even the research that has simultaneously used multiple methods (e.g. survey, ICT use diaries and phone log-ins Wajcman et al., 2008) typically remains within one methodological paradigm. Going beyond the traditional approaches of qualitative and quantitative methodologies and incorporating them in the frame of a new methodological paradigm can lead to the

utilization of new possibilities.

It can be concluded that, just as the applied theoretical frameworks and methodologies prove to be diverse, findings are likewise incongruent. The use of info-communication technologies (including mobile telephony) can both hinder and facilitate work-life balance and affect life domains differently. ICTs support negative work-to-family spillover (Tennakoon, 2007); however, other factors such as age, family type and job characteristics can have greater influence (Wajcman, Bittman and Brown, 2008) on mobile usage. ICT is indeed acting to blur the boundaries between work and family (Chesley, 2005), but it can also support individuals to create strict demarcation lines (Wajcman, Bittman and Brown, 2008). Empirical research shows that ICT use can contribute to dissatisfaction with life in general and with family life (Valenduc and Vendramin, 2002, Leung, 2011, Chesley, 2005), but on the other hand ICTs can increase job satisfaction (Diaz et al., 2011). Advantages that appear in the domain of work can require sacrifices in private life and this can contribute to the conflict between the two life domains and create the feeling of job burnout (Leung, 2011). The role of mobile telephony here cannot be seen clearly. In addition, throughout the whole process individuals' decisions play an important role. Mobile telephony and ICTs may be seen as a double-edged sword from the perspective of work-life balance. Individuals can create their own strategies to manage boundaries, their flexibility and permeability; however, their decision-making scope is limited. The reasons behind these limits -and the nature of them- e.g. norms, labour market trends, corporate policies, etc. has also remained an opened question.

3 Hungarian context

While there is a wide range of international empirical literature about the relationship between ICT use and WLB, until recently such research attempts have been virtually absent from the Hungarian literature. This means, that in order to provide a domestic literature review, we have to follow Hungarian empirical traditions, and have to discuss the two fields, viz. WLB-related issues and ICT use separately. In accordance with this, (unlike chapter 2.2) this section does not contribute to the

research design directly, but focuses on the research findings and provides a general overview about the Hungarian context.

3.1 WLB in the Hungarian literature

Work-life balance is a relatively new research domain in Hungary. Although the problem of managing a healthy and happy family life parallel to being up to a job, let alone building up a professional career existed already in the state-socialism, WLB become a sociological issue after the systemic change. The earliest publications were carried out in frame of gender studies recognizing, that work-life reconciliation is problematic primarily for women. Although the problem of WLB does not affect only women, there are two reasons for researching this question mainly among women in Hungary. First of all, their WLB is the most affected by child bearing, which is one of the most important familial sociological issues currently in Hungary.[8] Second, after the systemic change the number of highly qualified women, who have a life-long career, has increased that is hardly compatible with the prevalent traditional gender values and the traditional patterns of intra-familial division of labour. Dividing domestic work between the partners or using paid help would be a huge step in reducing the pressure on highly qualified women, and would decrease negative expectations in connection with their capacity to work (Nagy & Paksi, 2014).

Men's family roles (Spéder, 2011) and their WLB-related coping strategies (Nagy, 2008, Geszler, 2014a, Geszler, 2014b) have become research topics only lately. These studies recognise the changing parental practices and help to obtain a more holistic view about Hungarian families.

Concerning the research questions, there are two basic approaches in the Hungarian WLB-literature. Most of the articles have a family-perspective, and study gender roles and the domestic division of labour (Paksi et al., 2008; Bukodi, 2005; Szél, 2011; Takács, 2008). A group of papers discuss social values and family-related preferences and provide explanations for the prevalent patterns (Takács, 2008; Pongrácz & Molnár

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[8] The effects of the early maternal employment on the young children's socioemotional development provide a highly researched issue also outside of Hungary. For wider international literature review please refer to Zsuzsanna Blaskó, 2008. Her main conclusion is, that maternal employment (both in case of part time and full time employment) itself has negative effect on WLB, but this arises only in the first year, and the negative effects can be compensated. (Blaskó, 2008)

2011; Szél, 2011; Nagy, 2001; Blaskó, 2011). Another set of papers take a work-perspective and provide an organisational approach. These articles focus more on business practices, corporate policies, and career difficulties (Tóth, 2005; Szűcs, 2005).

As for the prevalent Hungarian domestic division of labour, empirical studies show, that although there are some signs of an emancipatory trend (e.g. Pongrácz & Molnár, 2011), it is still basically formed by a historically common dual-earner model and strongly segregated gender roles based on traditional, family oriented values (e.g. Bukodi, 2005; Paksi, et al., 2008; Takács, 2008; Szél, 2011; Blaskó, 2011; Sebők, 2014).

The typical domestic division of labour can be described by traditional patterns in Hungary: men spend more time with paid work than women, but women are primarily responsible for housework and childrearing. If we investigate the time spent with income earning activities, the most significant differentiating factor is family structure: men, who have children, work the most in the labour market while single women raising children spend the least time due to their duties at home. Having children influences female work negatively in terms of time, however it affects male work in the opposite direction. (Bukodi, 2005) I.e., women, who have more children, focus more on family life and domestic work, while their husbands work more to create financial safety. This is in concert with the traditional male breadwinning model that is prevalent in Hungary.

Paksi, Szalma and Sebők (2008) provide evidence, that segregated gender roles are perceivable also in the case of couples without children. Women living in partnership participate more in domestic work independently from employment. There is a period after childbirth, when men start to be more active on the labour market as well as at home, but this period is transitional (Paksi, et al., 2008). Takács came to similar conclusion by analysing attitudes and time budget questions of the European Social Survey (ESS) 2006. Her international comparative research shows, that generally women spend more time with domestic work, and the time spent on paid work can generate dispute within the family. Creating gender equalities in domestic work is still a goal in many European countries, also in Hungary. Paid work prevents families from

spending time enough with each other, and the question of WLB results in time management problems. In Hungary, women are required (mainly by men) to work less on the labour market in favour of the family, and Hungarian respondents excel in their attitude towards preferring male employment in case of high unemployment. In parallel to this, Hungarian men are expected to take similar responsibility for the family and the children as women (Takács, 2008). This responsibility however may not manifest in domestic work.

Domestic division of labour affects not only labour participation of men and women, but the feeling of happiness and family cohesion. Szél (2011) shows that symmetric families (that can be described by balanced, more emancipated domestic division of labour, liberal values) and asymmetric families (that have usually imbalanced domestic division of labour and traditional values) differ in terms of relationship satisfaction, and divorce propensity (Szél, 2011). The more balanced the division of a labour is between the partners and the less traditional their values are in connection with family roles, the more satisfied they are generally.. She also provides empirical evidence, that an asymmetric family model is common, and this is accepted both by men and women.

Between 1999-2000 and 2009-2010 we could experience a decrease in time dedicated for breadwinning and free time activities, while there was an increase in time spent on domestic work, child rearing, and satisfying physiological needs. Men have started to execute more domestic work, and although the domestic work-related time of women did not decrease, they could spend more time with childrearing (Sebők, 2014).

Although Hungarian families are still typically asymmetric, we can see some signs of change in the traditional models. The ideal of the 'working mother' has become more accepted recently. Edit S. Molnár and Tiborné Pongrácz proved empirically, that the values in connection with the mother/ wife role have turned to a more modern and work-oriented direction during the last decade. The obvious child and family orientation has diminished, the image of the economically active mother has emerged, and the public opinion has been increasingly homogeneous, providing a favourable context for the execution of work-supporting social and family policies. (Pongrácz & Molnár, 2011)

Even though women are less required to stay at home and dedicate their life exclusively to the family, people do not want to reduce maternity leave significantly, and do not foster earlier return to work. This is supported empirically by Zsuzsanna Blaskó, who analysed data provided by Family Values Survey in 2009. The results show, that the majority (56%) of the respondents preferred three years or even more (20%) as the period of maternity leave. This also means that unlike other issues related to the changing family values, the requirements in connection with maternity leave have not changed or have changed insignificantly compared to the family-centric base values right after the millennium. This opinion is adjusted if the respondents have to consider the bad financial situation of the family too, thus when the salary of the mother is also needed. Interestingly, respondents also accepted the preferences of the mother (willingness to work) as a factor to be considered, at least in case of mothers with children above two years. The three years age limit was also lowered (to two years), if part time job or work from home are opportunities, which means, that these alternatives are accepted theoretically by the society and seem to be reconcilable with childrearing. (Blaskó, 2011)

Childrearing is especially a critical question for women who would like to focus also on their career. Beáta Nagy's empirical studies about the relationship between family life and working success provide supporting evidences for the relationship between women's professional career and their family structure. According to her findings successful women (top managers and women in leadership positions) tend to be single, more than likely divorced and have fewer children on the average than the others (Nagy, 2001). In connection with manager women's WLB attitudes Nagy pointed out, that most of the career-oriented women experience a discrepancy between their conservative values and their liberal practices (Nagy, 2001). These results suggest a tension between two equally important purposes of life (leading a successful family life while being a respected professional), which can cause time constraints and frustration. The analysis of Glass and Fodor (2011) identifies the ways managers in global financial firms employ gendered assumptions in constructing and implementing biased labor practices, such as sheding, demoting or marginalizing professional mothers. The research conducted among highly skilled professional workers in Hungary proves that the problem is two sided here: the longer maternity leave makes

mothers considered as less committed or attractive workers on one hand, and the other hand the long parental leave may exacerbate lost job experience for the mother too which may also impact the probability of reemployment (Glass & Fodor, 2011).

Although most of the Hungarian literature related to WLB concentrates on the situation of women, there are also studies about the challenges of men in Hungary. Nagy carried out a qualitative research among male managers working at the winner companies of the Family-Friendly Workplace Award[9] in 2007. Although the surveyed companies proved to be committed to ensuring WLB, the questioned male managers do not realize these principles in practice. They rely upon their wives a lot, who are not reluctant to sacrifice at least partly their professional career (Nagy, 2008). One could probably conclude from the results of this study, that men are not pressed by the issue of WLB, and that women are the protagonists of this question, however the reality is more complex. Zsolt Spéder's empirical study indicates that most of the people in Hungary phrase dualistic and contradictory requirements towards family fathers: their purpose of life is expected to be the breadwinner, but they are required to evaluate the time spent with their family more than their working career. Child bearing belongs to the self-fulfilment of men too, similarly to women, but the father role is more connected to the terms of safety and security and less to the emotions and the active participation in home education. Half of the respondents do not require active involvement in childrearing from the father, which indicates, that the modern father characteristics are not spread dominantly in Hungary. (Spéder, 2011) The results of this research contribute significantly to the WLB and domestic division of labour studies in Hungary, because it shows the two-sidedness of social expectations in connection with men. Although this dual requirement does not seem to load the father as much as the double burden loads women, this study acknowledges that WLB is not only a female-oriented question, but is an issue for men as well.

In connection with the family-related aspects of WLB we can conclude, that men and women face different expectations in terms of family life and parenthood. The desire to meet the requirements on both life domains can cause tensions for men and women alike, but not in the same way. Women have more responsibility for family life, while

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[9] The award was introduced by the Hungarian government in 2001 for small, medium and large size companies.

men are more required to get in the labour market. Women's involvement in the labour market and family-related tasks generate conflicts regularly forcing both men and women to make compromises. People are affected by both work- and family-related tensions that increase their level of perceived stress. Although work-related stress can be both positive and negative, negative stress is more powerful among spouses. These general trends are relevant not only in Hungary but in other countries of Europe, especially in Eastern-Middle Europe. (Utasi, 2011) In Hungary there is still a male breadwinner model, although the role of father started to move from breadwinner towards career (Nagy et al., 2016).

Empirical literature suggests that managing spillover and maintaining a sound balance between work and private life as an issue is both about individual coping capabilities and about organisational policies (Király, et al. 2015). Although a positive tendency seems to emerge in this field, in Hungary there is still no prevalent practice for part time job, work from home and atypical job forms like job-sharing. The limited spread of flexible employment forms is the most significant barrier for labour market participation of parents with small children (Frey 2001). A qualitative research by Herta Tóth proves, that even when a company acknowledges support for work-life initiatives, this is not translated into practice. She draws the attention also to a paradoxical situation: While market liberalization created better working conditions and opportunities in the West, in Hungary and in other post-socialist countries the working conditions relatively worsened (Tóth, 2005). A quantitative analysis of comparative data from the International Social Survey Programme revealed that while work stress has not increased significantly between 1997 and 2005, work-related exhaustion has risen to a significant degree in Hungary (Steiber & Pichler, 2015). Although companies have started to recognise their role in work circumstances and corporate social responsibility has become a highlighted and communicated function, a website content analysis (covering companies with 150+ employees) unveils, that WLB is not a widely communicated issue yet (Géring, 2016). These trends affect not only families with small children exclusively, but they face the most significant challenges. A study about family-friendly and work-life balance oriented corporate practices shows that the most common policy elements are reemploying mothers after

parental leave, reporting gender rates, organising family and children programs, and providing working time compensation for overwork (Tardos, 2014).

According to qualitative research, women have huge difficulties with continuing their professional life after giving birth, and this has many reasons. The employers are counter-interested in employing women with small children: they do not have free capacities besides the official working hours as their childless counterparts, additionally, usually mothers are the ones, who stay at home with the children unpredictably if they are ill, and the day-care services do not conform with working hours (Szűcs, 2005).

Another qualitative research (Primecz et al., 2014) conducted among ten Hungarian companies, that had already made conscious steps towards employee friendliness. The study demonstrates the differences in the meaning of being "employee friendly" across organizations. Flexible worktime and roles are attractive practices that can be explained by all those values (like freedom, self-realisation, independence, creativity) that are connected to them, and by the fact, that they support customization of worktime-free time allocation. These aspects are important, however companies tend to fit their practice to the needs and motivations of employees with bigger power, like older or male managers on the higher level, while the needs of other employees, like women, or younger employees on lower levels are neglected. This can affect employee commitment and trust in a negative direction (Primecz et al., 2014). While flexible worktime seems to have importance, an analysis of the representative data provided by European Establishment Survey on Working Time and Work–Life Balance (ESWT) indicates that Hungary belongs to a cluster, where the average company with ten or more employees does not use much working time arrangements, neither for the employees nor for the employers (Chung & Tijdens, 2013).

Summarizing the key findings of the latest empirical research related to WLB in Hungary we can state, that a controversial picture fades in. Women are pressed by double burden, while men are also forced to participate in the family-related work. Women are active in the labour market that provides some relative financial independency, however they have rather traditional values in connection with mother and wife models as a result of their socialization. The tension between the traditional

values and attitudes and the real-life challenges generate continuous stress and psychological pressure not only on women, but also on men. Overviewing the empirical results we can conclude, that the most critical period in the life cycle of a family from the aspect of WLB seems to be a 3 years term after the childbirth (that can be longer in case of more children). This is the stage when women have the most difficulty with reconciling work and family life, and this is also a critical period from the aspect of the child's socio-emotional development. The question of maternal working after childbirth is still a 'neck or nothing' decision in Hungary, at least in the first two or three years. Atypical employment, telecommuting or job sharing are not common in Hungary, employees and employers alike lack experience.

As a result of the above review, these findings imply three major expectations related to this investigation: In Hungary men and women face different WLB-related challenges, thus gender can be expected to be a significant control variable in the investigated associations. The number and age of children seem to be also important, since the most vulnerable group from the perspective of WLB consists of families with small children. It is logical to expect different associations between ICT use and WLB for them compared to single respondents. Finally, the characteristics of work domain can be expected to influence the investigated correlations.

3.2 Mobile use patterns in the Hungarian literature

While there is a massive sociological empirical literature in Hungary about internet use [World Internet Project provided database for a wide range of analyses between 2001 and 2007, e.g. about internet's effect on leisure time activities, (Lengyel, Lőrincz, 2006); on social capital, (Albert et al. 2007); and on families with children, (Galácz & Wild, 2006)], there is only limited academic literature on individuals' mobile usage and its social effects (e.g. Nielsen & Fjuk, 2010, Simay & Gáti, 2015). Research in this field covers mainly descriptive statistics, has dominantly industry orientation (e.g. HCSO, 2008; HCSO, 2013), and focuses the most on penetration data (e.g. ITTK Group, 2007, HCSO, 2015a). The lack of sociological interest may be a result of not considering mobile telephony as a developing field but as a constant condition by Hungarian scholars. Following the international trends, the slowly growing internet penetration and its social consequences (e.g. digital divide, Norris, 2001; Dimaggio &

Hargittai, 2001; Hargittai, 2008) became a scientific issue also in Hungary (Lengyel, 2003, Lengyel et al., 2004), but the fast saturation of the mobile phone market, and the effects of its gradual technological development (e.g. the appearance of smart phones) did not raise the attention of researchers.

Most information about mobile phone use of the Hungarian population can be gathered from the reports of the Hungarian Central Statistic Office: Mobile telephone penetration exceeded landline telephone penetration in 2001. In 2000 there were 700 000 more landline subscriptions than mobile phones, in 2001 the difference was 1.2 million but with mobile dominance. This means a huge change in user habits in a relatively short period of time. Although mobile penetration grew fast, in 2006 Hungary lagged behind the European (EU-25) average in terms of household penetration (being the 21st in the international order) (HCSO, 2008). Mobile penetration reached 100% in 2007 (HCSO, 2008; ITTK, 2007). In 2012 mobile internet penetration was still 18%, which was 36% less than the European average. While in Hungary 25% of the actual internet users had access to mobile internet, this rate was almost two times more, 48% in Europe in 2012. The other difference was, that while in Europe the use of handhelds (mobile phone, smart phone, PDA, MP3 players) exceeded the use of portable devices (notebook, netbook, tablet), in Hungary the relation was the opposite. I.e., the expression 'mobile internet use' in the statistic reports does not necessarily mean an internet based mobile phone use, but can cover also the use of portable devices, that have mobile internet access. In 2012 users identified network signal and user ergonomic problems (like small display and difficult typing) as the most important barriers for mobile internet penetration. In addition to this, the lack of need for internet availability out of office and out of home, and the high costs were the two most important balking factors according to the Central Statistics Office (HCSO, 2013). On the other hand, HCSO explains the increase in penetration in 2012 with the favourable fees that have effect also on the increasing data traffic. In 2013, 118 mobile subscriptions belonged to every 100 people and 412 mobile internet subscriptions to every 1000 (HCSO, 2014). In 2014 179 prepaid mobile phones and subscriptions belonged to every 10 households, and this number was 201 and 158 for the first and the fifth income quantiles. In 2014 56 smart phones belonged to every 10 households, and this number was 48 and 61 for the first and the

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fifth income quantile (HCSO, 2015b). In 2015 mobile subscriptions reached 11.8 million, and 67% of internet subscriptions (8.1 million) was mobile internet subscription (HCSO, 2016).

Although these data tell us little about Hungarian mobile user habits, they provide a basic summary about the situation of mobile communication in Hungary. The data represent a saturated market, where the rate of non-users is insignificant, at least in terms of mobile telephony in general. Mobile internet data however tell us a different story. In the beginning of 2015, there were 4.8 million mobile internet subscriptions in Hungary, which was approximately equal to the overall mobile penetration in 2001-2002 (HCSO, 2007). Since mobile internet subscriptions covered also mobile internet use via portable devices and other handhelds, the same rate for smart phone users was even smaller (HCSO, 2016). This means, that in terms of mobile internet we can still calculate with a massive block of non-users, and there is room for development. A qualitative research conducted in 2008 in Hungary (among many other countries) by Nielsen and Fjuk (2010) indicates that mobile internet usage is interrelated with and is an extension of the personal computer–based internet. The key motivation behind mobile use is to attain information in situations in which the personal computer is out of reach. Thus mobile internet is more a supplementary infrastructure for internet users, than a new way of usage for the mobile subscribers.

These findings have two basic consequences from the aspect of this research: 1) Mobile telephone use has to be divided into two parts: traditional mobile use, thus initiating and responding phone calls and writing and receiving SMS, and an internet-based use, that covers access to online contents and communication opportunities like mobile emailing. 2) We have to handle the anticipatory interpretative differences among social groups. Although the total Hungarian population has access to mobile telephony, mobile internet non-users can have differing conceptions about mobile communication compared to mobile internet users, which can influence also the applied or known expressions.

4 Research question and hypotheses

The international literature review shows, that working under the blurred boundary with the advancement of mobile technology remained a controversial sociological issue, while the Hungarian literature has shortcomings in this research area. The forthcoming chapter elaborates the central question of this dissertation and phrases hypothesis based on the selected theoretical frameworks and the findings of the former empirical studies.

Although spillover is the most prevalent WLB theory in both the international and the Hungarian empirical literature, and technology use seems to be an obvious precondition for the permeation of thoughts, the cause-effect mechanisms between them are not thoroughly unfolded yet in the Hungarian context. The aim of this research is to unveil, whether there is any association between mobile phone use and the interactions between the two life domains, and how this association can be described. The interactions as mechanisms between the two domains can be expressed with the notion of spillover. Altough this relationship is not without empirical evidences, in the following paragraphs I will argue, that the research question of this thesis is scientifically relevant.

Leung (2011) shows empirical evidence from Hong Kong for the increasing effect of ICT use on negative work-to-life, life-to-work *spillovers*. The interaction between ICT use and negative work-to-family spillover is strengthened also in the US by Chesley (2005), and the relationship between mobile use and spillover is generally supported by Tennakoon (2007) based on a Canadian sample. The relationship between these phenomena is however disputed by Wajcman and her colleagues (2008), who argue, that the effects of other factors prevail. Moreover, the increased work-to-family spillover can be more associated with job characteristics, family type and age. The evidence presented in Leung's study also proves that ICTs are as important as other factors (such as demographics, permeability and flexibility) in predicting negative spillovers in both directions (Leung, 2011), and Chesley also finds, that gender has an influencing role (Chesley, 2005). Thus, according to the literature there is a

relationship between ICT (mobile) use and negative spillover, but ICT is not the only predictor in the association.

In order to provide not only domestic, but international scientific relevance for my study, and unveil new aspects, compared to the former empirics, this thesis specifies technology (mobile) use more precisely, and investigates not only the negative aspects, but positive effects too. The research question of this thesis can be phrased as follows:

Q1: How does mobile phone usage affect spillover between work and life domains?

In order to turn this question into a valid hypotheses that can be tested, we have to go more into the details, and specify both mobile use and spillover more precisely.

First of all, it can be assumed that it is not enough to consider general mobile use. A higher level of mobile use does not necessarily imply higher level of spillover. Even if there is an association between mobile use and spillovers in general, certain types of mobile communications have role in it, namely, those user activities that allow transfers between the two domains. Work-to-life spillovers are facilitated by mobile communications that happen outside of working hours, but are related to work. Similarly, life-to-work spillovers can be mediated by worktime mobile communications with family members and friends about private issues. In other words, timing and topic of mobile phone-use both have significance. I.e., we have to separate private and work-related time periods and private and work-related subjects to investigate the 'cross-directional' mobile uses. Additionally, it is reasonable to assume that these cross-directional mobile uses have effects both on positive and on negative spillovers. Since positive and negative spillover mechanisms do not exclude each other, phrasing hypothesis for the association between mobile use and both positive and negative types of spillover in the same direction is not paradoxical. This thesis argues, that although one might think, that work-related mobile uses after working hours have only negative work-to-life effects, and private mobile communications during working hours have only positive life-to-work consequences from the aspect of the individual, it is useful to test the opposite qualities too in the same directions.

Consequently, the following four hypotheses can be phrased, one related to each of the four types of spillovers:

H1: The higher the frequeny of mobile phone usage is *outside of working hours for work-related* purposes, the more one perceives *negative work-to-life spillover*.

H2: The higher the frequeny of mobile phone usage is *at work for private* purposes, the more one perceives *positive life-to-work spillover*.

H3 The higher the frequency of mobile phone usage is *outside of working hours for work*-related purposes, the more one perceives *positive work-to-life spillover*.

H4: The higher the frequeny of mobile phone usage is at work for private purposes, the more one perceives *negative life-to-work spillover*.

5 Data and methods: methodological definitions and considerations

The following chapter will argue, that among the three basic research paradigms (qualitative, quantitative and mixed methods research) the research problem in question calls for a mixed methods approach (Creswell, et al. 2003; Tashakkori & Teddlie, 1998; Creswell & Plano Clark, 2007), that combines the explorative nature of qualitative methodologies with the generalisability and explanatory kind of quantitative methodologies (Hesse-Biber 2010).

5.1 Mixed methods

Mixed methods design basically covers a research approach that applies both qualitative and quantitative methodology for investigating a research topic. This methodological combination covers data collections, data analysis, description and interpretation of the outcome (Király et al., 2014). The connection between the qualitative and quantitative parts within a single project can be various, they can be executed concurrently, shifted in time and sequentially (Hanson et al. 2006; Hesse-Biber 2010). Unlike multi-methods research, where the different methods can stay within one research paradigm, mixed methods research aims to match different methods of different paradigms in order to utilise the advantages of: 1) triangulation, thus the possibility of cross checking and validating the results with other methods; 2) complementarity, thus being able to obtain a fuller picture; 3) development, thus fine tuning one method with another; and 4) initiation, thus a power to unveil inconsistencies and unexplained questions and expansion, thus the ability to investigate different aspects of the same phenomenon (Greene et al., 1989).

The advantage of mixed methods, that they have better consideration of multiple viewpoints, perspectives, positions and standpoints. The core characteristics of all the mixed methods designs are, that they allow the researcher to collect and analyse persuasively and rigorously both qualitative and quantitative data, they mix the two

forms of data in a single study, frame these data collection- and analysis procedures within one theoretical lens and combine them into a specific research design (Creswell & Plano Clark, 2007).

The disadvantage of choosing this approach is the inherent complexity of mixed methods designs, difficulties in research planning and implementation. Mixed methods designs require much effort, qualitative and quantitative expertise, researchers have to consider the consequences of having different samples and different sample sizes, and agreeing the findings of the different methodologies can be also challenging.

Theoretically there is an infinite number of methodological combinations, but there are ideal types, that are determined based on different criteria defined by different authors (e.g. Creswell & Plano Clark 2007; Johnson & Onwuegbuzie 2004; Morgan 1998; Morse 1991; Teddlie & Tashakkori 2009). Although ideal types *per definitionem* rarely appear in practice in their clean format, it is useful to know them as reference categories.

The typology of Creswell and Plano Clark (2007) defines six major mixed methods designs based on the timing and the weights of the applied methodologies relative to each other, based on the way of mixing them (linking, integrating or embedding), and based on the theoretical framework the researcher may apply (that has a major effect on the data collection and interpretation). These ideal types are labelled as (1) convergent parallel design, 2) explanatory sequential design, 3) explorative sequential design, 4) embedded model, 5) transformative design and 6) multiphase design (Creswell & Plano Clark 2007). After introducing all of them shortly, chapter 4.2 details the application of explanatory sequential design.

1) *Convergent parallel design:* The purpose of this mixed methods design is to combine complementary data on the same topic. Here the qualitative and quantitative methodologies merge only at the interpretation phase, data collection and analysis happen simultenously (Creswell & Plano Clark, 2007). The advantage of this complementary nature is that the results of qualitative and quantitative strands can illustrate and support each other, the researcher can compare them (Teddlie & Tashakkori, 2006).

2) *Explanatory sequential design:* In this case the qualitative and quantitative

methodologies are not separated but interact with each other. The quantitative data collection and analysis are followed by a qualitative phase that helps in explaining and explicating the quantitative results (see figure 2.). The combination of the two types of methodologies appears during the designing procedure, thus, the details of qualitative design (e.g. sampling strategy, phrasing interview guideline) are largely based on the outcome of the quantitative phase. On the other hand, the qualitative results can extend the interpretation of the qualitative data (Creswell & Plano Clark, 2011; Tashakkori & Teddlie 2003). This design can perform extremely well, if we need illustrative examples, or have to explain surprising or significant outcomes, positive-performing exemplars, or outlier results (Creswell & Plano Clark 2007).

3) *Exploratory sequential design:* This one is also a two-phase model, but here the qualitative phase comes first, that is followed by a quantitative section (Creswell, 2009). The purpose of this mixed methods design is to generalise the results of an explorative quantitative research to a larger population. This design is particularly useful, if a researcher wants to test theories or classifications that were developed during a qualitative research (Creswell & Plano Clark, 2007)

4) *Embedded or nested design:* In case of this one- or two-phase model the researcher has a traditional qualitative research design or a quantitative research design that is combined with quantitative or qualitative elements. Its most significant peculiarity is that one of the research paradigms dominates the other that has supplementary role. Embedded design is usually required, if the research questions require different types of data (Creswell & Plano Clark, 2007).

5) *Transformative design:* This type of design has value-based and ideological reasons and has a transformative goal such as challenging the status quo and developing solutions. The transformative perspective allows researchers to focus on specific and marginal populations or on phenomena such as social changes, power imbalances or empowering (Creswell & Plano Clark, 2011).

6) *Multiphase design:* This type of mixed methods designs occurs when the researchers investigate a problem through an iteration of connected qualitative and quantitative studies that are sequentially or concurrently aligned (Creswell & Plano Clark, 2011; Teddie & Tashakkori, 2009). The combinations of the former designs can have also practical relevance, which are also examples for this type of mixed methods design. E.g. an explanatory sequential design has an embedded section in order to achieve the research goal (as in De Lisle, 2011 or Woolley, 2009).

In their study Creswell and Plano Clark (2007) apply four dimensions (level of interaction, weighting, mixing and timing) during creating the above typology. The following argumentation for applying explanatory sequential design as a methodological framework for this research also follows this structure.

Figure 2 Explanatory sequential design

(Figure based on Creswell and Plano Clark, 2007)

Figure 2 shows the basic relationship between the two strands, the qualitative and quantitative parts of a general explanatory sequential design. After introducing the research design of this research in more details in subchapter 4.2., the forthcoming sections, chapter 5 and 6 introduce the methods of data collection and analysis, the results and the conclusions of each strands separately. The two research phases finally are connected in chapter 7 that provides a joint interpretation of the quantitative and qualitative findings. Thus, the methodology part of this thesis is structured in accordance with the research design; the qualitative and quantitative phases are discussed apart.

5.2. The design of this research project

This research is a part of a more comprehensive research project[10] that focuses on the work-life reconciliation strategies and dilemmas in Hungary. The project aims to unveil those factors that influence the creation of WLB the most, and the role of family and corporate environment in this process.

Within this wider project the research of this thesis focuses exclusively on mobile technology as a possible influencing factor. The core of the research design is a national representative survey that uses a questionnaire, which is supported by cognitive interviews. The purpose of the preliminary cognitive interviews is to fine-tune the survey questionnaire and to give a frame of reference for the quantitative results. The forthcoming subchapters describe he relationship between the qualitative

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[10] The project has been funded through the Hungarian Scientific Research Fund (henceforth: OTKA) ("Dilemmas and strategies in reconciling family and work" OTKA K104707; head of project team: Beáta Nagy, PhD., Corvinus University of Budapest)

and quantitative strands based on the four dimensions defined by Creswell and Plano Clark (2007).

5.2.1 Level of interaction

The level of interaction is the extent to which the two strands are kept independent or interact with each other. Greene (2007) argues that this decision is the "most salient and critical" (p. 120) for designing a mixed methods study. The two strands of a research (qualitative and quantitative) can be independent or interactive. In case of independent design the researcher only mixes the two strands during drawing conclusions and providing overall interpretation at the end of the study, while in case of an interactive design there is mixing already before summarising the findings.

The aim of this project is to provide technology-related explanations of the perception of work-life balance. Although the research questions can be answered to some extent exclusively by the quantitative methodology through testing the defined hypothesis, a qualitative research can deepen our understanding and can unveil possible reasons behind the found relationships (or the lack of relationships). A national representative survey is an appropriate way of data collection resulting numeric, focused and terse kinds of information, while focus group discussions with carefully selected participants can provide additional data in connection with the survey's problematic, surprising or outstanding results. The relationship between the two methodological strands is thus explanatory and interactive. A direct methodological interaction happens between the qualitative and quantitative methodologies at the point of design (the qualitative strand largely depends on the results of the quantitative strand), and at the point of interpretation (the results of the strands can be jointly interpreted). The sequential structure of this thesis, thus the separation of the two strands makes it possible to show explicitly these interactions.

5.2.2 Timing

Considering, that the cognitive interviews do not provide significant information about the research topic itself, and it is not an independent qualitative analytical tool, but a part of the quantitative section, it cannot be handled as an individual method. In sum, we can state, that this research project has two phases, a large-N quantitative survey,

and a block of focus group discussions afterwards. The temporal relationship between the two phases is sequential. This sequential design again calls for a sequential structure of the methodological section of this thesis.

5.2.3 Weighting

As for the relative importance of the two strands, this research applies quantitative priority, thus it places greater emphasis on the quantitative phase, and the qualitative phase has secondary role. The reason behind this priority order is two-fold. First of all, a national representative survey can provide generalizable findings, thus the results can be interpreted for Hungary, while the qualitative phase unveils only possible relationships or explanations, but its conclusions cannot be applied for the whole population. Second, the quantitative data provide opportunity to investigate more questions and several related hypotheses, while the qualitative phase is only applied to give more detailed information related to certain selected topics. Thus, the focus group discussions have a narrower subject than the survey. This research design makes it possible to get deeper understanding of certain questions, but limits the scope of the qualitative phase.

5.2.4 Mixing

Mixing is the process by which the researcher implements the interactive relationship of the mixed methods study. Two concepts are applicable here; the point of interface, and the stage of integration. The first refers to the points where the two types of methodologies are mixed. Mixing can prevail at four possible points of the research: design, data collection, data analyses and interpretation. According to Creswell and Plano Clark (2007) researchers employ mixing strategies that directly relate to these points of interface. In case of this research the mixing strategy in terms of design is a theoretical framework-based mixing, since both strands apply the same theoretical framework. The strategy of mixing data collection can be described with the use of the first strand's results. This means that the results of the first strand determine the sampling criteria, the data collection protocols and instruments of the second strand. The strategy for mixing during interpretation involves drawing conclusions or

inferences that reflect what was learned from the combination of results from the two strands of the study.

This high level of integration has many advantages: it guarantees that none of the methodologies suffers from effacement, and makes a synergy effect possible: namely, the results of combined analysis lead to greater results than the sum of the individual qualitative and quantitative researches (Bryman, 2007). We can diagnose an even more tight integration, if we consider that we apply a qualitative methodology as part of the quantitative phase, before starting the data collection in order to test the questionnaire. The aims of the cognitive interviews are to unveil whether the respondents from different social groups comprehend the questionnaire items in a similar way, recall the same concepts and notions and whether the questionnaire is able to record their responses precisely.

In sum, we can state, that the construction of this two-phase research is an *explanatory sequential design* with a quantitative priority. The first, quantitative data analysis phase is followed by a qualitative section that covers corporate focus groups discussions.[11] Figure 3 shows the construct of the mobile communication-related section of the OTKA project, where the blue colour indicates the elements covered by this thesis. The dependent status of the cognitive interviews is indicated with discursive line. The arrows between the methodologies indicate interactional relations, the positions of the boxes reflect the relative temporal positions of each methodologies.

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[11] The wider OTKA research project also covers in-depth interviews among managers. The manager interviews are not only about the relationship between mobile communication and WLB, and are not part of this thesis.

Figure 3 Research design of this thesis (explanatory sequential design)
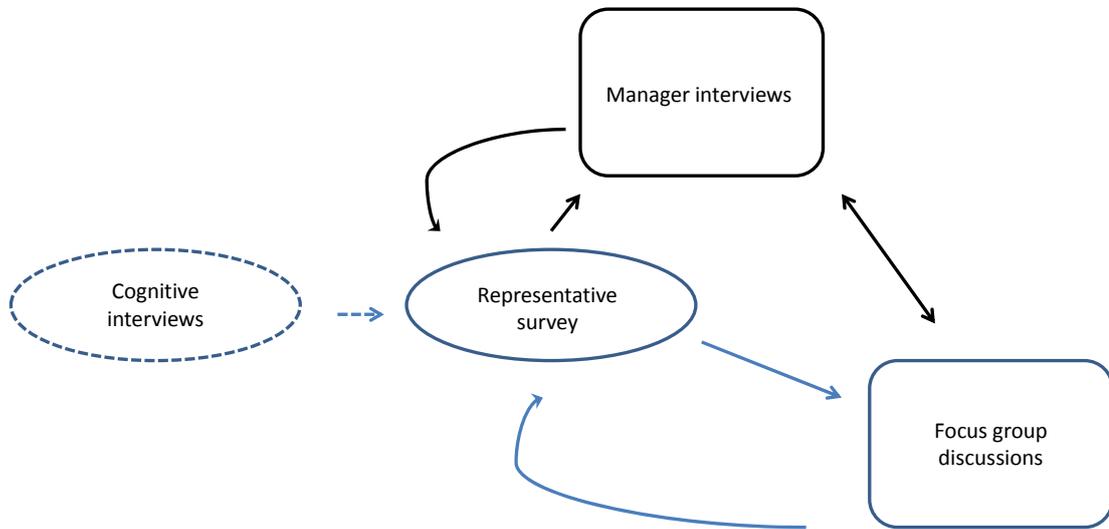
(Dén-Nagy et al., 2014)

Before delineating the details of the two main research phases, the following chapter describes cognitive interviews as a methodology, and how this research used its results.

5.3 Cognitive interviews

A major problem with a representative survey is that the questions are answered by respondents who might have different interpretative backgrounds or different frames of reference in connection with the research field. Technology use is a highly problematic issue from this aspect, because some of the related terms are only recently used, they can have different meaning for different social groups. The same measurement difficulty arises in terms of work-life balance too. Some expressions can mean slightly different conceptions for people, who have different types of work, or who face with different challenges on this field, and this can affect the reliability of the research negatively. Thus, the questionnaire items shall be tested in advance to avoid cognitive bias. Pilot questioning is not enough, because although it can unveil some basic interpretational problems, it does not contribute to reliability significantly. Cognitive

interview is a method that helps researchers in getting deeper understanding of the interpretation processes of the respondents and gives precise list and description about the necessary modifications. The methodology is based on the oral reports of the interviewees about their own mental processes as they answer questions (Blair & Presser, 1993; Willis et al., 1999, Berends, 2006). Cognitive interviews help in resolving measurement problems that are given by the complexity of the measured phenomena, and by the respondents' disposition to give socially acceptable answers (Biemer et al., 1991, Berends, 2006). In addition, they can help in filtering misleading indicators and also in finding missing ones (Berends, 2006).

While giving an answer a respondent goes through four steps: 1) comprehending the item, 2) retrieving relevant information from memory, 3) deciding based on the recalled knowledge 4) recording the response. All of them can be problematic, thus can lead to misinformation (Willis, 1999). The research team applied 'think-aloud interview' technic (Willis, 1999), which allows the respondent to comment each of these steps, thus, the researcher can record the process that a respondent uses in arriving at an answer. This technique makes it possible to discover small discrepancies in interpretation among people with different demographic parameters or socio-economic statuses; it can unveil awkward or equivocal items or significant missing response alternatives (Berends, 2006). The experiences of the cognitive interviews can be used to fine-tune questionnaire as well as to support the qualitative phase.

The team of the OTKA project tested the questionnaire items with 10 cognitive interviews. The interviewers asked people who represent different demographic groups of the society in terms of age, gender, place of living, education and profession. Selecting interviewees carefully has importance, mainly in case of testing questionnaire for a representative research, because this way a researcher can gain a wider scope of aspect about of the wording issues (e.g. the word 'commuting' turned out to have different meanings for different respondents, or the phrasing 'the work can only be executed at the work place' has no meaning for people, who do not have a certain place of work, like e.g. sales representatives). After identifying the problematic elements, the questionnaire was refined with exchanging expressions or rephrasing complete questionnaire items.

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Cognitive interviews also helped in identifying those items that require careful interpretation. For instance self-employment and mainly family entrepreneurship caused problems during answering some questions. Finally the research group decided not to phrase separate questions for this group of people, because of its minority (a low number of related records were expected during the survey). Similarly atypical situation arises, when a respondent works at more work places. Since their number is relatively low again, this group was not handled separately either.

After summarizing the results of the cognitive interviews, and deciding about modifications item by item, the questionnaire became ready for the process of data collection. This qualitative methodology thus cannot be interpreted as a separate research phase, since it cannot be considered as an independent qualitative data collection and data analytical tool but as a method that helps in making the quantitative questionnaire more valid.

6 Quantitative research

The quantitative strand includes two sections; 1) secondary analysis of existing and relevant databases [World Internet Survey, Youth Survey, International Social Survey Program (ISSP), World Internet Project (WIP), Hungarian Central Statistical Office (HCSO), time-use survey] and 2) the evaluation of a national representative survey on mobile telephony usage patterns and creating work-life balance. The following chapter introduces each step of the quantitative phase and summarizes their results.

6.1 Secondary data analysis

Before designing a primary data collection and analysis it is useful to investigate the available public data resources and data sets that can be considered for secondary use. If these data sets contain information about the investigated research questions and hypothesis, the possibility of international comparison may occur, and the primary data collection can be reduced. In order to unveil the relationship between WLB and mobile telephony, sufficient items about both phenomena are necessary in one single data set. If a data set contains mobile telephony-related items only, thus the WLB-oriented secondary analysis is not feasible, the questionnaire still shall be reviewed, because they can contribute to determining the measurement of primary data collection.

The review of the relevant public data sources (European Social Survey, Eurofound, World Internet Project, Turning points of our lives, ISSP, HCSO time-use survey) ends up with the following remarks (for more details see Appendix 1).

Most of the free and available databases do not include sufficient sets of indicators to provide secondary analysis in connection with the topic of this research project. Mobile telephony and WLB-related questions are typically not present in the same questionnaire, and mobile-related questions are not detailed enough to gain valuable information out of the data. Except for the time-use survey by Hungarian Statistical Office, they do not cover e.g. the purpose (private/work) and the quantity of use, or mobile use is handled together with other communication technologies, like e-mailing

or conventional mailing. Even the time-use survey data has some shortcomings in terms of defining 'telephone' as a device and 'internet use' in terms of device-use. (E.g. telephone can mean landline phone too, and 'arranging an issue using telephone' can cover landline phone, traditional mobile phone use and mobile internet alike. Similarly, real-time online conversations can involve both mobile telephony and PC-use).

The general mobile use-intensity indicators are not sufficient, because they are unable to unveil substantive correspondence between mobile use and WLB, and do not give insights into the reasons behind its usage. Questions about the 'possession of mobile phone device' and 'having mobile Internet subscription' as mobile use indicators transfers little information and can be used basically for international comparative mobile penetration analytics. In sum, available secondary data do not provide the possibility for interpretative analyses. The main implication of this review is that primary data collection is necessary to answer the research questions of this thesis and investigate the hypothesis. It can be also concluded, that there is no room for extending the local findings with international comparative analytics.

6.2 Primary quantitative research

The following empirical analysis is based on a national representative dataset. Data collection was carried out in frame of the monthly Omnibus Survey executed by TÁRKI Social Research Inc. in May 2014 by inserting a twenty minutes long block about WLB and mobile phone use into the panel questionnaire. Every question that related to work-life balance and ICT issues was compiled by the Work-Life Balance research group at the Corvinus University of Budapest. The sample is representative of the Hungarian adult population, and consists of 1007 people. The unit of analysis contains those who were employed or self-employed at the time of the survey, thus inactive or unemployed population was excluded. In total 514 respondents are covered, however Ns vary because of missing values. In case of every hypothesis, the analyses covered those respondents, who answered all the items that were involved in the regression models.

6.2.1 Conceptualisation and operationalisation of the hypotheses

In research design, operationalising theoretical conceptions to measurable variables is a major challenge. Several complex phenomena cannot be observed directly, but can be indicated by the existence of other phenomena. Selecting a proper measure, that is reliable and valid, is a pivot in both quantitative and qualitative research (Babbie, 1980).

The following subchapters provide the description of the variables. Basically two different conceptions have to be measured to test the hypotheses quantitatively: 1) Mobile use and 2) Spillover variables. The measures for spillover will provide the dependent variables, while mobile use items will serve as independent variables. Regression analyses also involve relevant sets of control variables.

5.2.1.1 Conceptualising mobile use

Since accessibility is insufficient indicator in terms of mobile use (see chapter 5.1), the application of more meaningful dimensions of use, viz. intensity and timing[12] is reasonable. Intensity can mean frequency (how often) or quantity (how much) of mobile phone use. More precisely we can express quantity as the combination of frequency and duration (e.g. how much time one spends using communication technology devices, such as smart phone, mobile phone, laptop computer, desktop computer, etc.). For example Cheryl Adkins and Sonya Premeaux (2014) asked how much time one spends using four specific communication technology devices smart phone, mobile phone, laptop computer, desktop computer to work during non-work time before work, during non-work time after work, during day-offs.

People's subjective perception about time duration and frequency[13] makes survey as a data collection method risky from the aspect of validity. Without other supplementary data collection method (e.g. a highly resource-intensive time diary) survey questions like '….how many calls on your mobile phone are job-related….?' (Wajcman, 2008) and 'How many hours do you use your mobile phone a day?' can be unreliable.

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[12] Using place of use instead of time is not relevant here, since the work-life division is not place-specific. The categories of workplace and home are not full and mutually exclusive.
[13] Here the subjective perception of time can be referred, that does not necessarily correspond to the objective time measures (Hornik, 1984)

Due to resource scarcity researchers often lack the opportunity to extend the survey questionnaire with a diary as a supplementary tool, that could support the respondents' assumptions. In these situations it is reasonable to forgo the benefits of numerical (ratio) scales in exchange for validity. This is the reason why this research also applies ordinal scales to measure intensity instead of asking people about precise numbers of hours.

Timing of mobile phone calls has also significance in this study, since we want to separate private and work-related time periods to investigate the 'cross-directional' mobile use. I.e., the question about frequency has to be broken up into time-specific sub-questions. Since workdays and non-workdays can have different mobile use patterns (e.g. one can remain available for work purposes after working hours on work days, while refuses similar calls, SMSs and e-mails on weekends and during holiday), private time use was divided to workdays, but after working hours and non-work days. This design can also help the respondent to think over his/her daily routines and give a more accurate answer. The literature also provides example for this kind of differentiation (e.g. . Wright et al., 2014)

Besides making timely separation, it is also inevitable to make functional distinction. Phone calls and SMS texting are completely different categories, than the more developed, expensive and less prevalent way of mobile use: mobile Internet. Considering, that this last term covers many types of telecommunication activities, also forms of mass communication (such as reading news, browsing internet sites or listening to music), we have to reduce the scope of measurement further. Since the most popular and obvious way of online inter-personal communication is e-mail sending and receiving, the research focuses only on this category[14].

In sum, the questionnaire contains 12 items (see table 2.) for measuring mobile use, one to each purpose (work or private) in each time period (working hours, non-worktime on workdays, and non-workdays) and for each way of usage (traditional, thus phone call and SMS, and non-traditional, thus mobile e-mailing). Those items

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[14] In 2014, when the quantitative data collection was carried out, alternative internet-based mobile communication (instant messaging or VoIP) platforms like Facebook Messenger, WhatsApp, Viber, Google Voice/Google Hangouts were not prevalent in Hungary.

have greater importance from the aspect of this research, which express 'cross-directional' uses, thus work-related use in non-worktime[15], or private use in work-time. Table 2. indicates these items visually separated.

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[15] 'Free time' and 'non-work time' are used as synonyms through this thesis.

Table 2 Classifying mobile use items

Mobile use	During working hours on work days	In free time on work days	On non-working days
Work-related calls and SMSs			
Work-related e-mails			
Private calls and SMSs			
Private e-mails			

'Cross-directional' fields are marked by colour grey

5.2.1.2 Conceptualising spillover

Spillover is a widely used theoretical conception in the empirical literature. There is a multifaceted academic field with various disciplines in which spillover is utilised (sociology, gender studies, psychology, organisational, human resources and management studies). Several examples of conceptualisation and operationalization are available with different data collection and analytical methods (qualitative, such as case studies, interviews, and quantitative, like small sample online surveys, nationally representative surveys, cross-sectional surveys, diaries, longitudinal data analytics). (Rado-Nagy-Király, 2016).

The concept of negative spillover (together with negative work-family interaction and work-family conflict concept) is rooted in role stress theory and scarcity approach, while positive spillover (together with work-family enhancement, enrichment and facilitation concepts) is rooted in role accumulation theory and expansion approach (Rantanen, 2008). Greenhaus and Beutell (1985) suggested three forms of work-family conflict: time-, strain- and behaviour-based conflict. In their conceptualisation work-family conflict is bi-directional, but work-to-family and family-to-work conflicts were first studied separately. Resembling the ideas of Greenhaus and Beutell, Small and Riley (1990) developed a three-dimensional measure of negative work-to-family spillover where the respondents evaluate the degree of time, psychological, and energy interference from work to family. This stands close to the conceptualisation of Marks

(1977) that reflects the scarcity approach of multiple roles. In this conceptualisation time, energy and commitment are finite and scant individual resources, which can be easily exhausted, which leads to role strain. Lambert (1990) focused on the negative spillover of moods and emotions that are the individual's negative reactions (such as dissatisfaction) to objective work and family conditions (e.g. nature of job, family size, housing conditions).

On the other hand, we cannot get a full picture without investigating the positive dimensions of work-to-life and life-to-work spillover. The spillover processes refer also to the transfer of skills, behaviours, attitudes (Geurts & Demerouti, 2003, Lambert, 1990), but these processes are beneficial, rather than harmful. Barnett and Hyde (2001) state, that multiple roles produce better mental and physical health, the process of buffering added income, social support, increased self-complexity, etc.- prove, that multiple roles are beneficial for the individual, although the number, the quality of and the subjective feeling related to the roles are crucial (Barnett and Hyde, 2001).

Wagena and Geurts (2000 cited by Rantanen, 2008) measure positive spillover with three items in each direction reflecting the spillover of mood (e.g. successful day affects home atmosphere positively), skills (e.g. domestic obligations are fulfilled better because of things learnt at work) and behaviour (e.g. taking responsibility at work more seriously because it is required also at home). Ginger Hanson and her colleagues (2006, p. 256) define positive work-to-family spillover as 'The transfer of positively valenced affect, skills, behaviours, and values from the originating domain to the receiving domain, thus having beneficial effects on the receiving domain.' They distinguish six dimensions, three in both directions (work-to-family and family-to-work): affective spillover, behaviour-based instrumental spillover and value-based instrumental spillover. This conceptualisation stands not too far from the work-family enrichment scale of Dawn Carlson and her colleagues, who apply a 18 item measure of three dimensions from work to family direction (development, affect, and capital) and three dimensions from family to work direction (development, affect, and efficiency) (Carlson et al., 2006). Similarly to Hanson and her colleagues (2006), Gary Powell and Jeffrey Greenhaus conceptualise positive spillover in terms of emotions, skills, values and behaviours. 'Individuals experience *affective positive spillover* when they transfer

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positive affect (e.g., positive mood or happiness) from one domain to the other domain. Individuals experience *instrumental positive spillover* when they transfer values (e.g., embracing diversity), skills (e.g., using Excel spreadsheets), and behaviors (e.g., acting ethically) acquired or nurtured in one domain to the other domain.' (Powell & Greenhaus, 2010: 518-519).

Based on these conceptual frameworks the research team distinguished four aspects of work-life interference: quantity (strength of interaction), direction (work-to-family or family-to-work) and quality (positive or negative) and context (level of interaction can be at micro, meso, exo or macro) (Rantenen, 2008). In accordance with this the questionnaire contained six negative spillover items, representing three dimensions of negative work-to-life spillover (behaviour, time and stress) and three dimensions of life-to-work spillover (behaviour, time and stress)[16]. The research team phrased another six questionnaire items to indicate positive spillover by applying similar dimensions.

Table 3 Operational definition of variables

CONSTRUCTS	INDICATORS (with levels of measurement)
Frequency of mobile use	How often do you use your mobile phone for sending/ receiving SMS/ writing or getting e-mails (including private and corporate use alike)? 1) on a typical work-day for job-related purposes, 2) on a typical work-day for non- job-related purposes, 3) on a typical non-work-day for job-related purposes, 4) on a typical non-work-day for non-job-related purposes) Measurement: 1 indicating *Never*, 4 indicating *Always*.
Negative work-to-life spillover	How often does it happen to you, that… 1) you think about job-related problems even when you are not working; 2) you are too stressed by your job to enjoy your time at home; 3) you feel, that your job prevent you from spending time enough with your family/ your partner; Measurement: 1 indicating *Never*, 4 indicating *Always*.
Negative life-to-work spillover	How often does it happen to you, that… 1) you feel stressed because of family-related problems even at your workplace;

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[16] Similar indicators are used e.g. by Jennie Dilworth (2004) and ESS wave 5.

	2) family commitments prevent you from dedicate time enough to your job; 3) you deal with family problems even when you are working; Measurement: 1 indicating *Never*, 4 indicating *Always*.
Positive work-to-life spillover	How often does it happen to you, that… 1) you get on better at home due to work-related success; 2) you utilize the skills at home what you have acquired at your workplace; 3) your positive feelings at work affect the way you feel at home; Measurement: 1 indicating *Never*, 4 indicating *Always*.
Positive life-to-work spillover	How often does it happen to you, that… 1) you get on better at work due to home-related success; 2) you can utilize the skills at work, what you have acquired at home; 3) your positive feelings at home affect the way you feel at work; Measurement: 1 indicating *Never*, 4 indicating *Always*.
Control variables	gender, age, education, financial well-being, profession, place of living, family status, number of children, overtime work, flextime work, de facto working hours

6.2.2 Data collection and sampling

TÁRKI used probability sampling, where every Hungarian inhabitant between 18 and 65 had the same probability of getting into the sample. Thus all the conclusions based on these data can be generalised for the whole population in the age group under discussion. The applied sampling strategy was proportional stratified sampling technique. In the first step the stations from each county were selected with the condition, that Budapest, and the county towns are selected anyway. Then the number of respondents from each type of station (county town, town, and village) was determined based on the proportion of the number of their inhabitants compared to the whole population. The random walk sampling had 175 starting points in 80 stations and in each district of Budapest. Finally the Leslie Kish key technique (Németh-Rudas, 2002) was applied to select individuals within the selected households. In order to have proportional sample also according to gender, age, qualification, type of station, the sample was weighted, so the sample distribution by gender, age, qualification and type of station became identical with the population distribution.

6.2.3 Methods of analysis

The relationship between two variables, a predictor variable and an outcome variable, that are measured on ordinal scale[17] can be investigated with using cross table, non-parametric analysis [e.g. Mann-Whitney test, Wilcoxon signed-rank test, or Kruskal-Wallis test (Boone & Boone, 2012.)] and ordinal logistic regression. The advantage of using ordinal regression compared to non-parametric tests is, that it is able not only to indicate the existence of a relationship, but also allows the researcher to make quantitative statements of conclusions (McCullagh, 1980).

When we have both dependent and independent variables that are measured on a categorical or on an ordinal level, the linear model shall be replaced with a generalised linear model, where the link function, that transforms dependent variable, becomes different from the linear function.

Although one can argue that ordinal regression is the most appropriate data analysing method in case of ordinal dependent variable, because it is able to utilise the ordinal nature of the data in contrast to the multinomial regression, the greatest challenge, besides interpreting the results, is finding a model that is appropriate to our application (Long, 2012). When a model is overly complicated or there are very small N's for some categories of the dependent variable, analysis can be problematic. Maximum likelihood (ML) estimator is consistent, efficient and asymptotically normal, when sample size reaches infinity. The small sample behaviour of these nonlinear models on the contrary is largely unknown. Long proposes a sample size over 500 for using ML, and even this value should be raised depending on characteristics of the model and the data. For more parameters e.g. more observations are needed, and also if we have little variation in the dependent variable, a larger sample is required (Long & Freese, 2006). In case of this data set the sample size does not or hardly approaches 500, so the frequencies within the response categories of the outcome variables have major importance from the aspect of statistical method selection. The solution for this problem was reducing the ordinal variable to a dichotomous level[18], and applying

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[17] On scales that use numbers to indicate rank ordering on a single attribute (Stevens, 1946).

[18] Applying 3-categoric dependent variables (where only the two upper categories are combined) could have been an alternative, however considering, that keeping a third category would not have resulted

logistic regression. The following subchapters discuss the methodological considerations and the result of each hypothesis in more details.

6.2.4 Analyses

After transforming all the four-categorical dependent variables into dichotomous outcome variables[19], the analysis uses binomial logistic regressions to understand whether different spillovers can be predicted based on mobile phone use. In order to test our hypotheses, regression analysis pairs the frequency of work-to-life and life-to-work directed communications over calls, SMSs and e-mails (as independent variables) with four identically directed negative and positive spillover items (as dependent variables). Wald chi-square test and two-tailed p-value are used for testing the overall significance of the regression models. The analysis applies the conventional 0.05 standard for statistical significance (p-value), thus 95% confidence intervals for each regression. Global model fitting test covers checking the values of the classification table, Pearson Chi-square statistics and Hosmer-Lemeshow statistics with a cut-off p-value of 0.05 (Hosmer & Lemeshow, 1980.)[20].

The analysis evaluates the statistically significant models based on the significance levels of the parameter estimates. Thus, the existence of an effect is registered with the use of the Wald statistics' significances, but the interpretation of the results uses the differences in conditional probabilities. While an odds ratio considers only the parameter estimate of the variable in question, marginal effect depends not only on the parameter estimate of the variable, but also on the values and parameter estimates of

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significant additional information compared to the two category contraction (because of the extremely uneven distribution of responses), applying binomial logistic regression was reasonable.

[19] The dichotomous variable expresses whether one perceives spillover or not. The last three frequency categories (seldom, often, always) of the original items are contracted into one category, the reference category is 'never'.

[20] Although pseudo R^2 values for logistic regression (Cox-Snell and Nagelkerke indexes) are available in statistical packages like SPSS or stata, and are often reported, in practice, their interpretation as goodness-of-fit measures is problematic (e.g. Bewick et al., 2005, Smith & McKenna, 2013). Despite its deficiencies Hosmer-Lemeshow test is frequently recommended, mainly in case of sparse data to measure global goodness-of-fit. It shall be handled however with caution. A non-significant result of this index does not necessarily indicate a correct model, but tells us that the lack-of-fit is not large enough for us to reject our model (Kuss, 2002). In addition, as with most chi-square based tests, it is prone to inflation as sample size increases.

other variables. In other words, the analysis measures and compares the direction and the powers of causal relations with average marginal effects (AME) (Bartus, 2005).

5.2.4.1 H1: The higher the frequeny of mobile phone usage is during free time for work-related purposes, the more one perceives negative work-to-life spillover.

Model building

Negative work-to-life spillover is measured by three items, representing its behavioural (thinking about work-related problems even during non-work time), stress (feeling too much stress due to work to enjoy activities at home) and time (work prevents one from spending enough time with family/partner) dimensions. The analysis combines these spillover items as dependent variables with the four mobile use-related independent variables (two types of work-related phone calls in private time: work-related phone calls is in free time on work days and work related calls on-non work days, and these two types for mobile emailing). Since an extended model version was also tested (involving significant control variables: all together we get 24 regression models:

Table 4 Definition of regression modes to test Hypothesis 1

Model	NEGATIVE WORK -TO LIFE SPILLOVER DIMENSION	WORK TO LIFE PHONE USE-TYPE	WORK TO LIFE PHONE USE-TIMING	CONTROL VARIABLES
1.1.1	Behaviour	Call	Work call in free time on work days	no
1.1.2				yes
1.2.1			Work call on non-work days	no
1.2.2				yes
1.3.1		Mobile Email	Work mobile emails in free time on work days	no
1.3.2				yes
1.4.1			Work mobile emails on non-work days	no
1.4.2				yes
2.1.1	Stress	Call	Work call in free time on work days	no
2.1.2				yes
2.2.1			Work call on non-work days	no
2.2.2				yes
2.3.1		Mobile Email	Work mobile emails in free time on work days	no
2.3.2				yes
2.4.1			Work mobile emails on non-work days	no
2.4.2				yes
3.1.1	Time	Call	Work call in free time on work days	no
3.1.2				yes
3.2.1			Work call on non-work days	no
3.2.2				yes
3.3.1		Mobile Email	Work mobile emails in free time on work days	no
3.3.2				yes
3.4.1			Work mobile emails on non-work days	no
3.4.2				yes

Based on the above logics the logistic regression models were fit to the data to explain the predicted odds of different dimensions of negative work-to-life spillover.[21]:

The models are summarized in a structured format in table 5.

Results: Models 1. Behavioural dimension of negative work-to-life spillover

As for the behavioural dimension of negative work-to-life spillover, certain types of mobile use prove to be statistically significant. Although the relationship is definite only for the traditional way of mobile use (mobile calls and SMS writing), the application of control variables confirms it. The estimation results are summarized in Table 6.

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[21] Due to the relatively small sample size it was reasonable to keep the models as simple as possible. In order to have the highest number of observation and to get good-fitted and significant model, each regression model contains only control variables that show relationship in a bivariate regression with the dependent variable. The total set of control variables is the following: overwork, flextime, level of education (4-categorical-variable), gender, number of children, de facto working hours, profession (2-categorical-variable), financial well-being, family status (2-categorical-variable), age, type of station (4-categorical-variable).

Table 5 Results: models 1.1-1.2

Estimating the behavioural dimension of negative work-to-life spillover (frequency of thinking about work-related problems even during non-work time)

Variables	Calls and SMSs			
	in free time on work days		in free time on non-work days	
	Model 1.1.1	Model 1.1.2	Model 1.2.1	Model 1.2.2
	β　　　　　AME	B　　　　　AME	β　　　　　AME	β　　　　　AME
Work-related mobile use in private time	.607**　　　.121 (.024)**	.500**　　　.094 (.026)**	.504**　　　.102 (.025)**	.490**　　　.093 (.026)**
Overwork		.350**　　　.066 (.021)**		.373**　　　.070 (.021)**
Working hours		.015　　　　.003 (.003)		.017　　　　.003 (.003)
Profession[a]		.343　　　　.065 (.046)		.334　　　　.063 (.046)
Type of station　　　Stat2		.675*　　　.139 (.051)*		.693*　　　.143 (.051)*
Stat3		.819*　　　.164 (.058)*		.865*　　　.174 (.058)*
Stat4		.614　　　.127 (.061)*		.660*　　　.137 (.061)*
Constant	-.315	- .427**	-.047	-2.458**

Standard errors are in parentheses
*　p<0.05
**p<0.01
[a] 4-cat. variable

Based on the estimated marginal effects and their standard errors, we can state, that other things being held constant, the effect of work-related mobile calls in free time on work days on perceiving negative behavioural work-to-life spillover at least sometimes (compared to the reference category: 'never') is approximately 12.1%. More precisely, those, who have work-related mobile calls in free-time on work days (e.g. after working hours) more often, perceive negative work-to-life spillover on the level of thoughts with greater chance of 12.1 +/- 4.7%[22]. This average partial effect does not

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[22] In order to construct 95% confidence interval, standard error has to be multiplied by 1.96, that is the approximate value of the 0.975 quantile of the normal distribution. Thus, confidence intervals are calculated with the following

change significantly if we involve control variables into our model, namely, it drops to 9.4 +/- 5.1%, while it turns out, that overwork also has influence on the perception of negative behavioural work-to-life spillover. The average partial effect of mobile calls on non-work days is basically the same in the extended model, 9.3% +/- 5.1%. The 95% confidence interval for the average partial effect of overwork is 2.9-11.2%. Similarly, the type of station has also positive effect. although the AME confidence interval is quite wide for all the categories (the strength of the influence is approximately between 0-28%). (95% confidence intervals for AME and significance levels for the parameter estimates are detailed in Appendix 2).

On the other hand, the relationship between mobile use and the behaviour dimension of negative work-to-life spillover fades away, if we focus only on the email communication (see table 7).

form: AME +- Std. Err. * 1.96

Table 6 Logistic regression estimates of the behavioural dimension of negative work-to-life spillover (frequency of thinking about work-related problems even during non-work time)

Variables	Emails							
	Emails in free time on work days				Emails in free time on non-work days			
	Model 1.3.1		Model 1.3.2		Model 1.4.1		Model 1.4.2	
	β	AME	β	AME	β	AME	β	AME
Work-related mobile use in private time	.318	.062	.085	.015	.565**	.108	.343	.061
		(.035)		(.037)		(.037)**		(.039)
Overwork			.587**	.104			.560**	.099
				(.025)**				(.025)**
Working hours			.008	.001			.009	.002
				(.004)				(.004)
Profession[a]			.667*	.118			.629*	.110
				(.052)*				(.0523)*
Type of station								
Stat2			.798*	.153			.764	.145
				(.063)*				(.064)*
Stat3			.555	.111			.542	.107
				(.079)				(.078)
Stat4			.611	.121			.542	.106
				(.078)				(.079)
Const	.518		-2.209*		.185		-2.474**	

Standard errors are in parentheses
* p<0.05
**p<0.01
[a] 4-cat. variable

Before we interpret the results we have to mention, that the number of observations (respondents who gave valid answers for all the relevant items, including the mobile email use-related questions) is reduced substantially (See Appendix 2). For model 1.1.1, 1.1.2, 1.2.1 and 1.2.2 we had N=477, N=437, N=476, and N=437 respectively, while we have only N=304, 273 and N=304, 273 for model 1.3.1, 1.3.2, and 1.4.1, 1.4.2. This dramatic (more than 36%) fall in the number of observations due to the missing values of the mobile email use items can have influence on the regression results.

The significance level of the parameter estimates show, that the frequency of work-related email communication in free time on work days has no effect on the behavioural dimension of negative work-to-life spillover of thoughts, and even though there is a relationship if we investigate the effect of work-related email communication in free time on non-work days (e.g. on weekends or during holidays) alone, this relationship fades away, if we involve control variables into to the model. The frequency of overwork and profession have significant effects in both regressions.

In case of every regression the overall goodness-of-fit indicators (LR chi-square test, Pearson chi-square and Hosmer-Lemeshow chi-square tests) lead us to conclude, that the expanded models (containing control variables) provide substantially improved fits, and these models in general are valid, they are able to predict the outcome.

To sum up, we can conclude, that we are 95% confident that increasing the frequency of making work-related phone calls also in non-work time from never to seldom or from often to always, increases the chance of thinking about work-related problems even in non-work time at least sometimes (compared to never) with 4-14.5%. In this relationship the frequency of overwork and the type of station play also role. Their effects are positive too, in case of overwork the strength can be expressed by a 2.5-11% interval for the average marginal effect with 95% confidence, while in case of the type of station the same confidence interval varies between the categories, and their estimated values can range from 0 to 28.7%, which let us only conclude, that station has probably effect on the behaviour dimension of negative work-to-life spillover. In case of email communication we cannot see the relationship between mobile use and spillover. Among control variables overwork proves to be significant again, its effect has similar strength as earlier but instead of station of living, profession seems to matter with an approximate 5.2% average marginal effect, that has a 0-22% confidence interval.

Results: Models 2. Stress dimension of negative work-to-life spillover

The levels of significance show the relationship with mobile use also with the stress dimension of negative work-to-life spillover. Without control variables the relationship exists for all the mobile use items, and after involving control variables the relationship

disappears only in case of one item, thus the expanded models confirm the major effect of mobile communication.

The results show (see table 8), that the frequency of work-related calls (and SMSs) in free time on work days increase the possibility of feeling too much stress due to work to enjoy activities at home with approximately 8.5% (or 3.4%-13.5% with a 95% confidence interval). This confidence interval shifts slightly downward (it changes to 2.1-12.1%, see Appendix 2) if we consider the frequency of working overtime, financial well-being and age as control variables, and all the control variables prove to be significant in this relationship. Just like in Models 1.1, the frequency of working overtime has effect, however the effect here is even stronger than the main effect. Overwork increases the possibility of perceiving negative work-to-life spillover in terms of stress with 12% (the 95% confidence interval is 8-16%, see appendix 2). Financial well-being, on the other hand, has negative effect. The less one feels to be in necessity, or the more one feels to have no financial problems, the less one perceives negative work-to-life spillover in terms of stress, and this effect is 10.6% +/- 5.6% in this model. Here age seems also matter, but its effect hardly exceeds 0 (0.4% +/- 0.37% in both regressions).

Table 7 Results: models 2.1-2.2

Estimating the stress dimension of negative work-to-life spillover (frequency of feeling too much stress due to work to enjoy activities at home)

Variables	Calls and SMSs			
	in free time on work days		in free time on non-work days	
	Model 2.1.1	Model 2.1.2	Model 2.2.1	Model 2.2.2
	β AME	β AME	β AME	β AME
Work-related mobile use in private time	.350** .085	.321** .071	.462** .110	.480** .104
	(.026)**	(.026)**	(.025)**	(.024)**
Working overtime		.550** .120		.561** .120
		(.019)**		(.018)**
Financial well-being		-.485** -.106		-.495** -.107
		(.029)**		(.028)**
Age		.020* .004		.021* .005
		(.002)*		(.002)*
Constant	-.594*	-0.883	-.740**	-1.155

Standard errors are in parentheses
* p<0.05
**p<0.01

We get more or less similar results for the mobile email items too (see Table 9), the only difference is, that the involvement of control variables annuls the relationship between the frequency of having work-related emails in free-time on workdays with negative work-to-life spillover. In other words, with 95% confidence we can state, that work-related emails in free time on non-workdays have a slight positive effect on the perception of negative work-to-life stress spillover that can be expressed by a 10.8% +/- 6.5% average marginal effect. Although the extended model unveils, that this relationship is a bit weaker, it does not fade away if we involve the relevant control variables. The opposite is true for work-related e-mails in free time on work days, where the involvement of overwork, financial well-being and age into the model eliminates the main effect, while the control variables prove to be statistically significant in the regression.

Table 8 Results: models 2.3-2.4

Estimating the stress dimension of negative work-to-life spillover (frequency of feeling too much stress due to work to enjoy activities at home)

Variables	Emails			
	Emails in free time on work days		Emails in free time on non-work days	
	Model 2.3.1	Model 2.3.2	Model 2.4.1	Model 2.4.2
	β — AME	β — AME	β — AME	β — AME
Work-related mobile use in private time	.347* — .083 (.036)*	.295 — .062 (.035)	.455** — .108* (.035)**	0.45** — .093 (.034)**
Working overtime		.658** — .136 (.022)**		.646** — .132 (.022)**
Financial well-being		-.485** — -.101 (.036)**		-.526** — -.108 (.036)**
Age		.036** — .008 (.002)**		.0364** — .008 (.012)**
Constant	-.268	-1.379	-.418	-1.461

Standard errors are in parentheses

* p<0.05

**p<0.01

 The reason behind having a relationship with negative work-to-life stress spillover in case of work related email communication in free time on non-work days, but lacking this relationship on workdays probably can be explained by the difference in the nature of these two types of private time. On the one hand, work-related mobile-email-communication is probably more disturbing, and causes more stress, if one spends her holiday or a weekend with her family: thus, the communication happens in a relatively non-stressful context compared to e.g. an evening of an already stressful workday. In the second case the private time is also closer to worktime, so spillover may be not perceived so articulated. On the other hand, colleagues, clients, partners, superiors, employees, etc. disturb one during a dedicated day-off probably rather in case of emergency or with a problematic issue, thus with negative and stressful topics that have not only high priority but also require immediate reaction. The form of communication can account for the lack of relationship too. For the behavioural dimension we have already experienced the difference between calls and emails, which now seems to be more a pattern than an exception. One can perceive a real-time

communication (live talk via phone call) more stressful than a written communication form, where the reactions can be delayed, thus can have time lapse. These are only few possible explanations that cannot be supported by these data, they require future research.

In sum, we can conclude, that work-related mobile communication in private time increases the chance of perceiving negative work-to-life spillover. For example one, who has work-related mobile calls in free time infrequently, feels at least sometimes too much stress due to work to enjoy activities at home approximately with a 5-15% greater chance than those, who do not receive work-related mobile calls in free time at all. If this individual has more overwork, or has a lower standard of financial well-being, this chance grows even further. For work-related emails in free time on non-work days we can phrase similar statements, but the same type of communication on work days has no effect. This exception requires further research, thus it is an issue for the qualitative strand.

Results: Models 3 Time dimension of negative work-to-life spillover

In general we can conclude that unlike in case of behavioural and stress dimensions of negative work-to-life spillover, time dimension does not show relationship with mobile use. For six regressions out of the eight 'time' models we get insignificant parameter estimates for mobile use. (See table 10 and table 11)

Table 9 Results: models 3.1-3.2

Estimating time dimension of negative work-to-life spillover (frequency of events when work prevents one from spending enough time with family/partner)

Variables	Calls and SMSs							
	in free time on work days				in free time on non-work days			
	Model 3.1.1		Model 3.1.2		Model 3.2.1		Model 3.2.2	
	β	AME	β	AME	β	AME	β	AME
Work-related calls in free time on work days	.139	.035	.035	.008	.314**	.077	.282*	.064
		(.027)		(.027)		(.026)**		(.026)*
Working overtime			.561**	.126			.563**	.125
				(.019)**				(.019)**
Family status[a]			.458*	.104			.470*	.105
				(.042)*				(.042)*
Constant	-.216		-2.006**		-.500*		-2.46**	

Standard errors are in parentheses
* p<0.05
**p<0.01
[a] 2-cat. variable

If we investigate the result for the mobile call items, we can see that the frequency of work-related calls and SMSs in free time on work days has no effect on the time dimension of negative work-to life spillover, and this does not changes if we involve the control variables. Overwork and family status (whether one has partner or not) are significant predictive variables in the model, both have positive effect on the dependent variable. For work-related calls in free time on non-workdays however we get different results. The parameter estimates are significant both for the simple and the extended models. Its effect is 7.7% +/- 5.2%. and decreases to 6.4% +/- 5.1%, after we involve overwork and family status into the model. I.e., the more work-related calls one has in free time on non-workdays, the more possibly he perceives it more often, that work prevents him from spending enough time with family/partner. Overwork is highly significant here again, and its effect is 8.9-16%. Considering the phrasing of the questionnaire item, it is not surprising, that here family status matters too, but its effect is smaller than the effect of overtime. One, who lives with partner experiences more frequently, that she has no time enough for family/partner because of work-related commitments with 2.3-18.8% greater chance (see appendix 2).

Table 10 Results: models 3.3-3.4

Estimating time dimension of negative work-to-life spillover based on mobile emails (frequency of events, when work prevents one from spending enough time with family/partner)

Variables	Emails							
	Emails in free time on work days				Emails in free time on non-work days			
	Model 3.3.1		Model 3.3.2		Model 3.4.1		Model 3.4.2	
	β	AME	β	AME	β	AME	β	AME
Work-related calls in free time on work days	.283	.069	.166	.037	.294	.071	.198	.044
		(.036)		(.036)		(.036)*		(.036)
Working overtime			.633**	.138			0.628**	.137
				(.023)**				(.023)**
Family status[a]			.324	.072			.350	.077
				(0.53)				(.053)
Constant	-.199		-1.984**				-2.061**	

Standard errors are in parentheses
* p<0.05
**p<0.01
[a] 2-cat. variable

For the email items we get significant parameter estimates only for overwork (its effect is around 9-18%), thus here again we can conclude, that the traditional mobile communication form (calls and SMSs) is different from mobile emailing from the aspect of negative work-to-life spillover. The pattern is confirmed once again.

Concluding remarks for H1

The relationship between mobile communication and spillover is compound and context-dependent. In general we can say, that there is a relationship, but in order to see it clearly, we have to specify the way and the timing of communication. The behavioural (or mental) dimension of spillover is affected by the traditional mobile use (calls and SMSs), at least if we focus on the work-related use in free time. Stress dimension has also relationship with work-related mobile use in free time (and here mobile emailing seems to play role too). On the other hand, the third spillover dimension (time) lacks this relationship. In other words, one tends to think more about job-related problems also in free time, and feels too stressed to enjoy time at home more frequently, if one has more work-related mobile calls or SMSs in free time. The

strength of the relationships does not change too much, if we take into consideration the frequency of working overtime that is highly influential in this context, profession, type of station, financial well-being, age or family status. Figure 4 visualises the found relationships.

Figure 4 Visualisation of regression results (H1)

Mobile use- NWLS		
models 1.x.y	Estimating behavioral dimension of negative work-to-life spillover (frequency of thinking about work-related problems even during non-work time)	
Work-related calls in free time on work days		X
Work-related calls in free time on non-work days		X
Work-related e-mails in free time on work days		
Work-related e-mails in free time on non-work days		
models 2.x.y	Estimating stress dimension of negative work-to-life spillover (frequency of feeling too much stress due to work to enjoy activities at home)	
Work-related calls in free time on work days		X
Work-related calls in free time on non-work days		X
Work-related e-mails in free time on work days		
Work-related e-mails in free time on non-work days		X
models 3.x.y	Estimating time dimension of negative work-to-life spillover (frequency of events when work prevents one from spending enough time with family/partner)	
Work-related calls in free time on work days		
Work-related calls in free time on non-work days		
Work-related e-mails in free time on work days		
Work-related e-mails in free time on non-work days		

X indicates strong relationship between the variables

Our finding, that the work-related mobile use in free time does not affect spillover in terms of time, is quite surprising. On the contrary of one might expect, the possibility of being available for work purposes also during free time with the help of mobile technology does not reduce disposable private time noticeably. Thus, time is not the main dimension here, but thoughts and emotions.

As for the stress and behavioural dimensions, the results are more or less consistent. While work-related calls and SMSs in free time have an effect on negative spillover, work-related mobile e-mailing in free time in general does not influence these dimensions of spillover, and this lack of relationship applies also for the time dimension. The question arises why e-mailing is different from phone calls. The answer can lay in the difference in the nature of communication. While phone calls are

real-time interactions, and require immediate responses, preparedness and concentration, e-mail correspondence can stretch over time, responses can be delayed. Thus, the two types of communications direct thoughts differently. On the other hand, an incoming mobile phone call can be more imperative than an incoming e-mail, which is usually not indicated by the mobile devices. Although mobile emails can be ignored more easily, they have relationship with work-related stress. The content of the communication can provide explanation too. Urgent job-related issues, that require immediate reactions and that can be stressful for the individual are more probably communicated over phone calls that provide real-time feedback. The more easily ignorable emails can differ thus in their contents too. The different effect of mobile calls (SMSs) and emails on the perception of negative work-to-life spillover requires more investigation in the qualitative strand.

It is also of high contrast, that one type of mobile communication has a robust effect on negative work-to-life spillover, that is apparent in all the three dimensions, and that does not fade away after involving control variables. This is the effect of 'work-related calls in free time on non-workdays, thus during weekends or on holidays. Here the explanation can be provided by the different categories of private time. A weekend or a holiday is more separate from the work days, than an evening of a normal weekday. Moreover, on a day-off different routines, expectations, mental states can characterise the individual. Cultural evaluations can also stand in the background. The flexibility of working time (the changing starting and ending points of work) can be more usual, accepted, and the work-related mobile communication, that exceeds the physical and temporal barriers of work domain can lead to less perceived spillover, while the respect of holiday and weekends can be more expected, and the border-crossing communication here matter more from the aspect of spillover.

Among control variables 'working overtime' proves to be influential in case of all the three dimensions of negative work-to-life spillover, the results show highly significant relationship everywhere (even with 99% confidence), and the strength of the relationship proved to be almost as strong or sometimes even stronger as the main effect. As for the other control variables that are taken into consideration, different models resulted different significant associations. Type of station, profession, financial well-being, age, and family status all prove to be significant in some models, but not in

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all of them. Besides overwork, the spillover of work-related thoughts seems to be influenced by type of station and profession, the stress dimension of negative work-to-life spillover is affected by financial well-being and age, while the level of education, gender and the number of children surprisingly do not have role in any of the models. Two control variables, that we would consider as the most important ones from the aspect of the dependent variable, namely gender and number of children do not have relationship with work-to-life spillover at all, so they are not involved in either regression models.

In connection with H1 based on the quantitative data we have thus the following unanswered questions, that are topics of the qualitative strand: Why do work-related calls on non-work days matter more from the aspect of negative work-to-life spillover than the same type of communication on workdays? What is the difference between mobile calls, SMSs and e-mails from the aspect of negative work-to-life spillover? Does our explanation based on the different natures of communication hold on, or do we have to focus on the content, if we want to make clear the relationship?

5.2.4.2 H2: The higher the frequeny of mobile phone usage is at work for private purposes, the more she perceives positive life-to-work spillover.

Model building

Positive work-to-life spillover is measured by three items, representing two affective dimensions, one in terms of success (frequency when home successes contribute to work performance), the other in terms of positive feelings (frequency when positive feelings at home affect the way you feel at work). The third dimension is the instrumental / skill transfer dimension (frequency of utilizing those capabilities at work, what you have learnt at home).

The analysis combines these spillover items as dependent variables with the two relevant mobile use-related independent variables resulting 6 regressions.

Table 11 Definition of regression modes to test Hypothesis 2

	POSITIVE LIFE-TO-WORK SPILLOVER DIMENSION	LIFE TO WORK PHONE USE-TYPE	LIFE-TO-WORK PHONE USE- TIMING	CONTROL VARIABLES
4.1.1	Affective 1 (success)	Call	Private call during working hours	Yes
4.1.2				No
4.2.1		Mobile Email	Private emails during working hours	Yes
4.2.2				No
5.1.1	Instrumental	Call	Private call during working hours	Yes
5.1.2				No
5.2.1		Mobile Email	Private emails during working hours	Yes
5.2.2				No
6.1.1	Affective 2 (positive feeling)	Call	Private call during working hours	Yes
6.1.2				No
6.2.1		Mobile Email	Private emails during working hours	Yes
6.2.2				No

Results: Model 4.1-6.2.

The significance levels of the parameter estimates show, that the frequency of private mobile call communication in work time affects all the three dimensions of the positive life-to-work spillover, while email communication does not. Here however we have to interpret the result with caution. As we have experienced it earlier with mobile emailing items, the missing values reduce the numbers of observations significantly, they hardly reach 300. Second, we lack control variables for both affective dimensions of spillover, and even tough we can apply one control variable (flextime) for the instrumental dimension, it does not prove to be significant in the model, and its involvement results in a decrease in goodness of fit, and for model 5.2.2 also in the violation of the Hosmer-Lemeshow and Pearson chi-square tes (see appendix 3).

In more details we have the following findings: The relationship between private calls in work time and the first affective (success) dimension of positive life-to-work spillover proves to be weak, the average marginal effect is 4.7% +- 4.1%with 95% confidence (see table 14). Although here we get convincing significance for the

parameter estimates, the model fitting indicators are not convincing about the validity of the models (see appendix 3).

Table 12 Results: models 4.1-4.2

Estimating affective dimension Nr 1 of positive life-to-work spillover (frequency when home successes contribute to work performance)

Variables	Calls and SMSs		Emails	
	Model 4.1.1		Model 4.2.1	
	β	AME	β	AME
Private mobile use in work time	.927**	.047	.218	.008
		(.021)**		(.018)
Const	1.249		2.858	

Standard errors are in parentheses
* p<0.05
**p<0.01

For the relationship between the frequency of private calls in work time and the instrumental dimension of positive life-to-work spillover we get highly significant parameter estimates in the simplified model. Thus, we can state, that the more private calls one has in work time, the more one will perceive that he can utilize skills acquired at work also at home. The increase in the possibility of more frequent perception is 14.5 +/- 5% (see Table 15). Here the extended model does not contain added value for us, because the involved control variable does not change the main effect, it has no significant relationship with the dependent variable, and the goodness of fit is violated too. For the email-related independent variable we observe insignificant parameter estimates again, and poor goodness-of-fit indicators for the expanded model (see Appendix 3).

Table 13 Results: models 5.1-5.2

Estimating the instrumental/ skill transfer dimension of positive life-to-work spillover (frequency of utilizing those capabilities at work, what you have learnt at home)

Variables	Calls and SMSs				Emails			
	Model 5.1.1		Model 5.1.2		Model 5.2.1		Model 5.2.2	
	β	AME	B	AME	β	AME	β	AME
Private mobile use in work time	1.204**	.145	1.139**	.136	.625	.057	.611	.056
		(.026)**		(.027)**		(.034)		(.035)
Flexible worktime			.173	.020			.031	.003
				(.019)				(.017)
Constant	-.472		-6.24		1.342*		1.306	

Standard errors are in parentheses
* p<0.05
**p<0.01

If we investigate the other affective dimension of positive life-to-work spillover (spillover of positive feelings), we get similar results (see Table 16). The frequency of private calls in work time influences the possibility of perceiving the spillover of positive feelings from home to work more frequently with 4.8% +/- 4.2%, thus the confidence interval is between 0.6% and 9%. This indicates a weak relationship, however the significance level and the model fitting indicators show valid association between the two variables. For private emailing in work time we get p=0.537, i.e., it has no relationship with the dependent variable.

Table 14 Results: models 6.1-6.2

Estimating affective dimension Nr2 of positive life-to-work spillover (frequency when positive feelings at home affect the way you feel at work)

Variables	Calls and SMSs		Emails	
	Model 6.1.1		Model 6.2.1	
	B	AME	β	AME
Work-related calls in free time on work days	1.034**	.048	.349	.010
		(.021)**		(.016)
Constant	1.182		3.053**	

Standard errors are in parentheses
* p<0.05
** p<0.01

Concluding remarks for H2

We can conclude that the frequency of private calls in worktime influences positive life-to-work spillover in general. In case of the affective dimensions (spillover of success and spillover of positive feelings) this relationship is weak, 0-9% but for the instrumental dimension (spillover of skills) the effect is relatively strong, 10-20%. The lacking relationship between the dependent variables and the control variables makes us impossible to build highly valid models, but in case of the bivariate regressions Pearson chi-square test and Hosmer-Lemeshow indicator give us alert about bad model fitting only for life-to-work spillover of success. Figure 5 visualises the found relationships.

Figure 5 Visualisation of regression results (H2)

Mobile use- PLWS		
models 4.x.y	Estimating affective dimension nr1 of positive life-to-work spillover (frequency when home successes contribute to work performance)	
Private calls in work time		
Private e-mails in work time		
models 5.x.y	Estimating instrumental/ skill transfer dimension of positive life-to-work spillover (frequency of utilizing those capabilities at work, what you have learnt at home)	
Private calls in work time		X
Private e-mails in work time		
models 6.x.y	Estimating affective dimension nr2 of positive life-to-work spillover (frequency when positive feelings at home affect the way you feel at work)	
Private calls in work time		
Private e-mails in work time		

X indicates strong relationship between the variables

Here again we get supporting evidence for the already observed pattern: mobile calls/SMSs, thus the 'traditional form' of mobile communication is different from mobile emailing from the aspect of spillover. While the traditional mobile use seems to facilitate the spillover of thoughts and stress from work to life, it also influences the spillover of positive feelings, success and skills from life to work. Mobile emailing on the contrary has generally no effect on the same types of spillover (the only exception is the spillover of stress).

5.2.4.3 H3 The higher the frequeny of mobile phone usage is at home for work-related purposes, the more she perceives positive work-to-life spillover

While the effect of mobile phone use on negative work-to-life spillover and positive life-to-work spillover seems to be self-evident, there are two other types of spillover, where the possibility of relationship still prevails, thus that are worth for us to analyse.

Model building

Positive work-to-life spillover is measured by three items, representing two affective and one instrumental dimension similarly to positive life-to-work spillover items. Now the analysis will unveil the relationship between work-related phone use in free time and three dependent variables, the frequency of getting on better at home due to work-

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related success and (affective dimension number 1), the frequency of utilizing the skills at home that have been acquired at the workplace (instrumental dimension) and the frequency when positive feelings at work affect the way one feels at home (affective dimension number 2).

Table 15 Definition of regression modes to test Hypothesis 3

	POSITIVE WORK-TO LIFE SPILLOVER DIMENSION	WORK TO LIFE PHONE USE-TYPE	WORK TO LIFE PHONE USE-TIMING	CONTROL VARIABLES
7.1.1	Affective 1	Call	Work call in free time on work days	Yes
7.1.2				No
7.2.1			Work call on non-work days	Yes
7.2.2				No
7.3.1		Mobile Email	Work mobile emails in free time on work days	Yes
7.3.2				No
7.4.1			Work mobile emails on non-work days	Yes
7.4.2				No
8.1.1	Instrumental	Call	Work call in free time on work days	Yes
8.1.2				No
8.2.1			Work call on non-work days	Yes
8.2.2				No
8.3.1		Mobile Email	Work mobile emails in free time on work days	Yes
8.3.2				No
8.4.1			Work mobile emails on non-work days	Yes
8.4.2				No
9.1.1	Affective 2	Call	Work call in free time on work days	Yes
9.1.2				No
9.2.1			Work call on non-work days	Yes
9.2.2				No
9.3.1		Mobile Email	Work mobile emails in free time on work days	Yes
9.3.2				No
9.4.1			Work mobile emails on non-work days	Yes
9.4.2				No

Results: Model 7.1-7.2 Affective dimension number 1 of positive work-to-life spillover

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The significance levels of the parameter estimates show, that the frequency of work-related mobile call communication in private time affects the first affective dimension of positive work-to-life spillover, thus the spillover of success the most apparently. The frequency of work-related mobile calls is significant predictor for this type of spillover in free time on workday and on non-workdays alike. The frequency of work-related mobile emails does not have influence on the dependent variable, thus here we experience the division between calls and emails again. In the other two dimensions mobile communication seems to have even less effect, only work-related calls on non-work days has a statistically significant relationship with the dependent variable. At this point we can phrase a second pattern in our data: this certain type of mobile use, thus private calls/SMSs in free time on non-work days has a specific and general effect on work-to-life spillover. Additionally, the division between traditional mobile use in free time on workdays and non-workdays from the aspect of spillover becomes more articulate at this point too.

Table 16 Results: models 7.1-7.2

Estimating affective dimension Nr 1 of positive work-to-life spillover (frequency when work successes contribute to home performance)

Variables	Calls and SMSs							
	in free time on work days				in free time on non-work days			
	Model 7.1.1		Model 7.1.2		Model 7.2.1		Model 7.2.2	
	β	AME	B	AME	β	AME	β	AME
Work-related mobile use in private time	.681**	.053	.671*	.048	.784**	.061	.712*	.051
		(.020)**		(.021)*		(.023)**		(.022)
Flextime			.317	.022			.318	.022
				(.018)				(.018)
Profession[a]			.863	.063			.916*	.067
				(.036)				(.037)*
Number of children			-.370*	-.260			-.381*	-.027
				(.011)*				(.011)*
Const	1.179**		.351		1.134**		.351	

Standard errors are in parentheses
* p<0.05
**p<0.01
[a] 2-cat. variable

The coefficients show (see table 19.), that the more work-related calls one has in free time on work days, the higher the probability is, that he will perceive positive work-to-life spillover in terms of success, and the power of the relationship can be described with a 5.3% +/- 4% average marginal effect, thus increasing the frequency of work related calls in free time on work days with one category results in a 1-9% increase in the perception of spillover with a 95% confidence interval (see Appendix 4). Involving control variables does not change this effect too much (AME decreases imperceptibly to 0.8-8.8%), however number of children seemed to have also effect, namely in a negative direction, thus the more children one has, the less this success-related positive work-to-life spillover seems to prevail, the decrease in the probability of perceiving spillover is 2.6% +/- 2.2%. If we investigate the relationship between work-related calls on non-workdays and the same dependent variable, we get similar confidence interval for the bivariate regression (1.7-10.6%) and for the extended model too (0.8-9.5%). Number of children proves to be significant again, with the same confidence interval for AME (-2.6% +/- 2.2%). In this model the regression coefficient (β) for profession proves to be also significant, but for the average marginal effect we get p >0.05, and the confidence interval for AME covers zero (-0.5%- 13.9%), thus the interpretation of this effect has limitation (see Appendix 4).

Results: Model 7.3-7.4 Affective dimension number 1 of positive work-to-life spillover

In case of the mobile emailing independent variables we lack the definite relationship again. Although the regression coefficients are significant for work-related emails on non-work days in both the bivariate and the expanded models, the standard errors are so big, that we do not get significant coefficient results for the average marginal effect. (The confidence intervals cross zero, so the regression analysis does not allow us to describe the relationship between the two variables. See table 20).

Table 17 Results: models 7.3-7.4

Estimating affective dimension number 1 of positive work-to-life spillover (frequency when work successes contribute to performance at home)

Variables	Emails							
	Emails in free time on work days				**Emails in free time on non-work days**			
	Model 7.3.1		Model 7.3.2		Model 7.4.1		Model 7.4.2	
	β	AME	β	AME	β	AME	β	AME
Work-related mobile use in private time	0.661	.051 (.032)	1.154	.085 (.050)	1.293*	.105 (.054)	1.858*	.145 (.083)
Flextime			.231	.016 (.018)			.199	.013 (.018)
Profession[a]			.598	.041 (.037)			.561	.038 (.036)
Number of children			-.291	-.020 (.013)			-.293	-.020 (.013)
Const	1.529		.376		.801		.264	

Standard errors are in parentheses
* p<0.05
**p<0.01
[a] 2-categoric variable

To sum up the regression results for models 7.x.y, we can say, that to some extent, work-related calls in private time have effect not only on the perception of negative, but also on positive work-to-life spillover, at least if we take the spillover of success into consideration, although we find, that this relationship is less powerful (0.8-9%), and is influenced by the number of children negatively. The effect of traditional mobile communication at this point proves to be more complicated than we expected: on one hand, it can have negative consequences from the aspect of work-to-life spillover, since it can facilitate the spillover of stress and thoughts, but the same time there is a possibility for positive impact too, because traditional mobile communication facilitates spillover of the feeling of success too from the work dimension to the private life. On the other hand, mobile emailing proves to be ineffective again.

Results: Model 8.1-8.4 Instrumental dimension of positive work-to-life spillover

For the instrumental dimension of positive work-to-life spillover we can observe only a weak relationship between work-related calls on non-workdays and the dependent variable. In the expanded model we find, that the flexibility of working hours has an effect too, and this effect is even higher, than the main effect of mobile use. As table 21. shows, the average marginal effect of the frequency of work-related calls on non-workdays on the frequency of perceiving the utilization of skills at work that one acquired at home is 8.1% +/- 4.8%. This decreases to 5.5% +/- 5.2% if we involve worktime flexibility also into the model, that has 1.8%-10.8% (see Appendix 4) effect on the instrumental dimension of positive work-to-life spillover if we keep all the other factors unchanged.

Table 18 Results: models 8.1-8.2

Estimating instrumental dimension of positive work-to-life spillover (frequency when you can utilize skills at work, that you have acquired at home)

Variables	Calls and SMSs							
	in free time on work days				in free time on non-work days			
	Model 8.1.1		Model 8.1.2		Model 8.2.1		Model 8.2.2	
	β	AME	β	AME	β	AME	β	AME
Work-related mobile use in private time	.264	.046	.920	.016	.473**	.081	.326*	.055
		(.024)		(.025)		(.025)**		(.027)*
Flexible working hours			.438**	.074			.373*	.063
				(.023)**				(.023)*
Constant	-.725		0.347		.418		0.068	

Standard errors are in parentheses
* p<0.05
**p<0.01

Not surprisingly emailing items lack the relationship again (see table 22), thus in the instrumental dimension of positive work-to-life dimension we get significant

parameter estimates only for traditional mobile communication in free time on non-workdays, so the traditional vs. internet based mobile use division pattern continues.

Table 19 Results: models 8.3-8.4

Estimating instrumental dimension of positive work-to-life spillover (Frequency when you can utilize skills at work, that you have acquired at home)

Variables	Emails							
	Emails in free time on work days				Emails in free time on non-work days			
	Model 8.3.1		Model 8.3.2		Model 8.4.1		Model 8.4.2	
	B	AME	B	AME	B	AME	β	AME
Work-related mobile use in private time	.186	.030	.073	.012	.055	.009	-.066	-.011
		(.032)*		(.034)		(.030)		(.032)
Flexible working hours			.257	.042			.289	.047
				(.024)				(.024)
Constant	1.073		0.779		1.262		0.924	

Standard errors are in parentheses

* p<0.05

**p<0.01

In sum we can conclude, that skill transfer, as a type of positive work-to-life spillover does not seem to correlate with mobile use in general. Only work-related mobile calls on non-workdays have influence on the dependent variable, but the power of the effect is quite weak (0.3-10%). The expanded model shows, that flextime also plays role in the association, its effect is similar to the main effect, 1.8-10.8%.

Results: Model 9.1-9.4 Affective dimension number 2 of positive work-to-life spillover

Spillover in terms of positive feeling is more or less also independent from mobile communication. In harmony with our former result we can observe relationship only between the frequency of work-related mobile calls/SMSs use in free time on non-work days and the dependent variable, thus with perceiving the spillover of positive feelings from work to private life (see table 23 and 24). The strength of the relationship can be expressed by a confidence interval for AME, that hardly exceeds zero (4.5% +/-4.1%, see Appendix 4) that basically does not change, if we involve family status also into the model. The fact, that one has a partner (compared to a single reference group),

increases the possibility of perceiving positive work-to-life spillover in terms of positive feelings with 0-10%. This confidence interval is close to zero again.

Table 20 Results: models 9.1-9.2

Estimating affective dimension number 2 of positive work-to-life spillover (frequency when positive feelings at work affect the way one feels at home)

Variables	Calls and SMSs							
	in free time on work days				in free time on non-work days			
	Model 9.1.1		Model 9.1.2		Model 9.2.1		Model 9.2.2	
	β	AME	β	AME	β	AME	β	AME
Work-related calls in free time on work days	.510	.026	.549	.027	.855*	.045	.900*	.047
		(.015)		(.016)		(.021)*		(.021)*
Family status[a]			.924*	.049			.960*	.050
				(.025)*				(.025)*
Constant	1.969**		.466		1.539		-.023	

Standard errors are in parentheses
* p<0.05
**p<0.01
[a] 2-cat. variable

Table 21 Results: models 9.3-9.4

Estimating affective dimension number 2 of positive work-to-life spillover (frequency when positive feelings at work affect the way one feels at home)

Variables	Emails							
	Emails in free time on work days				Emails in free time on non-work days			
	Model 9.3.1		Model 9.3.2		Model 9.4.1		Model 9.4.2	
	β	AME	β	AME	β	AME	β	AME
Work-related calls in free time on work days	.996	.046	1.063	.049	.188	.008	.234	.010
		(.037)		(.038)		(.017)		(.017)
Family status[a]			.736	.032			.701	.031
				(.027)				(-.027)
Constant	1.794		.557		2.813		1.647	

Standard errors are in parentheses
* p<0.05
**p<0.01
[a] 2-cat. variable

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Concluding remarks for H3

The quantitative results about the relationship between mobile communication and positive work-to-life spillover seem to be less convincing than the results about negative work-to-life spillover, however we cannot state, that there is no causality. Surprisingly, if we focus only on the spillover of success, the association is quite definite, mainly if we talk about work-related mobile calls. This means, that positive and negative spillovers are influenced by the same type of mobile use, although the strength of the two effects are not the same. While the frequency of work-related mobile calls has approximately 5-15% -average marginal effect on negative work-to-life spillover, and the influence shows up in all the three dimensions to some extent, the frequency of work-related mobile calls has only approximately 1-10% average marginal effect on positive work-to-life spillover, and the influence is apparent only in case one dimension (spillover of success). A question for future research arises, why the relationship of mobile calls with negative spillovers is stronger and more palpable, why are the positive consequences more restricted (out of the twelve expanded models we find the relationship between mobile use and spillover in four cases for positive and six cases for negative work-to-life spillover). Figure 6 visualises the found relationships.

Figure 6 Visualisation of regression results (H3)

Mobile use- PWLS		
models 7.x.y	Estimating affective dimension nr1 of positive work-to-life spillover (frequency when home successes contribute to work performance)	
Work-related calls in free time on work days		X
Work-related calls on non-work days		X
Work-related e-mails in free time on work days		
Work-related e-mailson non-work days		
models 8.x.y	Estimating instrumental dimension of positivework-to-life spillover (skill transfer) (frequency of you can utilize those capabilities at work, what you have learnt at home	
Work-related calls in free time on work days		
Work-related calls on non-work days		X
Work-related e-mails in free time on work days		
Work-related e-mailson non-work days		
models 9.x.y	Estimating affective dimension nr2 of positive work-to-life spillover (frequency when positive feelings at home affect the way you feel at work)	
Work-related calls in free time on work days		
Work-related calls on non-work days		X
Work-related e-mails in free time on work days		
Work-related e-mailson non-work days		

X indicates strong relationship between the variables

The results, on the other hand, confirm what we have already observed: there is a general difference between workday and non-workday communication, and the role of mobile calls is much perceivable, than the role of mobile emails. Additionally, we get confirmation, that there is a general and palpable effect of work-related calls on non-workdays on spillovers again. The reasons behind the outstanding role of this certain type of mobile use from the aspect of spillover however does not turn out of our data, but requires further research. Another question also arises, namely why the influence of work-related mobile calls in private time on the perception of negative spillover is more powerful and extensive (covering more dimensions) than on the perception of positive spillover? This can be an issue for future research.

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5.2.4.4 H4: The higher the frequeny of mobile phone usage is at work for private purposes, the more he perceives negative life-to-work spillover.

The last spillover-related hypothesis is about the life-to-work directed negative consequences of private phone use in worktime. The results show, that the private calls on workdays do not enforce the spillover of negative thoughts, stress and time consumption from the life domain to work. In other words, based on these data we can state, that companies, that allow private calls during work time do not have to worry about negative life-to-work spillovers more, since our data provide evidence, that there is no relationship between these two phenomena. On the contrary, the relationship does exist in case of mobile email use. The more private emails one has during work time, the more she will perceive negative life-to-work spillover in terms of time and behaviour. This hypothesis is the only one, where the results do not show relationship with the call items, but show definite relationship with the email items.

Model building

Similarly to negative work-to-life spillover, negative life-to-work spillover is also measured by three items, representing a behavioural dimension (thinking about family-related problems even during worktime), a stress dimension (feeling too much stress due to family-related problems even at the workplace) and time dimension (family commitments prevent one from dedicating enough time to the job). I.e., the dimensions of negative spillover are phrased in the same way, but they express the opposite directions. The analysis combines these spillover items as dependent variables with the two mobile use-related independent variables resulting in six regressions that can be described by the following equations:

Table 22 Definition of regression modes to test Hypothesis 4

	NEGATIVE LIFE-TO-WORK SPILLOVER DIMENSION	LIFE TO WORK PHONE USE-TYPE	LIFE-TO-WORK PHONE USE-TIMING	CONTROL VARIABLES
10.1.1	Behavioural	Call	Private call during working hours	Yes
10.1.2				No
10.2.1		Mobile Email	Private emails during working hours	Yes
10.2.2				No
11.1.1	Stress	Call	Private call during working hours	Yes
11.1.2				No
11.2.1		Mobile Email	Private emails during working hours	Yes
11.2.2				No
12.1.1	Time	Call	Private call during working hours	Yes
12.1.2				No
12.2.1		Mobile Email	Private emails during working hours	Yes
12.2.2				No

Results: Models 10.1-10.2 Stress dimension of negative life-to-work spillover

Interpreting the regression outcomes of models 10.x.y is quite simple, since the significance levels for the mobile communication items never reach the selected cut-off value. Although in the expanded models the control variables shows a relationship with the dependent variables (doing overwork, professional and financial well-being all prove to be significant in model 10.1, and profession proves to be significant in model 10.2- see table 27. and Appendix 5), their involvement does not change the insignificant main effect of the frequency of private mobile use in worktime.

Table 23 Results: models 10.1-10.2

Estimating the stress dimension of negative life-to-work spillover (frequency of feeling stressed because of family-related problems even at your workplace)

Variables	Calls and SMSs				Emails			
	Model 10.1.1		Model 10.1.2		Model 10.2.1		Model 10.2.2	
	B	AME	β	AME	β	AME	β	AME
Private mobile use in work time	0.168	.036	.237	.047	.301	.620	.329	.064
		(.029)		(.028)		(.033)		(.034)
Doing overwork			.412**	.081			.232	.045
				(.019)**				(.025)
Profession[a]			-.601*	-.117			-.594*	-.115
				(.043)**				(.052)*
Financial well-being			-.397**	-.078			-.263	-.052
				(.028)**				(.036)
Const	-1.154**		-.069		-1.336		-.179	

Standard errors are in parentheses

[a] 2-cat. Variable

* p<0.05

**p<0.01

Results: Models 11.1-11.2 Time dimension of negative life-to-work spillover

As table 28 shows, although mobile calls do not affect the time dimension of negative life-to-work spillover, sending and receiving more private emails on a mobile phone in worktime increases the possibility of feeling more frequently that family commitments prevent one from dedicating enough time to work. This increase is 8.4% +/- 5.4%, and decreases to 7% +/- 6%, if we extend the model, and take the effects of overwork and flextime work into consideration (although they are not significant predicting variables.

Table 24 Results: models 11.1-11.2

Estimating time dimension of negative life-to-work spillover (frequency when family commitments prevent you from dedicate time enough to your job)

Variables	Calls and SMSs				Emails			
	Model 5.1.1		Model 5.1.2		Model 5.2.1		Model 5.2.2	
	B	AME	β	AME	β	AME	β	AME
Private mobile use in work time	.164	.026	.019	.003	.498**	.084	.420*	.070
		(.025)		(.027)		(.028)**		(.031)*
Doing overwork			0.253*	.040			.100	.017
				(.018)*				(.024)
Flexible working hours			.201	.032			.114	.019
				(.019)				(.023)
Constant	-1.704**		-2.354**		-2.016		-2.349**	

Standard errors are in parentheses
* p<0.05
**p<0.01

Results: Models 12.1-12.2 Behavioural dimension of negative life-to-work spillover

We can make a similar observation for the behavioural dimension of negative life-to-work spillover, thus for the spillover of thoughts. While it seems to be independent from the frequency of mobile calls, mobile emailing proves to be influential. Based on the data we can state, that the relationship is even more powerful, the average marginal effect is 10.9% +/- 7.2%, that slightly increases in the extended model to 11.6% +/- 7.3% (see table 29). It also turns out, that doing more overwork does not change the possibility of perceiving negative life-to-work spillover in terms of thinking, while having a white collar or a blue collar profession does count. From the confidence interval of average marginal effect by profession we can see, that in this context having a white collar job (compared to blue collar professionals) decreases the possibility of perceiving negative life-to-work spillover with 4.7%- 24.3% (see Appendix 5).

Table 25 Results: models 12.1-12.2

Estimating behavioural dimension of negative life-to-work spillover (frequency of dealing with family problems even when you are working)

Variables	Calls and SMSs				Emails			
	Model 12.1.1		Model 12.1.2		Model 12.2.1		Model 12.2.2	
	β	AME	β	AME	β	AME	β	AME
Private mobile use in work time	.180	.045	.235	.055	.458**	.109	.504**	.116
		(.031)		(.031)		(.037)**		(.037)**
Doing overwork			.361**	.085			.208	.049
				(.021)**				(.028)
Profession[a]			-.604**	-.140			-.634**	-.145
				(.042)**				(.050)**
Constant	-.311		-.404		-.550		-.194	

Standard errors are in parentheses

[a] 2-cat. variable

* p<0.05

**p<0.01

Concluding remarks for H4

In sum, different rules apply for negative work-to-life and life-to-work spillover, i.e., they are facilitated differently by the different forms of mobile communication. Although we distinguished the same dimensions and used similar items to measure negative spillovers in both directions, the results are not alike. While in case of negative work-to-life spillover, the time dimension is the one that seems to be independent from mobile use, mainly from mobile emailing, in the case of negative life-to-work spillover stress dimension is the one that lacks the relationship. In other words, work-related mobile use (mainly emailing) does not consume family time significantly, or in a disturbing amount, while private emails can violate worktime significantly. On the other hand, family-related stress does not emerge in the workplace due to a more frequent private mobile use, while mobile communication fosters people to feel work-related stress also at home that can prevent them from enjoying private time. We can imagine possible explanations for these differences: Probably people respect worktime more strictly compared to private time when it is

about mobile communication, thus, due to mobile communication stress and actions can cross the border into one direction more easily than into the other. Using Clark's expression, the permeability of the domain border is not the same on the two sides in terms of emotions and action. The general characteristics of the two domains can also provide an explanation. Work can be more stressful and can require higher time efficiency and greater mental drain compared to family life that can explain the different effect of mobile communication on the different types of spillover. These explanations are however hypothetical, these data cannot support or undermine them.

The findings also show that while in case of positive life-to-work spillover mobile calls play role exclusively; in case of negative life-to-work spillover only mobile emailing is effective, mobile calls are not influential. Thus, if we investigate life-to-work direction, we can state, that positive spillovers are facilitated by mobile calls, while negative spillovers are fostered by mobile emails. Here again we can suspect, that the main difference between these two types of communications sources from the different contents. Figure 7 visualises the found relationships.

Figure 7 Visualisation of regression results (H4)

Mobile use- NLWS	
models 10.x.y	Estimating stress dimension of negative life-to-work spillover (frequency of feeling stressed because of family-related problems even at your workplace)
Private calls in work time	
Private e-mails in work time	
models 11.x.y	Estimating time dimension of negative life-to-work spillover (family commitments prevent you from dedicate time enough to your job)
Private calls in work time	
Private e-mails in work time	X
models 12.x.y	Estimating behavioral dimension of negative life-to-work spillover (frequency of dealing with family problems even when you are working)
Private calls in work time	
Private e-mails in work time	X

X indicates strong relationship between the variables

Concluding remarks for the quantitative strand

Based on the data we have five lessons about the relationship between mobile communication and work-life spillover. First of all, the results show that the relationship between mobile use and spillover is very complex that requires carefully selected analytical methods. If we apply data reduction techniques to contract mobile use items into scales or principal components, we cannot get a clear picture. If we discard the topic and the timing of mobile use, we find no cause-effect relationship. The same happens, if we do not consider the direction and the dimension of spillover. In other words, we cannot state in general, that more frequent mobile use generates a greater level of perceived spillover. In order to find connection between these two phenomena, we have to focus on the relevant types of usage, and the correctly directed spillover.

Second we find, that also with detailed and well-designed analytics we can observe a basic inconsistency in the data: there are huge differences between the two basic forms of usage: traditional use (calls, SMSs) and emailing. Negative spillover of thoughts and stress, positive spillover of success from work domain to private life are in association with work-to-life directed traditional mobile use (calls/SMS.), but not with work-to-life directed mobile emailing. Thus, the general finding of e.g. Chesley (2005), that persistent use of communication technology is associated with negative work-to-life spillover was confirmed, but not for all the types of technology uses. The quantitative analysis does not explain this difference, however we can imagine some suppositions. One reason can be cultural: emails can be ignored more freely, and the nature of email communication involves a time shift by default. A call, on the contrary is more imperative, it is a more urgent form of contacting thus it allows thoughts, feelings, skills and activities to cross the border between the two domains to a greater extent. Another reason can be content-related: different work- and family-related contents can have different communicational formats. The life-to-work directed positive spillover regressions came to similar conclusion. While the traditional mobile use seems to facilitate the spillover of positive feelings, success and skills from life to work, mobile emailing has generally no effect. Thus, maintaining a distance from work and strengthening kin and informal relationships, managing tasks that fall outside official working hours (Wajcman et al., 2008) are facilitated more by traditional

mobile use, mobile calls, and SMSs, and mobile emailing has no role.

This discrepancy can be observed for negative life-to-work spillover too, but with a different sign: in the case of negative life-to-work spillover only mobile emailing is effective, mobile calls are not influential. Thus, we confirmed that life-to-work spillover is experienced through mobile phones when they are used in family-related matters (Tennakoon, 2007), with the extra constraint, that the perception of negative life-to-work spillover is facilitated only with mobile emailing, and mobile calls are not effective. This pattern cannot be explained exclusively by these data, thus gaining a deeper understanding requires further investigation during the second strand.

The database involves data also about the family-related topics that are discussed through mobile phone (through calls, SMSs and emails without specification). Here we find, that people (N=643) tend to use their mobile phone more often to maintain family relationship e.g. to arrange family meetings (87% at least sometimes) to find out where other family members are (85% at least sometimes), to inform them about home arrival (81% at least sometimes), or to keep in touch with old relatives (66% at least sometimes, see Appendix 6). On the other hand, people tend to use their mobile phone less often related to outsourced family works, like talking with the babysitter, cleaning woman (88% never, that can also indicate the scarcity of paying for such services), to arrange maintenance services related to car or house (49% never, 42% sometimes), or to arrange children's preschool, school (60% never). Going for children and bringing them home (64% never) or going for shopping (47% never) are among the least communicated topics via mobile phone too. I.e., some topics are more dominant from the aspect of mobile communication than others. Although we can conclude, that topic does matter to some extent, we cannot unveil the details only based on the quantitative dataset. The second research strand can help in seeing the difference between mobile emailing and traditional mobile use, and in seeing the difference compared to work-related topics.

We have to mention also here, that mobile emailing is less prevalent compared to mobile phone calls and SMSs. Those, who use smart phones and have a mobile internet subscription are different from those, who do not possess this opportunity by default. The data show, that while we cannot find a difference between the non—

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mobile-internet users (N=160) and our total sample (N=464) in gender, family status (living alone or with partner) and financial well-being, we can find difference in the frequency of doing overwork, flextime work, in education, profession and station of living (see Appendix 6). Those, who never do overwork are overrepresented (38%), while those who overwork always (10%) are slightly underrepresented among non-mobile-internet users compared to the total sample (30% and 8% respectively). In terms of odds ratio we can say, that non-mobile users give 'never' response to this question with almost two-times (1.85) more probability than mobile users, and mobile users give 'always' answer with 1.304-times more probability. We can find the same left-directed shift for flextime work and education, which means, that there are more respondents, who have flexible working hours never or seldom or who do not have high-school graduation among non-mobile-internet users (83% and 53%) than in the total sample (75% and 42%). Thus, in terms of odds ratio, giving a 'never' answer to this question among non-mobile internet users has 1.92 times higher probability, while giving an 'always' answer has 0.322-times less probability. Compared to white collar workers, blue-collar workers are overrepresented in the total sample (67%), but not to the extent as in the non-mobile-internet user group (76%). For age we find, that surprisingly we cannot experience a strong right-directed shift, thus in general we cannot say, that those, who do not have mobile internet subscription are mainly older people. Although the ratio of 18-29 age group is smaller (11%) compared to the total sample (14%), while the ratio of the 45-55 age groups is bigger (38%) compared to the total sample (27%), the difference is not that sharp one might expect. In sum, we can conclude, that mobile-internet non-users form a subgroup that is different by many of our control variables from the total sample (which involves only 18-66 years old respondents within a national representative survey). Since we controlled our models according to these variables, the inevitable exclusion of this subgroup does not change the observed relationships.

On the other hand, we also have to mention, that some major changes have been emerged in this research area since our data collection (in less than two years). Besides the growing mobile internet penetration we can observe that several new types of internet-based mobile applications have been launched to support written communication. Mobile emailing, SMSs can be substituted, users can select from a

variate of possibilities. Users' decision can be different across social groups, e.g. some applications can be completely unknown for some certain groups, while can be prevalent among others. This makes future national representative data collection more difficult.

Three, we get the remarkable result, that the same mobile usage has positive and negative spillover effect in parallel. So unlike one might think, work-related traditional mobile use in free time has not got only negative consequences (thinking about work related problems, and feeling work-related stress also in free time more frequently), but also positive results (feeling success more often). In other words, having the possibility to call colleagues or business partners or to receive calls from them also after working hours is a double-edge sword. Although we have to admit, that the intensity of the two types of mechanisms is not the same: in the case of positive spillover the influence of work-related free time mobile calls is less powerful. At the same time we do not get this two-sidedness, if we focus on life-to-work spillover.

Four, the difference we observed between positive and negative work-to-life spillovers in the power of the relationship can be phrased as a general rule that also applies for life-to-work direction. Mobile communication tends to correlate with negative life-to-work and work-to-life spillover slightly more strongly than with positive life-to-work and work-to-life spillover. The average marginal effects for mobile communication in the regressions, where the dependent variable is a negative spillover item are similar across dimensions, they are around 5-15%, while the same interval for positive spillover items is 0-10%. It was also unveiled, that not all the negative work-to-life spillover dimensions are affected by mobile use. Unlike stress and thoughts, the feeling, that job prevents one from spending time enough with family or partner is not influenced by work-to-life mobile communications. For example, being available for work purposes also during free time with the help of mobile technology can contribute to the negative work-to-life spillover of thoughts and stress, but does not reduce disposable private time noticeably. Thus, the raised expectation that one should be constantly 'responsive and accessible' through mobile phone (Matusik & Mickel, 2011) seems to results in more cognitive pressure, than a temporal constraint.

Five, it is also worthwhile to mention, that the timing of work-to-life a directed mobile

use proved to be also important. Work-related calls and emails on non-workdays showed a different relationship with perceived spillover than work-related calls and emails in free time on workdays. When we investigate work-to-life spillover (negative and positive effects alike), we find, that the frequency of work-related calls/SMSs on non-workdays has a relationship with spillover in every dimension. This is true also for dimensions, where all the other types of mobile use prove to be ineffective. For some reasons, traditional mobile use with colleagues or business partners on weekends or during holidays encourages positive and negative spillovers alike. People probably distinguish workdays and non-workdays from the aspect of their private life, and can have different expectations, values and perceptions related to them. Thus, private domain and the border of the domain seem to be not homogeneous from the aspect of spillovers. This supposition requires explication during the qualitative strand.

Figure 8 Summary of findings

Negative WLS

Behavioural	Stress	Time

CALLS

EMAILS

Behavioural	Stress	Time

Negative LWS

Positive WLS

Sucess	Skills	Positive feelings

CALLS

EMAILS
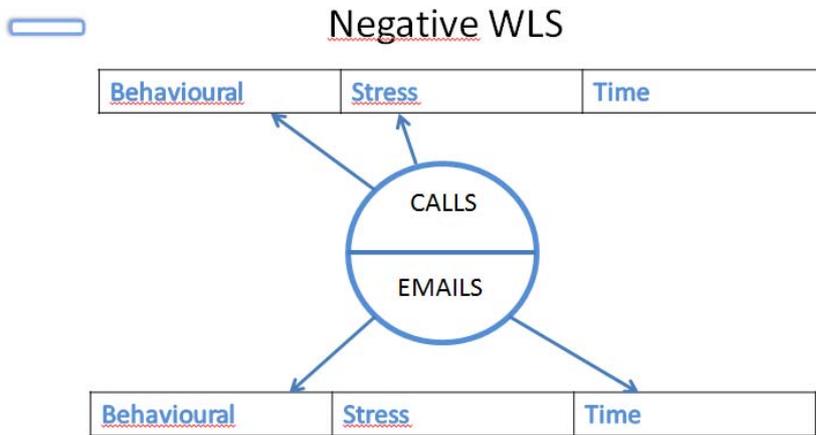
Sucess	Skills	Positive feelings
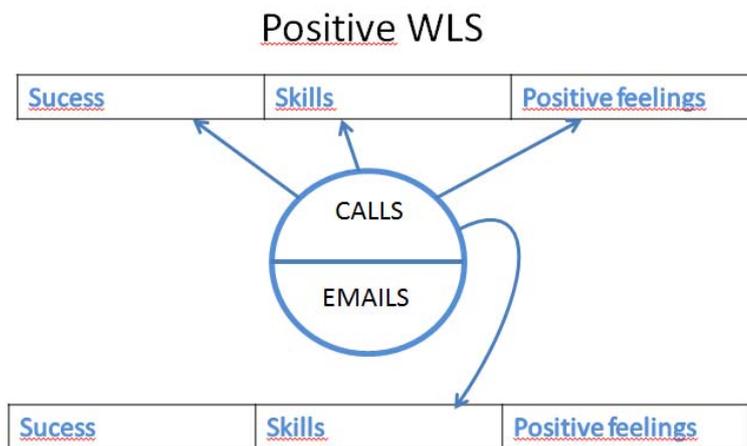
Positive LWS

7 Qualitative research

The second strand of the mixed methods design is a qualitative research that helps in explicating and explaining the quantitative findings. The sequential research design implies high level of interaction between the qualitative and quantitative phases. I.e., the qualitative phase uses the quantitative results as inputs in terms of defining the respondents' selection criteria and of phrasing the research questions. This also means that designing the qualitative strand followed the interpretation of quantitative results.

7.1. Methodology

Before introducing the details of the research, and its findings, the following subchapters provide insights into the selected methodology (focus groups discussions), the details of the respondents' recruitment, the research questions of this strand, and the main aspects of phrasing the discussion guideline.

7.1.1. Focus group as a qualitative methodology

The history of focus group research goes back to the 1920s, when it was applied as a market research technique. Later Robert K. Merton American sociologist applied it as 'focused interview' to investigate the overall impact of war propaganda (Lee, 2010). Social sciences started to use it again from the 1980s, and nowadays it is a prevalent and widely used qualitative methodology in sociology (Vicsek, 2004).

Focus group research involves organised discussion with a selected group of individuals to gain information about their views and experiences of a topic. It provides different perspectives, insights into people's shared mental construction and in the ways in which individuals are influenced by others in a group situation (Gibbs, 1997). Focus groups are carefully planned discussions in a permissive, non-threatening environment (Krueger, 1994). As a qualitative research technique it enables researchers to get rich and deep understanding of the issues raised by the quantitative research and get toned and detailed descriptions. We can also obtain new aspects about our main topics and a complex view about people's frame of reference related to the

research questions.

Compared to the individual interviews, focus groups are able to ask more respondents per a time unit, unveils more different perspectives during the same time interval. The gained information is terser, there are less repetition in the transcript. Additionally, the group situation is more natural, and provides the opportunity to investigate individual emotions and spontaneous reactions as well as the way how people dispute the given topic. Group interactions help respondents to remember on forgotten examples or on extra information. Group cohesion can support the expression of certain opinions, and the formation of an uninhibited atmosphere (Vicsek, 2006). The critical success factors of the focus group research are the moderator, the guideline and the recruitment. The moderator is responsible for managing group dynamics, for keeping the discussion in a relevant direction, for letting the respondents speak about related, but relevant topics, and to get the most possible relevant information within a given time slot. As in case of focus groups there is an emphasis on the interaction and there is an explicit use of such interaction as research data (Kitzinger, 1994; Morgan, 1996), the moderator has to have excelling communication skills, additionally has to be neutral and has to avoid preconceptions. The way how the questions are phrased in the guideline has also crucial importance. They have to be unprejudiced, unbiased and unambiguous. They shall foster the mention of examples and the unveiling of complex issues (Vicsek, 2010). It is also important to define the level of control and the style of the discussion in advance.

Besides the mentioned advantages, this certain research calls for this methodology, because as part of an explanatory sequential mixed methods design, the aim of the qualitative strand is less to explore, but more to get further knowledge about the quantitative results by explicating and explaining surprising or significant outcomes. Focus groups are especially able to contrast the already phrased alternative explanations related to the quantitative findings. This methodology is also able to provide a wide range of illustrative examples because of the high number of carefully selected respondents.

On the other hand, it is also critical to consider the shortcomings of focus group discussions. First of all, as other qualitative methodologies, that apply small samples,

focus group discussions do not result in representative data either. They can help in understanding the quantitative associations, and the lack or the presence of statistical significances related to certain control variables applied in the regression models, but they do not allow us to apply our statements to the whole national population. In order to generalise the findings of the qualitative strand further quantitative research is necessary (Vicsek, 2004). Second, we have to pay attention to the context that is usually out of the scope of analysis (Vicsek, 2007). Without analysing group dynamics, group situations, the pressure that pushes the participants towards conformity we may not phrase valid conclusions. Bias and manipulation are not rare during focus groups discussions. The opinion leaders can direct the line of discussion and can even influence the process of opinion formation or can even lead to 'false'' consensus. On the other hand, people, who have lower status (e.g. have lower position within the company) can be suppressed by the others, and it is difficult to distinguish individual views from the group view. Interpretation and data analysis are challenging too due to the open-ended nature of focus groups (Litoselliti, 2003). Third, it also has to be considered, that focus groups are driven by the researcher's interests, so they are less naturalistic than e.g. participant observation. So there is always a residual uncertainty about the accuracy of what the participants say. The moderator, in order to maintain the focus, influences the discussion. However this influence of the researcher is an issue in almost all qualitative research (Morgan, 1996).

7.1.2. Sampling and recruitment

Altogether four focus groups were conducted; each had seven or eight respondents. The participants were recruited in cooperation with companies/ organisations, where the respondents were employed. Selecting participants from the same employer in case of every group was reasonable, because this way it was easier to ensure within-group homogeneity according to overwork and homogeneity according to other policy-or business-related factors was also ensured this way. While it was an aim to provide within-group homogeneity from some certain aspects, diversity was also desirable across the groups from the very same aspects. So, all the four groups were organised at different organisations.

Fully homogenous groups consist of like-minded individuals from the same gendered,

ethnic, sexual, economic or cultural background. 'Most researchers recommend aiming for homogeneity within each group in order to capitalise on people's shared experiences. However, it can also be advantageous to bring together a diverse group … to maximise exploration of different perspectives within a group setting.' (Kitzinger, 1995, p300) Instead of fully homogeneity this research called for few selection criteria based on the survey results because of two reasons. First, this made recruitment more possible, and second, differences across focus groups could evolve this way.

The quantitative research unveiled, that overwork and profession were highly significant control variables in many regression models, so the qualitative analysis used these factors as selection criteria for the focus group discussions. The group participants had a similar number of hours per week, and the same type of profession, but the groups were different according to these parameters. In other words, the applied selection method ensured within-group homogeneity and across-group heterogeneity according to overwork and profession, and also according to the following additional, job-related parameters, that proved to have general influence on the relationship between mobile use and perceived work-life balance:

- Reckoning with overtime (same possibility and practice)
- Company policy and practices in connection with flexible working environment (same preconditions in terms of flextime, flexplace, home office)
- Working in more shifts (as a characteristic of the job)

7.1.3. Difficulties of recruitment

Profession and overwork as selection criteria resulted in many operative challenges for recruitment. Not only within-group homogeneity, but across-group heterogeneity was also desirable, which narrowed the range of possibilities. The groups finally met the pre-set range of criteria, except for the nurse group, where the criterion of homogeneity for overwork was not fulfilled (two participants had no overwork compared to the others in the group, who worked more than thirty extra hours per week). It was still reasonable to organise the focus group: WLB literature focuses the most on the easily available office workers, and findings are usually generalised to whole societies based on their responses neglecting the obviously huge WLB-related problems of blue collar workers and shift workers, which is a false practice. During recruitment the primary
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aim of this research was to break away this research tradition.

This research also confirmed that this job type makes people extremely unavailable for research purposes, either because they have heavy workload, e.g. secondary job, or because the organisation is not big enough to provide at least six-ten shift workers at a time (new arrivals take over the work of the finishing shift workers). This unavailability characterises not only shift workers, but blue collar workers in general. They have usually heavy workload, they lack paid help in family-related commitments and are less willing to participate such research projects.

7.2. Group characteristics

All of the focus group discussions were located at the workplace of the participants. The groups were physically separated from other employees or patients. They took place in a meeting room, lounge or day-room. As Vicsek (2006) also suggested, a second moderator was also charged to make notes about nonverbal observations. Before starting the discussion a short questionnaire was let to be filled to ensure within-group homogeneity according to the most important variables. Since effective working hours are usually not recorded, and the need for conformity can affect honest answers, instead of asking this information as part of the introduction, a written questionnaire was reasonable. The questionnaire also contained information about position within the company, because it is important to be extremely aware of subtle perceived differences and power relations (Litoselliti, 2003). In order to minimize misunderstandings of the questions and unpredictability caused by dynamics of interactions, the first focus group served as a pilot group. It gave information about the most likely issues of the forthcoming discussions and about people's interpretation of related technological conceptions (viz. different types of mobile use) and about people's most possible interpretations of some less precisely phrased questions. After the pilot group, some small adjustments were executed in the guideline (e.g. some explicitly asked research questions were highlighted to draw the moderator's attention, that the issue requires a more detailed explication, and should be discussed longer and with the involvement of as many participants as possible). Few questions were deleted, rephrased and added to have a guideline that is more to the point.

Table 30 summarizes the most relevant characteristics of the focus groups. The title row of the spreadsheet also contains labels that are used for referring to the groups during the analyses. Although profession and overwork were the most critical parameters of intra-group homogeneity, and across-group heterogeneity, the groups were homogenous also by other parameters too.

Table 26 Major characteristics of focus groups

	Group 1 **"IT specialists"**	Group 2 **"Office workers"**	Group 3 **"Dressmakers"**	Group 4 **"Nurses"**
Group	IT specialist men without significant overwork	Office workers with few overwork	Dressmaker women with performance-based salary	Nurses working in shifts
Date	2016.04.19	2016.05.06	2016.06.07	2016.06.23
Industry	IT services	Manufacturing (tobacco industry)	Manufacturing (textile industry)	Healthcare
Place	Budapest	Budaörs	Isaszeg	Budapest
Nr. of participants	7	8	8	7
Profession	White collar job	White collar job	Blue collar job	Blue collar job
Overwork	<= 5 hours/week	5-10 hours/week	0/ week	<= 30 hours/week
Job flexibility	Policy and job allows flextime and flexplace (e.g. home office)	Policy and job allows flextime and flexplace (e.g. home office)	Flextime and flexplace are not possible	Flextime and flexplace are not possible
Working in more shifts	No	No	No	Yes
Reckoning with overtime	overtime hours are tracked	overtime hours are not tracked	overtime hours are not tracked	overtime hours are tracked (overwork means secondary job)
Gender	100% Male	50% Male, 50% Female	100% Female	100% Female
Age	24-30	29-42	25-53	25-55
Family status	Living with partner	Mixed	Living with partner or family	Mixed
Children	No children	No children	Mixed	With children (age 10+)
Note (exceptions)	one participant lived with roommates	one participant had children		2 participants did not have overwork, and 1 did not have children

Light grey cells indicate complete within-group homogeneity

7.3 Method of analysis

Although grounded theory is an excellent well-structured and precisely defined

qualitative approach to discover new constructs and to enrich existing theories (Strauss & Corbin, 1990), and it is one of the best methods that helps explore and understand a concept in a context (Mishra et al., 2013), it is especially fruitful if our exposure to the literature is minimal before entering the research field. This enhances not only researcher's theoretical sensitivity (Glaser, 1978), but provides opportunity to develop broad open questions. In case of this mixed methods research however we have quite definite research questions, and already some idea about the investigated phenomena and the relationships between them. This means, that instead of grounded theory this research applies the analytical schemes of Vicsek (2007) that allow the researcher to follow a procedure that is closer to the more structured and formal end of the spectrum. According to this scheme the method of analysis can be divided into two primary parts: contextual and thematic analysis. This way the resulting conclusions will be richer, more unbiased, and we can consider the fact, that the data obtained during the discussions are not independent from the situation.

The first part is the analysis of the situational factors. The focus is on the circumstances, how opinions were expressed through the interactions, and how these factors can affect the content. This part details the environment, the timing, the general atmosphere of the groups, the different phases of group dynamics, the position of the moderator within the group, and what kind of techniques were applied by the moderator to ensure honesty and to urge all the respondents to speak. This part also provides a social-psychological analysis of the roles formed within these small groups (e.g. the formation of a quasi-spokesperson or factions). The effects of conformity, group composition, the topic itself and the questions are also detailed in this section.

The second, major part is more about the content, thus it analyses the respondents' answers, the different perspectives, explanations and the lines of argumentation. Qualitative analytical techniques have basically four approaches (Crabtree & Miller, 1999): Quasi-statistical, template method, editing and immersion/ crystallisation. Quasi-statistical analysis seeks to turn the textual data into qualitative data. Template approach analyses through a use of an analysis guide or 'codebook' that contains relevant categories and themes. This case the patterns of emerging themes is interpreted qualitatively. Editing is the hermeneutical approach of the '60s. It identifies text segments within interview transcripts, and arranges text until a reduced summary

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reveals. Immersion or crystallisation uses not only focus group discussions but other information too, thus applies e.g. observation, introspection, media content analyses as supplementary methodology.

This research applies template method, because it is a truly qualitative approach, and it fits to the relatively focused nature of the study (King, 1994) the best. In case of template method the researcher revises the codebook several times through exposure to the textual data, and the themes are interpreted qualitatively rather than statistically. The thematic analysis structures the content based on the similarities across the groups, then examines the groups where there was a differing manifestation or trend.

After recording the discussions with a voice recorder, and making notes about the most important non-verbal observations, transcripts served as raw data for the qualitative analysis.

7.4 Research questions

Based on the survey results, five major questions can be identified for the focus group research. All of them are related to alternative explanations for some surprising or nontrivial findings of the quantitative strand.

The quantitative analysis lead to the conclusion, that the more one uses mobile phone for work-related purpose in free time, the more she experiences negative work-to-life spillover (mainly in terms of stress and thoughts), however only if mobile phone use means SMS writing or calls, thus traditional use. Similar phenomenon is experienced for the 'success' dimension of positive work-to-life spillover, and for private mobile phone use in worktime and positive life-to-work spillover. On the contrary, if it is about private use in work time and negative life-to-work spillover, the relationship exists only for emails, but not for the traditional use (mainly in terms of time and thoughts). Although this is a reverse result, the division between traditional mobile use and emails emerges again. Why does mobile emailing behave differently from the aspect of spillover, while we keep control variables unchanged? We have two alternative explanations: Mobile calls require immediate reactions and result in real-time discussions unlike emails that can be ignored also after receiving them. Emails thus are less imperative and less pushing.

QQl1: Can we explain the different effect of traditional mobile use on spillover compared to the effect of mobile emailing on spillover by the differing communicational characteristics of these two types of mobile use?

The other alternative explanation is content related: Work-related calls or SMSs in free time are urgent and are more about problems or stressful issues, while emails are more operative, and their topic is usually not about emergencies or crisis.

QQl2: Can we explain the different effect of traditional mobile use on spillover compared to the effect of mobile emailing on spillover by the different contents of mobile emailing and calls?

The quantitative results also show, that work-related calls and SMSs on non-work days affect negative work-to-life spillover, while on workdays we do not find this relationship. Similarly, we do not experience a relationship between work-related calls and SMSs and positive work-to-life spillover on work days, although the relationship exists on non-workdays. An alternative explanation can be, that free time on workdays after working hours are perceived differently from the aspect of negative spillover compared to a non-workday. While workday evenings are more the sequence of the work period, thus spillovers are not perceived as much, weekends and holidays can be expected more to be respected and any case for border crossing communication becomes more conscious and memorable, consequently results in higher level of perceived spillover.

QQl3: Is free time on workdays and non-workdays (e.g. weekends, holiday) perceived differently, and does this difference stand behind the discrepancies in the effects of border crossing mobile communication on spillover in free time on workday and on non-workday?

The quantitative results show, that more frequent work-related mobile calls/SMSs have effect on work-to-life spillover in terms of stress and thoughts, while mobile calls and SMSs are totally ineffective from the aspect of life-to-work spillover in all the three dimensions. It also turned out, that while mobile emails have no association with the time dimension of negative work-to-life spillover, with life-to-work spillover this association prevails. An explanation can be, that applying the terms of border theory
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(Clark, 2000), the two sides of the borders are different in themselves, thus, border crossing communication implies transfers of thoughts, stress or time consumption differently from one direction to the other than conversely.

QQl4: Do the two sides of the work-life borders behave differently from the aspect of mobile communication? Do mobile communications permeate stress, thoughts, time consumption more from one domain to the other than vice versa?

Finally, we also concluded in the quantitative phase, that although more frequent mobile calls can increase work-to-life spillover in terms of stress, neither traditional nor email mobile communication have effect on the stress dimension of life-to-work spillover. This means, that stress permeates more through mobile communication (calls/SMSs and emails alike) from work to life, then from life to work. The explanation here can be, that the main characteristics of the two domains are significantly different. Here again we can refer to border theory (Clark, 2000), that states that the way how social groups construe the domains can also matter from the aspect of WLB. Additionally, work can require more attention and can be more stressful in itself compared to the life domain. This leads to our final research question for our qualitative phase:

QQl5: Do the differing characteristics (stress, forced efficiency, attention-intensity, etc.) of work and life domains cause difference in the effects of mobile use on the differently directed negative spillovers in terms of stress between the two domains?

In sum, the qualitative research aims to investigate the discrepancies in the two types of communication forms: traditional mobile communication and mobile emailing from the aspect of spillovers. This research phase also covers the content of the communication and how this affects spillovers. Additionally, the difference between the two types of private time: outside working hours but on work days and non-workdays are also questioned from the aspect of mobile communication and spillover. Finally, the borders and the characteristics of the two domains, life and work are also taken under investigation focusing mainly on time, stress and emotions.

7.5 The main aspects of phrasing the discussion guideline.

Although we are interested in the above mentioned topics, the focus group guideline is structured differently. In order to imitate everyday discussions the guideline had four main topics. After the introduction and opening questions (Litoselliti, 2003) the groups discussed the following four thematic blocks: 1) work-related mobile use after working hours, 2) private mobile use during working hours, 3) the borders between work and life domains, and 4) the main characteristics of the two life domains in terms of stress, time and emotions.

Since the aim of the focus groups was not to explore, but to get a deeper understanding in certain topics, the control of the moderator over the discussion was relatively strong. This did not mean, that occurring issues that were mentioned by the respondents were ignored, but that the guideline was not so flexible as in case of an explorative research. Direct style enhanced honest and friendly atmosphere (Vicsek, 2006).

The following two subchapters give detailed analysis of the situational factors (contextual analysis) and of the respondents' answers (thematic analysis).

7.6 Contextual analysis

All of the focus groups were organised with the help of an insider employee (CSR manager, office manager, operative manager, matron), who was responsible for gathering adequate participants and to settle the date and time. The discussions were approved in every case at the highest level of the organisation (country manager, general manager or chief physician), which was necessary to win the cooperation of the participants. Compensation was not offered in advance, however a valuable gift basket was given after the discussions to every group. Sweet and salty snacks were also served during the discussions to create friendly and direct atmosphere, and to provide comfort to the participants. In case of the nurse group this small gesture had an even bigger role, since the group participants were not cooperative at the beginning. Some of them were not informed about the group discussion, others forgot about the appointment, and the responsible internal organiser was on holiday. Since this was the group, where people had the most overwork (one of the participants said, she did not sleep for two days by that time) the initial atmosphere was full of tensions and

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weariness. Although the snacks on the table were not the final arguments for staying for the discussion- but rather the phone call by the matron- the cakes combined with good communication resulted in a successful focus group discussion with friendly atmosphere.

The focus group discussions lasted 1.5 hours on average, and consisted of five sections: preliminary questions about possessing mobile phone or mobile internet subscription, and the four thematic block listed earlier in this chapter. Before the discussion there was a few minutes long introduction, so the participants got information about the research, and the way how respondents' anonymity was secured during the research. Since the focus group discussions were organised in corporate (organisational) environment the moderator had to pay special attention on highlighting, that they cannot be identified in the transcript or in the reports that will be sent to the organisation or that will be published.

Also during the introduction the moderator encouraged participants to express their opinion even when they do not agree with the others. Contradictory or alternative viewpoints were requested during the whole conversation, and nonverbal communication tools were used to urge more silent participants to speak. The atmospheres of the focus group discussions were friendly and unimpassioned in general.

There were differences across the groups in terms of (1) timing, (2) group composition and the (3) groups' relationship to the topic.

(1) **Timing:** Three groups (the groups of office workers, dressmakers and nurses) were organised after working hours, so participants had no ongoing tasks, they were already ready to go home. Some of them were relaxed because of this, and unhurried, but some were a bit frustrated in the beginning, because the discussion obviously consumed their private time. This was indicated by comments and questions related to the expected end of the discussion, and by notifications about some participants' time limits for the discussion. Since the discussions were organised with the approval and help of the participants' superiors, they were handled as an informally obligatory task, and only the office workers showed some interest in the aim of the focus group. This time constraint put some pressure on the moderator to keep the discussions strictly

focused and avoid going away from the point. The group of IT specialists was an exception. It was organised in lunch break, and even though it was in the middle of the day, participants did not make any sign of hurry or other due commitments. In this case the management put some pressure on the group by limiting the available time, but the discussion itself was not controlled. Although time scarcity was a challenge for the moderator, it did not endanger the groups' success none of the groups had to be finished earlier, and none of the participants left the groups earlier. Late arrivals were more typical, two nurse participants arrived later (during the introduction), and one IT specialist missed the start (he arrived in the middle of the discussion).

(2) **Group composition:** The conversations take a different course if the participants knew each other before the group than if strangers come together. A few focus group experts have stressed that groups composed of acquaintances can be expected to make a greater effort to achieve consensus, place less emphasis on differences and doubts, and show a greater degree of conformity (Leask, et al., 2001; Macnaghten & Myers, 2006).

When the social and demographic characteristics of the participants are similar which was totally true for the IT professionals, this generally creates a more pleasant atmosphere, and it is easier for the group members to understand each other. Their vocabularies, knowledge and capabilities are closer. The more pleasant atmosphere, the feeling of similarity and the group cohesion can evoke greater sharing of more intimate information. Generally big group cohesion sourcing from the same employer, work environment, policies and simply from the fact that they are colleagues was a characteristic of all the four groups. Bringing opposite opinions to the surface was a challenging task for the moderator.

In every case the internal organiser of the groups (e.g. CSR manager or office manager) were briefed in details about the required composition of the groups. Although it was an articulated request to avoid the involvement of superiors because of honesty, the group of dressmakers involved also the operative manager, who was a kind of superior of the others. Theoretically the moderator had the opportunity to exclude her in the beginning, because the short questionnaire made it possible to have this information in advance, in practice however this action would not have been a proper way of handling the situation. First of all, the group covered almost all the

employees, who were being in the workshop, and giving a release to a manager from this "commitment" would have affected the whole group formation negatively. Second, the atmosphere of this group was friendly, almost with a sense of comradery, they behaved very off-hand and directly to each other, so before filling the questionnaire this power-relation was not unveiled by their small talk. Finally the decision involving the operative manager proved to be a good one. Participants felt free to express their opinions, one of them even contradicted the manager at a point, and an open dispute also evolved (this was the only group, where such an opened opposition of opinions emerged). In case of the dressmaker group it is also important to notice, that during the discussion intra-group and intra-organisational family relationships were unveiled. The operative manager was the sister of the general manager (who was not in the group), and her daughter also worked there, and were involved in the group. This was a discrepancy compared to the other groups.

As for their job, the group of office workers was the most colourful, they arrived from different departments of the company (finance, HR, communication, IT). There were superior-inferior relationships also here (e.g. HR manager and HR trainee), but here, again, the atmosphere was relaxed and direct. Compared to the group of dressmakers the overall atmosphere was more professional than truly friendly, but internal jokes and laughing were typical also here.

The most homogenous group was the group of young IT professionals. All of them were men. Just as in the case of the dressmaker or the nurse group, gender homogeneity was not a requirement, moreover, mixed composition would have been more preferred, but the job itself could be characterised by extreme gender distribution. Participants had similar age (this was not selected either, but it was a characteristic of the whole organisation), and also their work was similar. Additionally, all of them lived with partner or roommate, but none of them had children. Probably this homogeneity was the cause of their same or similar opinion about certain issues. The least contradictions or alternative opinions emerged here.

The group of nurses was also homogenous from the aspect of their job. The discussion shed some light on their daily routines, and all of the participants reported similar preconditions, difficulties and possibilities related to their job, or their WLB. In spite

of the organisational troubles, discussed in more details in this chapter before, that resulted in tensions and frustrations initially, a friendly and direct atmosphere emerged. This was the group that could be characterised with good-fellowship the most. Participants seemed to support each other and hold together even without personal sympathy. This can be explained probably by their extreme job circumstances.

(3)   **Relationship to the topic:** Although the issue of WLB touches private sphere, the topic was not sensitive, and this was also confirmed by the honest discussions, where personal, sometimes already intimate stories were shared with the group. Since the topic was not WLB in general, but its technology-related aspects, the discussion did not reach complex emotional questions. WLB proved to be a relevant topic in every case, and participants could comprehend immediately the relevant conceptions, expressions. Technology use as a habit however was more discriminative, and resulted in significant and expressed discrepancies among the participants. The groups could be divided to two parts based on their mobile user habits. Office workers and IT professionals were advanced mobile users, all of the participants had mobile internet access, and they used different applications to contact with friends and family. This also means, that they used their mobile devices very consciously (e.g. they decide about using dual-SIM device, or deny the use of separate corporate phone), and they had massive knowledge about the available possibilities, practical advantages and disadvantages. Office workers arrived to the discussion with their laptops and placed their mobile phone on the desk. Sending last emails and messages in the first few minutes of the introduction indicated also, they were heavy users. Some of them typed short messages during the discussion, and had missed calls. Although one might think, that IT professionals did the same, they did not show this close physical relationship with their devices. Missed calls, SMSs did not require their attention during the discussion. The only one group, where a mobile call was actually carried out during the discussion was the group of dressmakers. One of the participants, who was labelled as "mobile addict" had many incoming calls during the discussion, and two times she also left the group to respond. The other extremity was also present. One of the office workers expressed general negative opinion about mobile calls, and said, he prefers personal communication also in work. His argument was, that he does not like to be

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interrupted. A dressmaker also had similar negative attitude. She said, that she is against this impersonal form of communication in general, so she avoids mobile phone calls. Interestingly she mentioned others' attention-dividing mobile use as the most disturbing (e.g. when a colleague or a family member does not listen to her enough or exclusively, because they have parallel mobile use). In sum, different levels of use were reported in the groups, but in spite of these differences every focus group reached consensus, so these extremities did not affect significantly the major issue of the research.

According to Tuckman the next two points in the sequence, that are labelled as *storming* and *norming*, can be characterised by conflict and polarization around interpersonal issues, and by the development of in-group feeling and cohesiveness. These phases were not salient during the focus groups, probably because of two reasons: (1) The main task of the groups (namely discussing the given topics one by one) was not combined with other small-group tasks (like e.g. creating montage, etc.), that would have require joint work. (2) The participants knew already each other, and were members of a bigger group: the employees of a company. The group norms, relationship frameworks and roles were given. In sum, all of the four groups became functional instruments that deal with the task right after the introduction, thus entered the *performing* stage fast.

As in every small group, there were talkative and silent members in these groups too. There was a 'quasi spokesperson' everywhere, who tried to monopolize the conversation unconsciously. Although they were valuable respondents, because they provided well-structured lines of argumentations, they had many ideas, and they could express their opinion precisely, mainly in case of IT professionals and dressmakers it was challenging to allow also other group members to explicate their answers. The moderator had to apply different methods to encourage unbiased discussions, e.g. by asking for alternative opinions or stories continuously during the discussions, by paying attention to tongue-tied participants, and by providing them speaking opportunities in an explicit way ('You wanted to tell something related to this topic…'). Monitoring non-verbal communications was also useful, because the moderator could request verbal explication (e.g. "You shook your head, could you tell us why?).

Here it is important to analyse the role of the moderator in more details. Since the participants knew each other in advance, the outsider position of the moderator was given from the first moment of the discussions. In order to provide however a relaxed and honest atmosphere the moderator had to use different techniques to tone down this outsider image. First of all, the outfit already communicates group-belonging. In office environment business look, while in a workshop a casual wear was suitable. Similarly, the T-shirt wearing IT professionals required different dress code than the uniform-wearing nurses. Fitting the style of communication to the group had also importance (e.g. IT professionals and dressmakers were more informal, while the nurses and the office workers used a more professional style). None of the groups were interested too much in the scientific work, or personally in the researchers, so any difference between the moderator and the group members in the level of education or in social-economic status was not highlighted. There was only one case, when a gender-based aspect strengthened the outsider image: In case of the IT professionals the moderator was the only woman involved in the discussion. Probably a male moderator could ease the atmosphere even more, however from research purposes it was not necessary: participants told not only insider jokes, but jokes and critics related to a not-present (likely common) superior too. Moreover, the presence of a woman consolidated the 'insider male group' atmosphere and made the discussion probably more efficient.

During a contextual analysis it is necessary to consider the physical circumstances too (Vicsek, 2004). The environment varied across the groups. In all the cases the location of the discussions were more given than optional. The participants did not show any willingness to change the place of discussion from the time-efficient and convenient workplace to a WLB-neutral, informal location. IT professionals gathered in a big meeting room, that was used only occasionally by the company. The room was too big, but proper lightening and the rearrangement of the furniture helped in creating intimate atmosphere. The group of office workers was also organised in a meeting room, but the circumstances were luxury (panorama view, free café lounge at the entrance). The circumstances of the nurse and the dressmaker groups were much more different. The nurse room and the workshop were not created for group gatherings, but they met the minimal requirements: they were separated physically, they were clean, silent, and everyone could sit down in a circle shape. The results were not influenced by the

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circumstances in any perceivable way.

The success of focus group discussions can be heavily influenced also by an other important contextual factor. The structure and language of the discussion guideline can increase or decrease the efficiency of the focus groups. In case of this research the questions in the guideline were structured and more precisely phrased. The strict focus was less a qualitative methodological consideration, but more the consequence of the applied mixed-method design. Only the introductory questions (about technology use, the interpretation of technology-related terms) covered some wider phrasings.

While the questions of WLB can be connected to everyday life, finding the best language for the guideline proved to be problematic from the aspect of technology use. While dressmakers and nurses had no problem with thinking in terms of the traditional categories, IT professionals and office workers mixed different kinds of communication technologies. They often talked about their laptop use, and admitted already in the beginning of the conversation, that they do not make too much difference between traditional calls, and VoIP calls over e.g. Viber or Skype, and they substitute emails usually with facebook messenger, or other kinds of mobile applications. In order to avoid data inconsistencies, it was important to define for the groups in advance, that calls, SMS and mobile emails are covered by the research, and other written or oral ways of communications have to be classified differently. It was a task for the moderator to ask always for clarification, what kind of communication forms came into question.

Before we start to discuss the results of the thematic analysis it is worthwhile to give some details about the similarities and discrepancies between the groups in terms of their work and life domains.

The job preconditions of **IT specialists** could be described with high work flexibility in terms of time and space (home office is a possibility), overwork was not common, and could be settled, and there was high level of satisfaction related to work and work-life domain. IT work is connected to the use of computers and other communicational devices. These respondents were committed for their work and perceived high level of responsibility. Their work requires concentration and interruptions can be disturbing. Their job was reported as usually not too stressful, but this can vary across positions,

periods, etc. For them work-related communications after working hours are part of their job, and they are not too sensitive from this aspect. The respondents' private life domain had similar characteristics. The participants of this group were young men without children. Their family commitments did not require special attention, high efficiency, and private life as a life domain was generally not stressful for them.

Office workers reported similar job-related preconditions with the significant difference, that they do more overwork, and overwork is not settled. Compared to IT professionals, this group turned to be more sensitive, more conscious with managing border crossing communications from work-to-life. While IT professionals gave many details about their technical solutions for separating life and work domains, and their general opinion about border crossing work-related communication was positive and adoptive, for office workers work-related communications in private time proved to be more about time efficiency, and they were more strategic. Instead of technical possibilities of separation they defined multifaceted interpersonal rules. They "educate" their colleagues, and set up a level of border crossing communication through their mobile use habit (e.g. respond or deny calls after working hours or for certain people). It also turned out, that the level of accepted border-crossing communication in each direction can vary person to person. Compared to IT professionals, the private life domain was more colourful in this group (living alone, living with partner, having children, being student). Stress as a characteristic of private life was mentioned in association with temporary situations, like diseases in the family and university exam period. Although there were discrepancies in their life situations, similarly to the IT professionals, this group did not identify any significant difference between the two life domains in terms of time, stress or emotions, however attention-intensity and priority difference were mentioned also by them.

Compared to the office workers and IT professionals the main speciality of **dressmakers**' work and life domains was that work-related communications in private time are rare and are limited only to agreeing time schedule, while private communication is possible also parallel to working. Additionally, their job flexibility is also limited. Their work starts and ends at a given time, and although some can arrive or leave in a different time, the work phases are connected to each other, so too much variations cannot be executed. Since the work is connected to work machines,

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flexplace cannot be executed either. The group of dressmakers was quite colourful in terms of their private life, and phone use too. While the older participants had family commitments, and traditional mobile use, the younger participants lived with partner or still with their parents, and had mobile internet subscription (although they do not use emails, but facebook chat for communication.)

Nurses work in two shifts, and one shift covers 12 hours. So instead of the typical 8 hours-long workdays they had dayshifts and nightshifts usually in a changing pattern. For these participants non-workdays are not necessarily weekends, and workdays can be scheduled to weekends or official holidays too. The job itself does not allow any flexibility in terms of time or place, and the work is not connected to computer or mobile use. The group of nurses was the only one, where significant differences between the two domains were reported. While their job proved to be very stressful, with tremendous responsibility (covering human lives), the feeling of success was totally missing, just like the respect from the patients, their private life was the opposite: life was the domain of 'peace' and 'stillness' for them, where they could get respect, and emotional support.

7.7 Thematic analysis

The following chapter contains a thematic analysis of the focus group discussions. The applied template method allows the researcher to find emerging patterns of the predefined themes. The text segments are arranged and analysed according to the five major themes (QQl1-5). The forthcoming subchapters introduce the results in details.

7.7.1 Emails vs. calls in terms of communication form

QQl1: Can we explain the different effect of traditional mobile use on spillover compared to the effect of mobile emailing on spillover by the differing communicational characteristics of these two types of mobile use?

The quantitative results show that increased traditional mobile use appears along with greater perception of negative and positive work-to-life spillover, and positive life-to-work spillover, while it has no significant relationship with negative life-to-work spillover. The opposite is true for mobile emailing, we can see relationship only for

negative life-to-work spillover. Why there is a general difference between mobile emailing and mobile calls/SMSs, and why is negative life-to-work spillover is specific from this aspect?

Before we discuss the answers, it is important to give more details about mobile use preferences and practices within the groups.

All of the groups were confused about the written policies related to private and work-related phone communications. They did not know, whether there is any relevant formal policy of the company. Most of the cases the phone use etiquettes were handled as unwritten rules accepted by everyone.

While the nurses reported, that they do not have mobile internet subscription, and the dressmaker group did not use mobile emails at all for communication, the office worker group, and the IT professionals both discussed their mobile emailing practices in more details. For them it was an issue to make distinction between mobile emails and other forms of written communication, and separate mobile calls from other forms of voice over internet communications. As heavy users they reinterpreted their mobile and computer use, and defined their communication channels independently from the device. For them, having mobile internet access is so usual, that they do not make distinction between different communication forms based on the infrastructural background, but based on its format. This proves the theoretical assumption of SCOT (Bijker, 2012), thus different social groups can have different technology interpretations.

> " -   *This is why we return always to the computers, because we make calls most of the time there. (Róbert[23], 30) ...*
> -   *The basic communication form within the company is Skype. (Dávid, 29)*
> -   *This is our corporate phone. (Róbert, 30)*
> -   *We can say that for us mobile phone is an extension of corporate laptop. (Richárd, 28)"*

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[23] Names are changed to secure anonymity.

Written communication over mobile phone, laptop or other electronic device (e.g. tablet, PC) has more or less the same meaning for them. Messenger, Skype chat, email, Viber chat, the company's issue tracking system, WhatsApp chat or even SMS seem to be more similar for this group, than any other oral communication forms, like Skype call, Viber call, WhatsApp call or traditional mobile call.

"For us Skype probably works like phone calls." (Péter, 26)

Thus, our qualitative research shows, that mobile phone use can be very complex, for some social groups neither traditional calls nor mobile emails can play any significant role, while other written and oral communication platforms prevail. Other groups do not have access to, and probably are even unaware of these alternatives. Future research has to take into consideration this variety in mobile use across social groups. Having different interpretation about mobile use forms across social groups can lead to bias, and can influence the results of any qualitative or quantitative research. It also has to be considered, that technology on this field changes so fast, that a prolonged research (covering more phases like in this case) can face with inconsistency due to the adjustments in user habits and in the applied technology-related expressions and categories. The above detailed variety in mobile internet-based communication was not prevalent when the quantitative phase of this research was carried out, so it could not be considered in the first phase. Still during the qualitative phase, mobile internet was dominant user habit only for certain groups, while others were not affected at all.

As for the first qualitative research question, the focus group discussions confirmed our preliminary conjectures. There are several characteristics that make mobile emails ineffective from the aspect of negative work-to-life spillover. There was an overall consensus among the participants in terms of the followings:

- (1) Different etiquettes apply for work-related calls/SMSs and work-related emails out of work time. Mobile emails can be left out of consideration, while calls cannot, so they are more considered as rude violation of free time. In case of emails immediate reaction is usually not required, the sender does not have the expectation, that he will get answer shortly. The etiquettes for mobile calls are different from this aspect.

"I do not send emails, because they are urgent, but (because) this is the time when I can write them." (Natália, 31)

Mobile emails are not time-specific. Usually both parties (sender and receiver) know, that although it is sent out of worktime, it can be answered during worktime (e.g. the forthcoming workday).

"Because usually the thing can really wait for next day morning, and if his day is like that, he is able to send the email quarter to nine PM, that I shall read next morning, then he does not misuse his phone and calls me, and does not tell me, 'do not forget about this'. But sends it in email, and at least it is sent, it is done." (Tamás, 29)

The nurse group always take into consideration the colleagues' time schedule when they call each other. As shift workers, they can work during the nights, and then they sleep daytime. Although this aspect is not so characteristic for one shift workers, one of the office workers pointed out, that the receiver's situation has to be considered in advance, if it is about mobile calls out of working hours:

"If I know, that the other is on holiday, I call her only in an extreme case…I rather send her an SMS and ask her to call me back whenever she can." (Richárd, 28)

- (2) Although theoretically one can decide about responding, calls and emails are not the same categories. There was an agreement among the groups, that work-related mobile calls are more noticeable and disturbing compared to emails that are not always indicated by acoustic or visual alerts.

"(For) Me it is more difficult with calls, because you hear it (to ring) and it is frustrating… I think it is easier to neglect emails." (Linda, 39)

"Anyway I prefer emails compared to phone calls, because I can practically decide whether I let it in or not…" (Linda, 39)

- (3) Mobile emails are generally more preferred and accepted for work-related communication, because emails can be retrieved and referred later, while calls are not recorded. This is an important aspect for the calling initiator or email writer. In some cases mobile calls are more efficient (e.g. nurses agree changes in time schedule through calls), and calls can be supplemented with texting, either to ask for permission to call someone, or to document the details of an agreement.

In sum, the characteristics of these communication forms do matter indeed. Calls are more time-specific and pushy while emails are not. Work-related mobile calls disturb private time much more, because they have to be answered at a given point of time, while it is an unwritten rule that work-related emails can be left out of consideration in private time.

> *"Because it (*a call*) can destroy one's thoughts a lot, while email is such a thing, that I will read it later." (Ádám, 29)*

The quantitative results also show, that when it is about negative life-to-work spillover the effects are the opposite: private calls are ineffective, while emails are influential. Consequently, private mobile emailing and calls during worktime were also discussed during the focus group discussions in details. While the qualitative research was able to discover why emails are ineffective from the aspect of negative and positive work-to-life and positive life-to-work spillover, the focus groups were unable to unveil why mobile emailing does have an effect on negative life-to-work spillover in terms its two dimensions: time and thoughts. It turned out, that user habits changed so much, that people, who have mobile internet access do not communicate with their family or friends in emails any more, but use different chat applications. From this aspect there seems to be a generational gap: Office workers usually prefer internet-based written communicational platforms, such as Facebook Messenger or Viber chat when they communicate with peers, but they rather call older generations (parents). They apply different etiquettes for different generations for private communications in worktime:

"- I agree, parents rather call. But I reject their call easily, and call them back when I can. But friends, they also work." (Márk, 35)

*"- But this is generally a generational difference. Because I think, that our generation can somehow handle, that you don't respond the call, you are probably busy, and (*the other*) writes SMS, or texts you, that 'it is SOS, and call me back.' But my parents for example, they sometimes don't know this, mainly my mother doesn't know.* (Linda, 39)
*- Mine (*parents*) know already. Thus, first they call me, (*I tell them*) no, but if in 5 minutes they recall me, and I deny them again, they won't call me third time, because it has obviously a reason, why (*I tell them*) no."* (Márk, 35)

"- Nowadays at least I write an SMS, to let them know, that 'I understood, I will respond'. (Linda, 39)
- There are these automatic SMSs (Márk, 35)
- That is the best! (laughing with the others) *(Linda, 39)"*

For office workers and IT professionals calls can be disturbing so they consciously try to control the quantity and the timing. They seem to neglect private mobile calls in worktime more easily, then work-related calls in private time. What is frustrating in one situation (deny a call by a colleague out of working hours), that can be handled easily in the other situation (deny a call by mother during working hours).

In sum, based on the qualitative research we can give explanation why there is positive effect of traditional mobile use on negative work-to-life spillover in general, and why emails lack this effect: they are less disturbing, thus less time specific, response can be postponed even they can be completely neglected in private time. Based on the characteristics of the communication forms we can provide an explanation also for the question, why traditional mobile use affects positive life-to-work spillover, and does not affect negative life-to-work spillover. People seem to ignore disturbing private calls during working hours as easily, as they do it with work-related emails during private time. On the contrary they have the possibility to initiate important private calls and they are available for urgent cases, that allows for positive spillover. Here it should be noted, that some job types make any types of private communications during working hours more adequate, while others do not, however traditional job classifications cannot grab this difference among jobs (see results for QQl5).

7.7.2 Emails vs. calls in terms of content

QQl2: Can we explain the different effect of traditional mobile use on spillover compared to the effect of mobile emailing on spillover by the different contents of mobile emailing and calls?

We investigated, whether the content of the communication has any role in ICT-WLB associations. Besides the differences in forms, the content plays also important role in terms of negative work-to-life spillovers. Different contents are usually communicated through different channels. There are two important parameters that play role: importance and 'to-do generation'.

- (1) There was a general agreement among the participants, that the more important and urgent issues imply traditional phone calls, while the least important ones are usually communicated through emails. This rule applies both to work-related and private communication.

> *"- I think calls, SMS writing, and any other online calls, and any other online texting is the priority order* (the others are chanting in agreement). *This is why I switch off the web on my mobile the evenings. If someone wants to reach me via Facebook, that shall be not that important for me to wake up, but if someone calls me at 2:00 AM, that should be important. So I don't switch off my mobile phone completely the evenings, because if someone calls me at 2:00 AM, that happened only once I guess, or two times, that was the case, when it is better if one calls me, for that (reason) one shall call me indeed. (Richárd, 28)*
> *- Someone, who does not agree with this, or any other...? (Moderator)*
> *- Basically the same. One thing, probably the email is at a lower position for me, than any other personal thing, like a normal Facebook chat or something." (Péter, 26)*

It was mentioned several times during the group discussions, that work-related mobile calls mean 'urgent', 'problem', and 'frustration'. If someone calls in an unimportant topic, that is usually handled as a misuse of calls. Breaking the unwritten rules of communication can lead to sanctioning.

> *"When calls arrived let's say at quarter to 8 PM, or during the*

*weekends, or (*I got*) an SMS at 9 PM, to tell him (*a superior*) some data, then it resulted, that I ignored his incoming call not only out of working hours, or I selected this way, but also within working hours." (Natália, 31).*

"Calling someone by phone is very rare and very extreme." (Péter, 26)

On the contrary, calls in private issues are not necessarily urgent, this is why they can be ineffective from the aspect of stress dimension. There can be many private calls during working hours, but except for emergency situations, these talks are very short and are limited only to an agreement about a later talk.

*"...sometimes it happens, that my father calls me at 14:00, with 'How are you my son?'. 'I'm working.' (laughing) 'Oh, I haven't known, you are being green (*indicating, that the called person is available on Skype for call*).' 'Yes.'. This happens sometimes, but it is not so typical, because they have already learnt, that after six (*they shall call me*). (Richárd, 28)*

- (2) It was also mentioned, that work-related emails can be impersonal too, e.g. automated system alerts or notifications. These do not require any actions, these are the least important work-related communicational forms**.** Personally addressed emails, that imply a task for the addressee, is a more powerful category from spillover point of view. This means, that not only frequency, but topic also matters.

"- If you see emails arriving to your phone do you check them immediately? Do you react on them, how do you handle them? We are still outside of working hours. (Moderator).
- If everyone is in silence, I usually open, if I'm in such a situation, and if it is too long, I mark it as unread. If there is nothing to answer I mark it as unread, if there is something to answer, I answer. (Péter, 26).
*- And mark it as unread (*laughing*)." (Róbert, 30)*

In connection with the first two qualitative research questions we can conclude, that the main difference between work-related emails and calls/SMSs from work-to-life spillover point of view is given from the fact, that calls are more time-specific, people expect

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immediate answers, and they are used for more important, urgent issues. Thus, work-related calls in free time are more pushy, disturbing, and frustrating, compared to emails, that are sometimes not personally addressed, and do not necessarily imply work-to-do. Thus, even tough one has the theoretic decision power in neglecting, responding or postponing the calls, incoming calls can imply higher level of perceived work-to-life spillovers in terms of thoughts and stress. In some cases however call results in higher efficiency, and make problem-solving easier, which contributes to the increased perception of positive work-to-life spillover. Similarly, availability for private purposes during worktime, and the possibility of making private transactions through phone calls increase positive life-to-work spillovers. On the contrary, incoming private calls during worktime can be ignored easily, they do not necessarily indicate urgency, consequently they are not frustrating. Response can be limited only to an agreement in later talk, which can explain why a higher frequency does not imply higher perception of negative life-to-work spillovers. Based on the qualitative research it was impossible to explain why private mobile emails increase negative life-to-work spillovers though, because the changing user habits resulted, that the focus group members typically do not write or read private emails on their mobile phones any more. Future research related to this topic has to take into consideration these changes.

7.7.3 Workdays vs. Non-workdays

QQl3: Is free time on workdays and non-workdays (e.g. weekends, holiday) perceived differently, and does this difference stand behind the discrepancies in the effects of work-related mobile communication on work-to-life spillover in free time on workday and on non-workday?

Quantitative data analyses provided evidence for a relationship between border crossing communication and work-to-life spillovers mainly on non-workdays, but on workdays after working hours this relationship was typically absent for both negative and positive work-to-life spillovers.

In advance here again it is useful to make some notes. The practice of work-related communication in private time was similar within groups, but there were huge

differences among the groups. IT professionals and office workers are used to this type of border crossing communication, and handle them confidently. They had stories and well-articulated opinions related to this question. IT professionals work sometime in international workgroups, and on workdays work-related emails after working hours are only due to the difference in time zones, but these emails are related to the forthcoming workday. These cases are not handled as border crossing communications. Nurses on the contrary do not experience so much work-related communications in private time, because this does not belong to their job. Such rare communications are usually about changes in time schedules and occasionally can result in big unexpected changes in their life (e.g. the end of their already started holiday). The least affected group was the group of dressmakers, who have such communications only in exceptional cases, so their opinion about this question was not elaborated that much.

The focus group discussions in general confirmed the preliminary expectations again. Workdays after working hours and weekends or holidays are two different types of private time. There was a general agreement among the focus groups, that emotional and mental differences prevail.

> *"I think on weekdays it is better, because if they (*e.g. colleagues*) contact me, when it is necessary, one's mind is more into (*work*), and buries himself in his work, he can (*still*) hang up his fiddle on weekend... On weekends it is psychologically also such a thing, that OK, it is Friday, everyone hangs up (the work). Even if he happens to read his emails, because he feels like doing so, but basically, mentally, we hang up, and on Monday I always have to pick up (*the work*), and always (*have to*) shake down." (Péter, 30)*

Holiday is an institutionalised private time, it is usually announced in advanced, there are policies for handling the missing colleague for that certain period (e.g. substitution, automatic email replies). It was also referred, that employees have legal rights for non-working days, and hurting these days are serious cases. Weekends are also declared private days, but respecting weekends seems to be taken less seriously than holidays.

> *".. anyway, this is our common knowledge, that we don't work on*

*Saturday-Sunday, so (*work-related*) calls during weekends are slightly worse. And when you are on holiday, you announce it in advance, you register for a trip, you are probably somewhere (*on a holiday trip*), or you are involved in something else really. That one (*calling someone during holiday in work-related issues*) is the most serious case. Plus Christmas, I guess. Thus, there are these grades." (Natália, 31)*

The barriers on workdays are more blurred. Even the end of worktime is different across organisations, and can be different also within an organisation due to the flexible working hours. Where flextime is applied both the company and the employees handle the start and end of working hours liberally.

Shift workers from this aspect are very special. Their working hours, and even their workdays vary, so their interpretations about weekends or holidays are completely different. Sometimes their off day is scheduled for weekend, but this is not always the case, and they are also scheduled to work on official holidays.

7.7.4 Domain barriers

QQl4: Do the two sides of the work-life borders behave differently from the aspect of mobile communication? Do mobile communications permeate stress, thoughts, time consumption more from one domain to the other than vice versa?

The quantitative results show, that more frequent work-related mobile calls/SMSs have an effect on work-to-life spillover in terms of stress and thoughts, but work-related mobile calls and SMSs are totally ineffective from the aspect of life-to-work spillover in all the three dimensions. The qualitative research unveiled, that besides one can have different practices for managing the two sides of the borders (e.g. by applying stricter rules for work-to-life and permissive rules for life-to-work directed communications), there is a difference in border permeability, as an inherent characteristic of the border, which can explain this pattern of associations.

- (1) The participants in each group stressed the importance of control, and the decision power they have in defining the border permeability. Receiving calls and emails out of working hours is usually voluntary, and is not forced externally, but people have high internal motivation for responding. People can

decide whether they open work-related emails or not, and if they do so, when the proper time is for that.

> *"And then I tried out the next vacation, that I didn't do it (check emails) at all, and that was much better and much relaxing."* (Ádám, 29)

For calls rules are different, because as it was mentioned already in this chapter, there is a higher pressure to respond calls immediately.

> *"I think everyone has to define their own barriers. So I think I usually do not really respond calls after 7PM, because I think, that something, that is not solved after 7, that cannot be so urgent that it could not wait till 8 or 9 next morning."(Linda, 39)*

Only the nurse group had expressed policy for remaining available also after working hours, but the internal motivation manner prevailed here as well:

> *"- Well, we have to be switched on, that was indicated by the matron. At least it happened already, that I was not unavailable. Not because I did not want to respond… but one has to be switched on, because anything can happen anytime, for example a colleague gets ill, because we work here in such a tight shift…. This can be understood to a certain extent. For one, who has such a job, this is obvious.* (Amélia, 45)
>   *- We have got already used to it* (Gabriella, 55)."

- **(2)** The same time it turned out, that although one can decide about not responding a call, and can complete fewer mobile calls, the level of spillover in terms of stress can be even higher. The environment (family members, other colleagues) also plays important role in this. If the family is less accepting, one can keep the borders more strictly.

> *"Well, in my case, when I responded calls too much, my husband got fed up with it. He also elaborated this, that I shall cut off a little bit, thus, this is not normal, that I am not at home all day, and when I come home the evening, I still deal with work issues. But since I handle this in normal frameworks, it is not a problem."* (Natália, 31)

However, if the family is less accepting, in spite of a stricter border-keeping practice stress can be generated already by the reality of the call. Thus, one can

deny work-related calls in free time, and still feel more the spillover of stress and thoughts, even though she has not had actually any conversation on mobile phone, and has not known the topic yet (only the caller).

> *"... I had this Saturday morning call not so long ago. And I was just sitting, and was nervous, and frustrated, that I couldn't believe, why I have to be called on Saturday morning, and then (I said,) I don't respond, don't respond, and then he (husband) said, just respond.* (laughing)" *(Linda, 39)*

On the contrary, one can ignore or respond shortly several private calls during working hours without paying too much attention to them.

> *"- Why, how do you for example, handle, if you are contacted in a private topic during working hours by family members or friends?(Moderator)*
> *- Well, I usually simply skip it, then I recall them, if there is something.... I am decent, because I was just writing to my mother, that I am on a meeting, and will call back her afterwards (Linda, 39).*
> *- I have already discussed with my friends, that they shall get used to that I don't respond during work (Viktor, 29)."*

So, while decision power can be an important feeling for someone in responding work-related calls in private time, refusing a response does not necessarily mean the block of spillover. The opposite is true for private calls during working hours. Responding call does not necessary mean any spillover in terms of stress, and it does not distract one long enough to perceive high level of spillover in terms of thoughts.

(2) Having stricter rules for keeping the borders from work-to-life direction, or handling it more permeable depends also on the frequency of border crossing communications. The focus groups unveiled, that too much calls can be disturbing, or stressful and one can become more conscious with ignoring or switching of the phone, that are common border-keeping practices. There might be a threshold stimulus. When the threshold is reached with written or oral mobile communication, the level of stress or thinking about work too much starts to increase.

"- And when you are called with a problem, specifically with a problem, how stressful it is…? (Moderator)
- It depends on how many times (it happens) a week (laughing with others)" (Richárd, 28)

- (4) The misuse of mobile availability, thus in the participants' terms: the too frequent or unimportant calls, SMSs, emails, etc. can result in ignoring. This is a common sanctioning practice, and is used widely by the respondents to "educate" their colleagues as well as their family members. This also seems to be a common border keeping technique. Based on the group discussions we can conclude, that family members (children, parents) tend to respect less the working hours (in case of shift workers the complexity of work time schedule also matters), while colleagues/business partners, etc. tend to respect more private time.

  The levels of threshold stimulus can be different for work and private communications. The former seems to be much lower, thus a fewer work-related mobile calls in free time already imply spillovers, while more private calls in worktime can stay ineffective.

  "Probably, what I have already mentioned, that my parents call me at 14:00 PM, because they are bored, I have already let them know, that they shouldn't do this." (Richárd, 28)

In sum, border crossing private communications can be more frequent compared to border crossing work-related communications, but while the former does not increase the negative spillover perceptions, the last ones are usually connected to higher perception of negative spillover. Even if there is no policy for being available after working hours, usually there is an internal motivation (or pressure) to respond work-related calls also during non-worktime as soon as possible. This results, that neglecting work-related calls are ineffective strategies to block spillover effects, because stress and thoughts can permeate from work to life even when a call is not responded. The private calls in worktime however can be ignored easily or can be closed shortly. Even if these kinds of communications are more regular, they don't distract attention and do

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not transfer private life-related stress. In other words, the mental block, that does not work for incoming work-related calls does work for incoming private calls. At least this is true, if the frequency of communication does not reach a threshold. In both cases (work-related calls during non-worktime and private calls in worktime) there can be a threshold, from which the perception of negative spillover in terms of stress or thoughts starts to prevail significantly. This threshold seems to be much lower for work-related calls in private time, consequently it can be reached more frequently.

7.7.5 Domain characteristics

QQl5: Do the differing characteristics (stress, forced efficiency, attention-intensity, etc.) of work and life domains cause difference in the effects of mobile use on the differently directed negative spillovers in terms of stress and thoughts between the two domains?

The characteristics of work domains varied heavily across the focus groups just like the characteristics of life domain. These differences had to be investigated from the aspect of ICT-WLB relationship.

> (1) There was an agreement within and across the focus groups, that work has general priority compared to private life, which rules also the communications across the domain borders in both directions. In work time work has to be done, and private issues can be let in as long as they do not endanger the quality and quantity of work. Although the nurse group members said, they keep strict work-life border mentally and emotionally, they reported about similar practice. They are available for the family just in case, but they discuss only the most important issues during work time, and rather promise recall, while work-related calls are always responded.

> Examples for handling mobile communications from work-to-life direction: When family is de-emphasized:

"- Yes, but a concrete example, when you were called during your holiday, and you were with your friends or family, what did they say? (Moderator)
- Well, I told my wife, she shall vacuum-clean in the other room. (laughing with others) (Dávid, 29)"

When work-related calls are responded anyway:

*"- So if you get a call (*after hours*) from this certain colleague, are you irritated?(Moderator)*
- It has to be responded, what can I say...(Lili,36)
- I see. And has it ever happened, that you did not respond? (Moderator)
- We never do such thing. (Lili, 36)
- Once more, we recall each other, if we cannot respond immediately. (Mária, 56)"

Examples for handling mobile communications from life to work direction:

Work is the point of departure:

"It depends, if it is a harder period, one obviously plays down private things, and deals with them after hours, or evenings... but when it is a looser period...." (Dávid, 29)

Categorising private communication as 'chitchat':

"- So you are called (in private issues during working hours) with several topics, but you don't discuss everything. (Moderator)
-We don't have time for chitchat. (Lili, 36)"

It is worthwhile to mention, that although work has a general priority, thus the respondents' preferences in terms of allowing border crossing communications was higher from work-to-life direction than from life-to-work, this was not reflected by border crossing mobile call frequencies. When the moderator asked about frequency of mobile communications, it turned out, that private communications during working hours are more frequent in case of all the groups. So even though the work-related issues are handled with higher priority, and domain barriers seem to be kept more flexible from work-to-life direction, this may not be related to higher frequencies of mobile calls.

(2) Required concentration turned to play an important role in the way how one can perceive work-to-life or life-to-work spillover due to mobile communications. For example, the work of IT professionals requires concentration and interruptions can be more disturbing, than in their private life.

> *"...for example it happened with me, that after one phone call I sat for 10 minutes to find out what was that very word, what I wanted to write down. A call can distract one so much, that it is very hard to get back." (Márk, 27)*

In comparison about the private life:

> *"Well… it is not hard to be distracted from gardening* (laughing). *Which hit of hoe was stopped* (laughing)" (Oszkár, 25)

The dressmakers' job has the special characteristic, that one can talk or even phone call while she is doing her job. In this group there was a heavy dispute related to the accepted level of private calls during working hours. Some argued that attention is required to do the work properly, too much or too long mobile calls can result in errors, while the opposite argument was the unwritten policy of the company: if the work can be done properly, private calls are allowed. Even the question was raised, whether a personal conversation is similar to a phone call from the aspect of getting distracted, thus informal talks between colleagues were contrasted to private calls by the participants. Phone calls were considered as a different category, because they do not involve the partner into the situation, who consequently is not aware of important situational factors.

> *"These are two different concepts: talking to each other, usually it is a short topic, or making a phone call, when the attention is fixed (for longer), mainly if there is a heavy workload, there are many colours, or shades, there are a lot of things, than one can be distracted."* (Mária, 50)

The focus group discussions have thus implied that need for concentration can play huge importance in the formation of the threshold level of border-crossing communication. Manual workers e.g. can tend to accept more private calls during work time while not perceiving the violation of work time or efficiency

that much as e.g. intellectual workers.

In sum there are certain discrepancies between the two domains' that matter from the aspect of ICT-WLB relationship, and there are other ones, that seem to be ineffective. The groups reported about discrepancies between work and life domains in terms of time scarcity to different extent, but this did not seem to affect the way how their mobile use influences their perceived level of spillover. The same was true for differences in perceived stress, need for efficiency and in emotions, like the feeling of success and respect. These differences between the two domains were not influential from the aspect of mobile use and perceived spillover.

There were only two characteristics where the differences between the domains seemed to matter: difference in the priority of the domains in general, and differences in the attention-intensity of the domains. All the groups made higher priority for work domain compared to private life that resulted not only in different practices, levels of acceptance and personal strategies for work-related communications in private time and private communications during working hours, but also in different threshold levels for perceiving negative spillovers.

The other significant difference between the two domains was the different level of required attention. Work domain usually demand more focus, thus any interaction, like a phone call can be more disturbing or distracting. This influences the levels of perceived negative spillover again.

7.8 Concluding remarks for the qualitative strand

Most of the cases the focus group discussions were able to provide answers for the research questions phrased based on the findings of the quantitative strand. Only the rapid changes in written mobile using habits caused problems. For some social groups mobile emailing seems to be not a prevalent communication form any more, but other ways of written communications have acquired its role: mobile applications, like Facebook Messenger, Skype chat, Viber chat, WhatsApp chat, etc. are the new alternatives. Although these are similar to mobile emailing (both are written platforms just like SMS), from methodological point of view it would have been a failure to
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substitute mobile emailing with these chat applications, and to leave out of consideration the consequences of the changing user habits. In order to provide accurate results, methodologically it was reasonable to keep qualitative and quantitative data consistent. Consequently, qualitative research focused only on mobile emailing and excluded the other written communication forms. Since all the focus group participants reported, that they do not send or receive private emails through their mobile phones during working hours (other platforms are used for written communication), questions, that were related to private emailing during working hours could not be answered based on the focus group discussions.

In connection with the differences in mobile emailing and mobile calls the focus group discussions unveiled, that work-related calls in private time influence spillovers of stress and thoughts not only because incoming calls are signed usually by acoustic alerts by the device (compared to the emails, that can remain unnoticed) as an 'invasion of privacy' (Tennakoon, 2007). The reasons are more complex. The etiquettes of work-related calls usually require immediate response, thus calls are more disturbing and more time specific. Even one decides about ignoring an incoming call, the spillover of thoughts and stress evolves. The same does not happen when an email arrives, either because they are not even checked, or because they do not require immediate response. In case of private calls during working hours the etiquettes are different: response is not required at all, the conversation can be delayed, thus these calls are not so time specific. This is why private calls in worktime do not imply negative life-to-work spillovers. As Sarker and his colleagues also suggest (2012), preferences like this one have also implications for the organisations. They should be considered in workforce management and during corporate policy making.

It also turned out, that content of work-related calls in private time tend to be more urgent, problem-related, consequently they distract one's attention more compared to work-related emails, that can usually wait for next workday, and sometimes are even not personally addressed. Again, the opposite is true for private mobile calls in worktime: they are usually not important enough to increase the feeling of stress and to imply the perception of spillover in terms of thoughts.

The qualitative research was also able to provide explanation why workdays and non-

workdays show different patterns from the aspect of mobile use and perceived spillover. 'Non-workdays' as a category is not homogenous. Emotionally and mentally, time after working hours on workdays is less separated from working hours, and people have different expectations from their environment in connection with work-related communications. As technology helps organisations to count on employees also outside of regular working hours (Cavazotte et al., 2014), the issue of keeping the borders (Clark, 2000) seriously has arisen. Weekends are usually more respected, and there is a demarcation line on Friday that is expected to be crossed only with good reason. The strictest category is holiday. Official holidays like Christmas, or summer holidays are handled specifically by the organisations (e.g. there is an order for substitution). This pattern however is not applicable for shift workers, since their day-offs are not necessarily weekends, and official holidays can be also normal workdays for them.

The qualitative research also unveiled, that the differing effects of mobile use on work-to-life and on life-to-work spillovers can be explained by the different qualities of the border permeability. There might be a frequency threshold for mobile communication for both work-related mobile communications in private time and for private mobile communications in worktime, that has to be reached in order to perceive any spillover effect. In case of work-related communications this threshold seems to be lower, consequently spillover is perceived more frequently compared to private mobile communications in work time, where much more incoming calls can be ignored without any perception of spillovers. In other words, not only border managing practices can be different in the two directions (Golden & Geisler, 2007), but accepted intensity of communication.

Finally, it turned out, that there are some job types, that make private mobile use during working hours more possible. In some cases private calls can be executed even without pausing the work processes. Since the extent to which a phone call can distract one from work has major importance in perception the spillovers of thoughts, this has major role in the investigated associations. The differences among the jobs from this aspect however cannot be grabbed by the traditional job classifications (as in Wajcman, 2008). This is not related to neither job flexibility nor job autonomy, but more to the attention intensity and device usage of the job.

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7 Conclusion

The way in which mobile communication influences work-life balance, or the spillovers between work and life domains, has proved to be a complex research field. Based on the explanatory sequential mixed method research, we cannot phrase general statements about the relationship between mobile technology and work-life spillovers. The form, the timing and the direction of mobile communication all have to be taken into consideration in order to unveil the effects of technology use on work-life spillovers. Negative and positive spillovers from work to life and from life to work all are affected in a way, however the patterns in connection with these four types of spillovers are not the same.

7.1 Joint interpretation of the findings

The form of communication proved to be more important as one would expect. Studies in this field handle ICTs or mobile phone in a general way (e.g. Valenduc & Vendramin, 2002, Palackal et al, 2011, Leung, 2011, Nam, 2013, etc.), and make a distinction only based on the device (see Golden & Geisler, 2007). This research unveiled, that mobile calls and emails differ from the aspect of spillover. As for the negative work-to-life spillovers, we can conclude that the behavioural (mental) dimension of spillovers, thus spillover of thoughts, and the stress dimension of spillover both are supported by more frequent traditional work-related mobile use in private time, but mobile emailing is ineffective in both cases. This does not change, if we involve control variables into our model, including working overtime, profession, type of station, financial well-being, age or family status. On the contrary, from the aspect of the time dimension of negative work-to-life spillover, mobile communication (traditional and emailing) proved to be completely ineffective. A similar pattern can be observed, if we investigate positive life-to-work spillover. The analysis allows us to say, that in case of the instrumental dimension (spillover of skills) the effect of more frequent private calls in worktime is relatively strong, but more frequent private emails are ineffective from this point of view. As for the positive work-to-life spillover, we can discover the very same pattern, the spillover of success is only supported by more frequent mobile calls/SMSs, and the discrepancy between traditional mobile use and mobile emailing also prevails in case of negative life-to-work spillover, but in the

opposite way: emails are effective, and traditional mobile use is ineffective. The qualitative phase unveiled the reasons behind this pattern: the various etiquettes of mobile emailing are different from that of mobile calls. While work-related calls are required to be responded as soon as possible, work-related emails are not required to be read on mobile phones, reactions can be postponed, they can be even neglected in private time. This makes work-related mobile emailing less disturbing and more polite. Besides these characteristics, the topic of communication seems to matter too. In case of urgent and important issues however, the more time-specific phone call is considered as the proper way of work-related communication in private time. This means, that already the signal of an incoming work-related call (without responding) can lead to the feeling of frustration and work-related stress in private time. Thus, though one can decide about neglecting calls, responding or postponing, calls can lead to higher level of perceived work-to-life spillovers in terms of thoughts and stress. On the other hand, work-related emails can be impersonal too (e.g. newsletters, system alerts, circular letter, etc.), and they do not necessarily imply work-to-do.

Qualitative research provided also explanation as to why traditional mobile communication does not contributes to an increased perception of negative life-to-work spillover. Availability for private purposes during worktime can contribute to higher efficiency, but unlike work-related calls during free time, incoming private calls during worktime can be ignored easily, they do not necessarily indicate urgency, consequently they do not support negative life-to-work spillover.

These findings can have another interpretation too. The research unveiled that the positive effects of mobile use exceed the increase in time and coordination efficiency, the increase in users' sense of autonomy (Cavazotte et al., 2014), in flexibility (Heijstra and Rafnsdottir, 2010; Cavazotte et al., 2014, Ninaus et al., 2015) and in control (Golden and Geisler, 2007). A greater frequency of mobile calls also supports positive life-to-work spillover of skills, and positive work-to-life spillover of success.

While most of the research handles free time in a general way, including workdays after working hours, and non-workdays (e.g. Wright et al., 2014; Fenner & Renn, 2010), the design of this research makes a distinction between workdays after working hours and non-workdays, and allows us to unveil another pattern in the mobile use-

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spillover relationship: work-to-life directed mobile calls/SMSs have an effect on work-to-life spillover mainly on non-workdays, while this relationship is missing on workdays after working hours. The qualitative strand confirmed that free time on workdays and on non-workdays (e.g. weekends, holidays) are perceived differently. The emotional and mental differences source from the blurred boundaries between private life and work domain on workdays. While holidays and weekends are institutionalised private times, the domain borders are handled more strictly; free time after working hours are not respected so seriously. New job circumstances such as flextime or working in international workgroups contribute to this trend, at least if it is about office workers or employees, who work in a traditional 40 hours working scheme from Monday to Friday. Shift workers, who have changing workdays, are unique in this aspect.

The finding that mobile communications contribute to the spillover of stress, thoughts, time consumption more from one domain to the other than vice versa, can be explained by the difference in the two sides of the life border. Our qualitative research also confirmed, that 'being out of touch' is an efficient way of erecting barriers (Currey & Eveline, 2010; Heijstra and Rafnsdottir, 2010), but while neglecting work-related calls does not block spillover effects, ignored or short private calls in worktime do not result in higher negative life-to-work spillover. The qualitative phase unveiled, that there can be a threshold in terms of frequency: if the frequency of communication does not reach the threshold level, a mental and emotional block can be maintained against spillover effects. If the frequency reaches this threshold level, mobile communication starts to increase spillovers. It also turned out, that not responding to an incoming call from a colleague, supervisor or client is not necessarily a proper strategy for blocking spillovers. Additionally, the threshold seems to be much lower for work-related calls in private time, than for private calls in worktime. Consequently, in the case of work-related calls the threshold can be reached more frequently. This supports the finding, that incoming private calls during worktime do not transfer private life-related stress as easily as work-related calls do in free time.

The qualitative results indicated that this threshold level is highly influenced by the priority difference between the work domain compared to private life, and by the different levels of required attention. According to the focus groups, work domain has

higher priority and demands more focus, thus any interaction, such as a phone call, can be more disturbing or distracting. This influences not only the present threshold levels, but mobile communication-related practices and the level of acceptance and personal strategies for work-related communications in private time and private communications during working hours.

Interestingly our research does not contribute to the conception of gendered work/family boundaries (Chesley, 2005); thus, men and women show the same patterns in terms of persistent mobile phone use and spillovers. On the other hand, this research provides evidence for the differing preferences and strategies of blue-collar and shift workers, whose daily work-related routines, and interpretations about weekends or holidays can be completely different from the largely researched office workers or other non-shift workers.

7.2 Discussion

This study aimed to challenge the existing empirical literature in the field of ICT-WLB relationship in four basic ways. First of all, in order to have comparable results, this research applied a transparent theoretical framework, and avoided mixing terms and definitions during conceptualisation. Spillover theory (Zedeck & Mosier, 1990), as the most common concept in the Hungarian and international literature, was the base for phrasing research questions and hypotheses, and influenced the operationalisation of the variables and interpretation of results. Spillover theory proved to be a fruitful conception in our quantitative strand. Applying its distinctions in the direction of the transfers between the two domains (work-to-life; life-to-work) and in the quality of the transfers (positive and negative), we managed to get a complex view about our research issue. During the qualitative phase, border theory (Clark, 2000) provided added value by providing an interpretative framework for investigating the relevant characteristics of the domains, and the domain borders. From the aspect of ICTs however, middle-range theories did not prove to be so useful. This is because middle range theories focus more on the pathways of technological development and less on the implications of technology use from the aspect of social processes or phenomena. Here, the middle-range theoretical literature certainly has shortcomings. The main idea was to avoid the perspective of technological determinism, and notice that people

change their ICT usage and establish claims to ICT, but methodologically this was successful only in the qualitative strand, applying the approach of STS in the quantitative strand proved to be problematic.

Second, this thesis aimed to handle the extraordinary level of complexity in terms of social and technology-related factors, while keeping high validity and reliability. The strategy for doing so was to apply a well-designed, mixed-methods research, which involves the advantages of the two methodological paradigms: quantitative and qualitative approachs. The explanatory sequential design started with a national representative survey that was followed by a series of focus group discussions, where the investigated population consisted not only the easily available, commonly applied sample or hypothetically most affected populations, such as office workers, but shift workers and manual workers too, which provided room for discovering new aspects.

Third, the aim of this research was to unveil causal relationships that were unknown thus far. Research about the effects of ICTs (including mobile telephony) on the relationship between work and private life domains have found, that they can both hinder and facilitate WLB and affect life domains differently. ICTs support negative work-to-family spillover (Tennakoon, 2007); however, other factors such as age, family type and job characteristics can have a great influence in this association (Wajcman et al., 2008). This thesis research unveiled that the situation is so complex, that the effect of mobile use on spillover can be seen clearly only if we consider several factors, but more importantly, distinguish certain types of mobile communications. In other words methodologically this research is also evidence for the dangers of data reduction. It turned out, that persistent use of communication technology is associated with negative work-to-life spillover (e.g. Chesley, 2005), but not generally, and not for all the types of technology uses. If we contract all the mobile use items into one mobile use scale, the relationship cannot be detected. Mobile emailing has less effect than traditional mobile use, and timing and topic have also major importance. Only the cross-directional mobile use items (thus work related communication in non-worktime and private communications in worktime) proved to be relevant from the aspect of spillover, and recalling the definition of spillover can explain why. Into the division between mobile emailing and traditional mobile communications only the qualitative strand was able to provide deeper insight.

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This research also unveiled, that workdays after working hours, and non-workdays are different from the aspect of mobile use and work-to-life spillover relationship. There seems to be emotional, mental and policy-related differences between these two types of free time that influences the perception of spillover due to increased mobile use.

Additionally, the quantitative strand had the surprising result, that unlike stress and thoughts, the feeling that one's job prevents one from spending time enough with family or partner is not influenced by work-to-life mobile communications. The qualitative strand suggested that there must be frequency thresholds for mobile communication for both work-related mobile communications in private time and for private mobile communications in worktime, that can be different, and that have to be reached in order to perceive any spillover effect. From the aspect of spillovers two domain characteristics also proved to have importance from the aspect of mobile-spillover relationship. These are the relative importance of the life domain, and their attention intensity. The work domain has usual priority compared to private life, and in most (but not all) cases, the work domain is also highly attention-intensive. Both seem to influence the perception of spillover induced by mobile phone use, and also the level of frequency threshold.

The research also had some locally relevant outcomes. Interestingly, on the contrary of the traditional, family oriented values that are prevalent in Hungary, and the common dual-earner model and strongly segregated gender roles, this research did not identify any gender discrepancy in the mobile use-spillover relationship. On the other hand, this research provides evidence for the differing preferences and strategies of shift workers, whose daily work routines, and interpretations about weekends or holidays can be completely different from the largely researched office workers or other non-shift workers. This last finding can be not only a local speciality, but raises question for the international empirics too.

Finally, the fourth basic way to challenge empirical literature in the field of the ICT-WLB relationship was to provide many lessons not only for the academic, but the business sector alike, admitting that managing spillover and maintaining balance between work and private life is not only a sociological, but organisational policy question too (Király, et al. 2015). One implication for a business organisation can be,

that from a WLB, aspect emailing can be a more preferred work-related communication format, because it is recorded, less time-specific and less effective from the aspect of negative work-to-life spillover, while it is also true, that work-related mobile calls and SMSs have not only negative spillover consequences, but positive also although, the frequency matters. After reaching a frequency threshold employees probably perceive negative spillovers more strongly, and as a compensational strategy they can start to educate their colleagues and generate sanctions (denying calls even during worktime).

It is also important, that on the contrary one might assume, private communication in worktime does not contribute to negative life-to-work spillovers, and employers are usually conscious about this aspect; and in case of reaching a threshold, and perceiving negative spillovers, again, they educate their family members/ friends. It can also inform corporate policies, that free time after working hours, weekends and holidays are different private time categories from the aspect of border crossing mobile use and WLB. Calling someone in work-related issue is considered as the most serious border violation in the case of holidays, while in the case of workdays (after working hours) border crossing communication is usually more accepted. Respecting these preferences can lead to higher perception of work-life balance among employees.

7.3 Limitations and suggestions for future research

Finally it is important to draw attention to some limitations of this thesis that can contribute to future researchin the field. First of all, the focus of the analysis was only on one technology, instead of a broad set of info-communication technologies. The reason behind this specialisation was to provide a clear view about the social effects of a certain type of ICT, without conflating its social consequences with other devices or infrastructure. The advantage of this concentration however comes at a price. Taking mobile telephony out of the ICT cluster is also a reduction. During the last few years a group of people evolved within the Hungarian society (and also worldwide), who uses a complete portfolio of ICT devices (involving laptop and smartphone) on a daily basis in their work as well as in their private life. They can be labelled as 'advanced technology users', whose smart phones provide access to a wide range of internet-based communication applications that have become substitutions for the traditional

mobile network-based communicational forms. The qualitative strand of this research also confirmed that this certain group tends to apply the same communication platforms (e.g. Facebook, Skype) on their notebooks, tablets and mobile phones. Future research has to take into consideration, that the advanced technology users do not structure their thinking about telecommunication based on devices any more, but based on applications, that are available from different ICT tools. They do not make a distinction between their mobile phone-use and laptop-use, but between oral and written communication, between Skype calls and Facebook messages. Although this problem is not relevant for the whole society, for certain groups it is inevitable to consider the ICT cluster as a whole, and to introduce new ICT use-related categories (e.g. written communication vs. oral communication) instead of applying the categories of this research (traditional mobile use vs. mobile emailing). This finding is also an excellent proof of the theoretical concept of SCOT (Bijker et al., 2012): The different technology-interpretations of different social groups were the most recognisable, and where the dynamic, interactional relationship between technological development and society was not only noticeable, but became a methodological issue.

Another shortcoming of this research is that the second phase was unable to investigate why private mobile emails increase negative life-to-work spillovers, because of the changing user habits. Focus group members reported that they typically do not write or read private emails on their mobile phones any more, but use other communication platforms instead. Although a qualitative research is not representative, thus based on this we cannot estimate the extent of technological substitution on a societal level, but we can suspect, that there is a general trend behind the responses, which applies mainly for advanced technology users. Future research in this field has to take into consideration these changes. Here again, it can be highly relevant to phrase research questions in terms of communication platforms instead of applying a device-based limitation in the scope of research.

Finally, mobile phone use-related WLB research has the potential to be further expanded and developed for currently under-researched populations (e.g. to employees who have no children but have other dependent family members or to lower skilled and manual workers). In the future, it may also be fruitful to investigate how job characteristics [e.g. job autonomy (Maume et al., 2009), employment status, security

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or other communication-related specificities, working hours, work-related stress, etc.] can affect the role of mobile use in creating WLB, or whether a job-based typology can be established. It would be also interesting to undertake cross-cultural or cross-generational studies. Because current research focuses on families with small children, older age groups who have different situations and different mobile use practices (that is supported also by this research) are usually omitted from literature; these populations are ripe for researching. Gender comparisons, on the other hand, are quite common in the literature. However, the emphasis is on women, which indicates that the situation of the relationship between mobile-WLB to men/fathers is also under-researched. There is also a room for longitudinal research that can unveil the dynamics of WLB–ICT interaction.

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9 Appendices

Appendix 1

Secondary data analyses

Available databases about mobile telephone use and work-life balance

<u>European Social Survey</u>

ESS was initiated in 2001 in order to provide social, political and demographical data about European societies that can be compared internationally. The biannual data collection focuses primarily on the political and public preferences, social attitudes, believes, behaviour patterns and values. The data base is representative according to gender, age, place of living, level of education, and is collected among 15+ population in every wave also in Hungary. From 2001 the questionnaire has covered the following questions that are most relevant from the aspect of this research:

Indicators:

- ESS3, ESS4 *Do you have an own mobile phone? (Van saját mobiltelefonja?)* (yes/no)

Evaluating indicator:

The single question about mobile use transfers few information, it can be used basically only to analyse mobile penetration. This makes data set useless if we want to have a picture about work-life balance from the aspect of mobile telephony.

<u>Eurobarometer</u>

European Parliament orders public opinion analysis regularly in the member states of the European Union about the European integration in general, the perceptions and preferences related to questions like enlargement, social and economic situation, health, culture, information technology, environment, the Euro, defence, etc. The questionnaire contained the following mobile telephony-related questions (from 2010):

Indicators:

- 2010, 2011, 2013 (79.4) *Do you have a mobile phone? (Van mobiltelefonja?)* (yes/no)
- 2012 (76.4, 75.1), 2013 (79.1) *Does your mobile subscription provide Internet access, the possibility to play or to download audio/ video contents, the possibility to send or receive e-mails?* (yes/no) *Mobiltelefon előfizetése lehetővé teszi az Ön számára az*

internet hozzáférést, hogy játsszon vagy audio/ videó tartalmakat töltsön le, emaileket küldjön és fogadjon? (igen, nem)

- 2012 (77.2) *What kind of device do you use for browsing the Internet?* (desktop computer/ notebook/ tablet/ smartphone/ other) (*Milyen készülékeket használ az internetezéshez?*

Evaluating indicators:

Mobile telephone-related questions focus primarily again on the possession of a mobile device, and whether their subscription allows using Internet, and they do not cover the purpose (private/work) and the quantity of usage. These indicators are suitable for descriptive data analysis (e.g. penetration among different social groups), but cannot be used as independent variables in an interpretative analysis to investigate work-life balance.

Eurofound:

Eurofound is a trilateral agency of the European Union, that aims to provide information, advisory and professional knowledge for the key actors of the EU's social policy making (employers, EU policy decision makers, governments, etc.) about e.g. the European life and work circumstances based on surveys and analyses.

Indicators:

- (2007) *On average how often do you contact your friends and kinships outside your household via phone calls, e-mails or postal letters?* (With your children, your mother or father, your sisters, brothers or other relatives, your friends or neighbours- more times a day, every day, almost every day, at least once a week, once or twice a month, several times a year, more rarely, I do not have kinships, Do not know) *Átlagosan, milyen gyakran lép kapcsolatba telefonon, e-mail-ben, vagy postai úton a barátaival, vagy háztartásán kívül élő családtagjaival?*

- (2013) *Do you have a mobile phone in your household?* (yes/no) *Van-e mobiltelefon a háztartásban?*

Evaluating indicators:

The mobile use-related questions are gathered with other communication channels (e-mailing, conventional mailing), thus the effects of mobile phone cannot be separated based on the answers. Moreover they focus on the relationships outside the household, thus the full extent of private mobile use cannot be calculated because the relationships within the household are

missing. (This question is a part of a block that aims to discover the personal and non-personal contacting with friends and family members in general.) Although there is a negative spillover-related question in the 2007 questionnaire, that could be operationalised as dependent variable together with question Q6/2007 about time spent on paid work and question Q37/2007 about time spent on raising children, doing homework, nursing elderly people as control variables, in absence of proper independent variable the analysis cannot be carried out.

<u>World Internet Project</u>

The World Internet Project (WIP) is one of the biggest international comparative researches, that focuses on the social, political and economic effects of the Internet and other new technologies. Hungary participated WIP data collection between 2001 and 2007. Based on the 2007 quick report on the results of the research we can highlight the following indicators:

Indicators

- Cable and mobile phone accessibility of households
- How often do you send or receive SMS?

Evaluating indicators:

Although the data set contains information about the intensity of SMS use (without the intensity of phone calls which is already problematic), it does not include work-life balance questions at all, thus data are insufficient for unveiling relationship between mobile phone and creating work-life balance in frame of a secondary analysis.

<u>Time-use survey</u>

From 1st of October, 2009 and 30th of September, 2010, Hungarian Central Statistical Office carried out a time-use survey among people between 10 and 84, living in private households. This was the 6th data collection of this type from 1963. The survey applied the following telephone-use-related indicators:

Indicators

- Purchasing or ordering food online or using telephone *Élelmiszer-vásárlás, -megrendelés interneten vagy telefonon keresztül*

- Purchasing or ordering clothes online or using telephone *Ruházati cikk megrendelése, vásárlása interneten, telefon*

- Purchasing or booking travel-related services (ticket, accommodation, program, etc.) online or using telephone *Utazásszervezés, foglalás interneten, telefonon (jegy, szállás, program stb.*

- Arranging issues using telephone (any issue) *Telefonos ügyintézés (bármely ügyben)*

- Real-time conversations on internet (chat, MSN, SKYPE, etc.) *Valós idejű beszélgetés (chat, MSN, SKYPE stb.) interneten keresztül*

- Telephone conversations (except for arranging issues) *Telefonbeszélgetés (a telefonos ügyintézés kivételével)*

Evaluating indicators:

The phrasing of the items does not make any difference between landline phone or mobile phone, and does not consider the fact, that online activities can also cover 'telephone use'. The last one can be explained by the relatively old data collection, viz. in 2009 and 2010 mobile internet use was not so prevalent yet. Additionally, real-time online conversations can involve both mobile telephony and PC-use. In spite of these shortcomings, two of the indicators are relevant from the aspect of this research: Arranging issues, and telephone conversations. Since data collection covered also the partners and aims of the activities, work-related and private uses could be identified, and since time use data also covered the worktime for each of the respondents, theoretically the work-related mobile uses in non-work time and the private mobile uses in worktime can be distinguished. In other words, data are able to unveil 'cross-directional' mobile use behaviours for different social groups. The same time however data collection does not involve any WLB-related data, thus, the mobile use data cannot be connected to the perceived WLB of the respondents.

Turning points of our lives

The social-demographic panel research called *Turning points of our lives* is one of the most significant researches of the Demographic Research Institute and the biggest questionnaire-based research that collects data about social and demographic situation in Hungary, about its transformations, and the reasons behind them. The research is executed in frame of the

international project *Generations and Gender Programme* (GGP), that aims to collect data about life circumstances, life curves in different countries. ICT related questions were not involved in either wave.

ISSP

ISSP is a continuous research based on an international cooperation that is also participated by Hungary. The topics of ISSP change every year, but they measure always public opinion and social attitudes. In 2012 ISSP focused on family and the changing gender roles, however the questionnaire did not involve ICT-use-related questions.

1) Estimating **behavioural** dimension of negative work-to-life spillover (frequency of thinking about work-related problems even during non-work time)

1.1

Variables	Model 1.1.1 (without control variables)						Model 1.1.2 (with control variables)					
	B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval		B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval	
Work-related calls and SMSs in free time on work days	**,607**	**,000**	**,121**	**,024**	**,074**	**,168**	**,500**	**,001**	**,094**	**,026**	**,043**	**,145**
Overwork							**,350**	**,003**	**,066**	**,021**	**,025**	**,108**
Working hours							,015	,336	,003	,003	-,003	,009
Profession *							,343	,159	,065	,046	-,024	,155
Station												
Stat2							**,675**	**,014**	**,139**	**,051**	**,039**	**,238**
Stat3							**,819**	**,014**	**,164**	**,058**	**,051**	**,278**
Stat4							,614	,059	,127	,061	,007	,248
Constant	-,315	,229					**-2,427**	**,001**				

Hosmer–Lemeshow Chi-square	15,480		11,410
Prob Chi-square	,000		,179
Pearson Chi-square	15,480		208,020
Prob Chi-square	,000		,075
	N=477		N=437

* two-cathegoric item

1.2

Variables	Model 1.2.1 (without control variables)						Model 1.2.2 (with control variables)					
	B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval		B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval	
Work-related calls and SMSs in free time on non-work days	**,504**	**,000**	**,102**	**,025**	**,053**	**,152**	**,490**	**,001**	**,093**	**,027**	**,041**	**,145**
Overwork							**,369**	**,002**	**,070**	**,021**	**,029**	**,112**
Working hours							,017	,291	,003	,003	-,003	,009
Profession *							,334	,171	,063	,046	-,026	,153
Station												
Stat2							**,693**	**,012**	**,143**	**,051**	**,043**	**,243**
Stat3							**,865**	**,010**	**,174**	**,058**	**,061**	**,287**
Stat4							**,660**	**,042**	**,137**	**,061**	**,017**	**,257**
Constant	-,047	,847					**-2,458**	**,001**				
Hosmer–Lemeshow Chi-square						6,990						6,850
Prob Chi-square						,008						,553
Pearson Chi-square						10,080						215,840
Prob Chi-square						,007						,024
* two-cathegoric item						N=476						N=437

1.3

Variables	Model 1.3.1 (without control variables)						Model 1.3.2 (with control variables)					
	B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval		B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval	
Work-related emails in free time on work days	,318	,081	0,062	0,035	-,0393	,6750	,085	,682	,015	,037	-,058	,088
Overwork							**,587**	**,000**	**,104**	**,025**	**,056**	**,152**
Working hours							,008	,691	,001	,004	-,006	,008
Profession *							**,667**	**,033**	**,118**	**,053**	**,015**	**,221**
Station												
Stat2							**,798**	**,040**	**,153**	**,064**	**,028**	**,279**
Stat3							,555	,197	,111	,079	-,044	,266
Stat4							,611	,159	,121	,078	-,031	,274
Constant	,518	,068			-,0389	1,0745	**-2,209**	**,014**				
Hosmer–Lemeshow Chi-square						9,230						5,750
Prob Chi-square						,002						,675
Pearson Chi-square						9,490						153,690
Prob Chi-square						,009						,036
* two-cathegoric item						N=304						N=273

1.4

Variables	Model 1.4.1 (without control variables)						Model 1.4.2 (with control variables)					
	B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval		B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval	
Work-related e-mails in free time on non-work days	**,565**	**,005**	**,108**	**,037**	**,037**	**,180**	,343	,127	,061	,039	-,016	,137
Overwork							**,560**	**,000**	**,099**	**,025**	**,050**	**,147**
Working hours							,009	,643	,002	,004	-,005	,009
Profession *							**,629**	**,043**	**,110**	**,052**	**,008**	**,213**
Station									,145	,064	,020	,270
Stat2							,764	,050	,107	,078	-,046	,259
Stat3							,542	,208	,106	,079	-,048	,261
Stat4							,542	,214				
Constant	,185	,530					**-2,474**	**,007**				
Hosmer–Lemeshow Chi-square						9,900						4,270
Prob Chi-square						,002						,832
Pearson Chi-square						10,040						159,130
Prob Chi-square						,007						,014

* two-cathegoric item   N=304   N=273

2) Estimating **stress** dimension of negative work-to-life spillover (frequency of feeling too much stress due to work to enjoy activities at home)

2.1

Variables	Model 2.1.1 (without control variables)						Model 2.1.2 (with control variables)					
	B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval		B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval	
Work-related calls and SMSs in free time on work days	**,350**	**,002**	**,085**	**,026**	**,034**	**,135**	**,321**	**,008**	**,071**	**,026**	**,021**	**,121**
Working overtime							**,550**	**,000**	**,120**	**,019**	**,083**	**,157**
Financial well-being							**-,485**	**,000**	**-,106**	**,029**	**-,163**	**-,050**
Age							**,020**	**,020**	**,004**	**,002**	**,001**	**,008**
Constant	**-,594**	**,012**					-,883	,177				
Hosmer–Lemeshow Chi-square						2,570						1,850
Prob Chi-square						,277						,985
Pearson Chi-square						2,570						401,070
Prob Chi-square						,277						,170

N=477   N=476

2.2 Variables	Model 2.2.1 (without control variables)						Model 2.2.2 (with control variables)					
	B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval		B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval	
Work-related calls and SMSs in free time on non-work days	**,462**	**,000**	**,110**	**,025**	**,060**	**,159**	**,480**	**,000**	**,104**	**,024**	**,056**	**,151**
Working overtime							**,561**	**,000**	**,120**	**,018**	**,084**	**,156**
Financial well-being							**-,495**	**,000**	**-,107**	**,028**	**-,162**	**-,051**
Age							**,021**	**,015**	**,005**	**,002**	**,001**	**,008**
Constant	**-,740**	**,001**					-1,155	,082				
Hosmer–Lemeshow Chi-square						4,500						8,250
Prob Chi-square						,034						,409
Pearson Chi-square						4,520						396,650
Prob Chi-square						,105						,292
						N=476						N=475

2.3 Variables	Model 2.3.1 (without control variables)						Model 2.3.2 (with control variables)					
	B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval		B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval	
Work-related e-mails in free time on work days	**,347**	**,026**	**,083**	**,036**	**,013**	**,154**	,295	,083	,062	,035	-,006	,130
Working overtime							**,658**	**,000**	**,136**	**,022**	**,093**	**,179**
Financial well-being							**-,485**	**,006**	**-,101**	**,036**	**-,172**	**-,030**
Age							**,036**	**,001**	**,008**	**,002**	**,003**	**,012**
Constant	-,268	,289					-1,379	,097				
Hosmer–Lemeshow Chi-square						1,010						8,610
Prob Chi-square						,314						,377
Pearson Chi-square**						2,160						
Prob Chi-square						,340						

** the number of covariate patterns is close to the number of observations, Pearson chi-suare is not indicated, becasue the applicability of the test is questionable, altough not necessarily inappropriate.

N=304   N=304

	Variables	Model 2.4.1 (without control variables)						Model 2.4.2 (with control variables)					
		B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval		B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval	
2.4	**Work-related e-mails in free time on non-work days**	**,455**	**,004**	**,108**	**,035**	**,039**	**,176**	**,451**	**,009**	**,093**	**,034**	**,027**	**,159**
	Working overtime							**,646**	**,000**	**,132**	**,022**	**,088**	**,175**
	Financial well-being							**-,526**	**,004**	**-,108**	**,036**	**-,178**	**-,038**
	Age							**,036**	**,001**	**,008**	**,002**	**,003**	**,012**
	Constant	-,418	,099					-1,461	,079				
	Hosmer–Lemeshow Chi-square						4,240						7,650
	Prob Chi-square						,040						0,4689
	Pearson Chi-square**						4,390						
	Prob Chi-square						,111						

** the number of covariate patterns is close to the number of observations, Pearson chi-suare is not indicated, becasue the applicability of the test is questionable, although not necessarily inappropriate.   N=304   N=304

3)   Estimating **time** dimension of negative work-to-life spillover (frequency of events when work prevents one from spending enough time with family/partner)

	Variables	Model1 (without control variables)						Model2 (with control variables)					
		B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval		B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval	
3.1	Work-related calls and SMSs in free time on work days	,139	,204	,035	,027	-,018	,087	,035	,765	,008	,027	-,045	,061
	Working overtime							**,561**	**,000**	**,126**	**,019**	**,089**	**,163**
	Family status*							**,458**	**,019**	**,104**	**,042**	**,021**	**,187**
	Constant	-,216	,353					**-2,006**	**,000**				
	Hosmer–Lemeshow Chi-square						,140						26,120
	Prob Chi-square						,934						,567
	Pearson Chi-square						,140						3,130
	Prob Chi-square						,934						,926

* two-cathegoric item   N= 476   N=476

		Model1 (without control variables)						Model2 (with control variables)					
3.2	Variables	B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval		B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval	
	Work-related calls and SMSs in free time on non-work days	**,314**	**,006**	**,077**	**,026**	**,025**	**,128**	**,282**	**,018**	**,064**	**,026**	**,012**	**,115**
	Working overtime							**,563**	**,000**	**,125**	**,019**	**,089**	**,162**
	Family status*							**,470**	**,017**	**,105**	**,042**	**,023**	**,188**
	Constant	**-,500**	**,024**					**-2,458**	**,000**				
	Hosmer–Lemeshow Chi-square						,880						8,200
	Prob Chi-square						,348						,414
	Pearson Chi-square						1,030						27,500
	Prob Chi-square						,598						,491

* two-cathegoric item   N= 475   N= 475

		Model1 (without control variables)						Model1 (without control variables)					
3.3	Variables	B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval		B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval	
	Work-related e-mails and SMSs in free time on work days	,283	,064	,069	,036	-,002	,139	,166	,311	,037	,036	-,034	,108
	Working overtime							**,633**	**,000**	**,138**	**,023**	**,093**	**,182**
	Family status*							,324	,186	,072	,053	-,032	,176
	Constant	**-,199**	**,425**					**-1,984**	**,000**				
	Hosmer–Lemeshow Chi-square						1,320						7,600
	Prob Chi-square						,251						,269
	Pearson Chi-square						4,560						22,680
	Prob Chi-square						,102						,480

* two-cathegoric item   N= 303   N= 303

	Model1 (without control variables)						Model1 (without control variables)					
3.4 Variables	B coefficient	Significance	AME	Std. Err.	95% Conf. Interval		B coefficient	Significance	AME	Std. Err.	95% Conf. Interval	
Work-related e-mails and SMSs in free time on non-work days	,294	,055	**,071**	**,036**	**,001**	**,142**	,198	,227	,044	,036	-,026	,114
Working overtime							**,628**	**,000**	**,137**	**,023**	**,092**	**,181**
Family status							,350	,156	,077	,053	-,027	,182
Constant	-,212	,393					**-2,061**	**,000**				
Hosmer–Lemeshow Chi-square						,640						6,900
Prob Chi-square						,423						,228
Pearson Chi-square						2,700						20,320
Prob Chi-square						,259						,623

* two-cathegoric item   N= 303   N= 303

4) Estimating affective dimension nr1 of positive life-to-work spillover (frequency when home successes contribute to work performance)

4.1

Variables	B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval	
Model1 (without control variables)						
Private calls in work time	**,927**	**,007**	**,047**	**,021**	**,006**	**,088**
Constant	**1,249**	**,042**				
Hosmer–Lemeshow Chi-square						4,870
Prob Chi-square						,027
Pearson Chi-square						7,300
Prob Chi-square						,026
						N=471

4.2

Variables	B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval	
Model1 (without control variables)						
Private emails in work time	,218	,623	,008	,018	-,259	,043
Constant	2,858	,000				
Hosmer–Lemeshow Chi-square						2,370
Prob Chi-square						,124
Pearson Chi-square						4,430
Prob Chi-square						,109
						N=300

5) Estimating instrumental/ skill transfer dimension of positive life-to-work spillover (frequency of utilizing those capabilities at work, what you have learnt at home)

5.1

Variables	B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval		B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval	
Model1 (without control variables)							Model2 (with control variables)					
Private calls in work time	**1,204**	**,000**	**,145**	**,026**	**,094**	**,195**	**1,139**	**,000**	**,136**	**,027**	**,083**	**,189**
fleixble worktime							,173	,290	,020	,019	-,017	,058
Constant	-,472	,240					-,624	,148				
Hosmer–Lemeshow Chi-square						,490						8,720
Prob Chi-square						,484						,121
Pearson Chi-square						,720						23,230
Prob Chi-square						,698						,039
						N=472						N=472

5.2

Variables	Model1 (without control variables)						Model2 (with control variables)					
	B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval		B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval	
Private emails in work time	,625	,075	,057	,034	-,010	,124	,611	,092	,056	,035	-,013	,124
fleixble worktime							,031	,874	,003	,017	-,031	,037
Constant	**1,342**	**,006**					**1,306**	**,015**				
Hosmer–Lemeshow Chi-square						,050						10,570
Prob Chi-square						,828						,032
Pearson Chi-square						,180						21,260
Prob Chi-square						,916						,031
						N=299						299

6) Estimating affective dimension nr2 of positive life-to-work spillover (frequency when positive feelings at home affect the way you feel at work)

6.1

Variables	Model1 (without control variables)					
	B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval	
Private calls in work time	**1,034**	**,005**	**,048**	**,021**	**,006**	**,090**
Constant	1,182	,066				
Hosmer–Lemeshow Chi-square						,010
Prob Chi-square						,933
Pearson Chi-square						,090
Prob Chi-square						,954
						N=473

6.2

Variables	Model1 (without control variables)					
	B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval	
Private emails in work time	,349	,537	,010	,016	-,023	,042
Constant	**3,053**	**,000**				
Hosmer–Lemeshow Chi-square						2,070
Prob Chi-square						,150
Pearson Chi-square						2,140
Prob Chi-square						,342
						N=301

7) Estimating affective dimension nr1 of positive work-to-life spillover (frequency when work successes contribute to performance at home)

7.1

Variables	Model1 (without control variables)						Model2 (with control variables)					
	B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval		B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval	
Work-related calls in free time on work days	**,681**	**,004**	**,053**	**,020**	**,013**	**,092**	**,671**	**,013**	**,048**	**,021**	**,008**	**,088**
Flextime work							,317	,201	,022	,018	-,012	,057
Profession*							,863	,060	,063	,036	-,008	,133
Number of children							**-,370**	**,014**	**-,026**	**,011**	**-,047**	**-,005**
Constant	**1,179**	**,006**					,351	,644				
Hosmer–Lemeshow Chi-square						,780						9,330
Prob Chi-square						,677						,315
Pearson Chi-square						,780						225,200
Prob Chi-square						,677						,000
					N=466						N=463	

* two-cathegoric item

7.2

Variables	Model1 (without control variables)						Model2 (with control variables)					
	B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval		B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval	
Work-related calls on non-work days	**,784**	**,003**	**,061**	**,023**	**,017**	**,106**	**,712**	**,015**	**,051**	**,022**	**,008**	**,095**
Flextime work							,318	,203	,022	,018	-,013	,057
Profession*							**,916**	**,045**	,067	,037	-,005	,139
Number of children							**-,381**	**,013**	**-,027**	**,011**	**-,049**	**-,005**
Constant	**1,134**	**,007**					,351	,648				
Hosmer–Lemeshow Chi-square						,520						8,660
Prob Chi-square						,472						,372
Pearson Chi-square						,740						156,130
Prob Chi-square						,691						,000
					N=465						N=462	

* two-cathegoric item

7.3

Variables	Model1 (without control variables)						Model2 (with control variables)					
	B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval		B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval	
Work-related emails in free time on work days	,661	,090	,051	,032	-,013	,114	1,154	,054	,085	,050	-,013	,182
Flextime work							,231	,379	,016	,018	-,020	,051
Profession**							,598	,238	,041	,037	-,031	,114
number of children							-,291	,120	-,020	,013	-,045	,006
Constant	1,529	,004					,376	,722				
Hosmer–Lemeshow Chi-square						1,420						69,060
Prob Chi-square						,233						,374
Pearson Chi-square***						1,540						7,870
Prob Chi-square						,463						,447
						N=294						N=291

7.4

Variables	Model1 (without control variables)						Model2 (with control variables)					
	B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval		B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval	
Work-related emails on non-work days	**1,293**	**,023**	,105	,054	-,001	,210	**1,858**	**,044**	,145	,083	-,018	,308
Flextime work							,199	,454	,013	,018	-,022	,048
Profession**							,561	,272	,038	,036	-,033	,109
number of children							-,293	,121	-,020	,013	-,046	,006
Constant	,801	,232					-,264	,836				
Hosmer–Lemeshow Chi-square						,570						14,960
Prob Chi-square						,450						,060
Pearson Chi-square***						,580						52,720
Prob Chi-square						,747						,819
						N=294						N=291

8.1 Estimating instrumental dimension of positive work-to-life spillover (Frequency when you can utilize skills at work, that you have aqcuired at home)

Variables	Model1 (without control variables)						Model2 (with control variables)					
	B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval		B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval	
Work-related calls in free time on work days	,264	,055	,046	,024	-,001	,092	,092	,537	,016	,025	-,034	,065
Flexible working hours							**,438**	**,001**	**,074**	**,023**	**,030**	**,119**
Constant	,725	,009					,347	,262				
Hosmer–Lemeshow Chi-square						8,430						26,000
Prob Chi-square						,004						,000
Pearson Chi-square***						9,270						49,840
Prob Chi-square						,010						,000
						N=474						N=474

8.2

Variables	Model1 (without control variables)						Model2 (with control variables)					
	B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval		B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval	
Work-related calls on non-work days	**,473**	**,002**	**,081**	**,025**	**,032**	**,129**	**,326**	**,042**	**,055**	**,027**	**,003**	**,107**
Flexible working hours							**,373**	**,007**	**,063**	**,023**	**,018**	**,108**
Constant	,418	,118					,068	,822				
Hosmer–Lemeshow Chi-square						1,770						8,640
Prob Chi-square						,183						,124
Pearson Chi-square***						2,340						48,790
Prob Chi-square						,310						,000
						N=473						N=473

8.3

Variables	Model1 (without control variables)						Model2 (with control variables)					
	B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval		B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval	
Work-related emails in free time on work days	,186	,339	,030	,032	-,032	,093	,073	,724	,012	,034	-,054	,078
Flexible working hours							,257	,089	,042	,024	-,006	,089
Constant	1,073	,000					,779	,028				
Hosmer–Lemeshow Chi-square						,480						7,650
Prob Chi-square						,490						,105
Pearson Chi-square***						1,760						33,860
Prob Chi-square						,414						,001
						N=302						N=302

8.4

Variables	Model1 (without control variables)						Model2 (with control variables)					
	B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval		B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval	
Work-related emails on non-work days	,055	,765	,009	,030	-,051	,069	-,066	,736	-,011	,032	-,073	,052
Flexible working hours							,289	,055	,047	,024	-,001	,094
Constant	1,262	,000					,924	,008				
Hosmer–Lemeshow Chi-square						,500						15,470
Prob Chi-square						,479						,009
Pearson Chi-square***						2,540						41,360
Prob Chi-square						,281						,000
						N=302						N=302

9.1 Estimating affective dimension Nr2 of positive work-to-life spillover (frequency when positive feelings at work affect the way one feels at home)

Variables	Model1 (without control variables)						Model2 (with control variables)					
	B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval		B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval	
Work-related calls in free time on work days	,510	,069	,026	,015	-,005	,056	,549	,051	,027	,016	-,003	,058
Family status							**,924**	**,024**	**,049**	**,025**	**-,001**	**,098**
Constant	1,969	,000					,466	,568				
Hosmer–Lemeshow Chi-square						2,340						8,230
Prob Chi-square						,311						,144
Pearson Chi-square***						2,340						8,370
Prob Chi-square						,311						,137
						N=475						N=475

9.2 Variables	Model1 (without control variables)						Model2 (with control variables)					
	B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval		B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval	
Work-related calls on non-work day	**,855**	**,011**	**,045**	**,021**	**,004**	**,086**	**,900**	**,008**	**,047**	**,021**	**,006**	**,087**
Family status							**,960**	**,020**	**,050**	**,025**	**,000**	**,100**
Constant	1,539	,003					-,023	,978				
Hosmer–Lemeshow Chi-square						3,480						7,260
Prob Chi-square						,062						,123
Pearson Chi-square***						3,600						7,460
Prob Chi-square						,166						,189
						N=474						N=474

9.3 Variables	Model1 (without control variables)						Model2 (with control variables)					
	B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval		B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval	
Work-related emails in free time on work days	,996	,121	,046	,037	-,026	,118	1,063	,107	,049	,038	-,026	,125
Family status							,736	,181	,032	,027	-,021	,086
Constant	1,794	,024					,557	,643				
Hosmer–Lemeshow Chi-square						,420						2,300
Prob Chi-square						,516						,566
Pearson Chi-square***						,450						2,050
Prob Chi-square						,800						,842
						N=303						N=303

9.4 Variables	Model1 (without control variables)						Model2 (with control variables)					
	B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval		B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval	
Work-related emails on non-work da	,188	,634	,008	,017	-,025	,041	,234	,554	,010	,017	-,024	,043
Family status							,701	,200	,031	,027	-,023	,085
Constant	2,813	,000					1,647	,120				
Hosmer–Lemeshow Chi-square						1,600						2,980
Prob Chi-square						,206						,225
Pearson Chi-square***						1,750						4,130
Prob Chi-square						,416						,532
						N=303						N=303

10) Estimating **stress** dimension of negative life-to-work spillover (frequency of feeling stressed because of family-related problems even at your workplace)

10.1

Variables	Model1 (without control variables)						Model2 (with control variables)					
	B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval		B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval	
Private mobile calls and SMSs in work time	,168	,220	,036	,029	-,021	,092	,237	,107	,047	,028	-,009	,102
Doing overwork							**,412**	**,000**	**,081**	**,019**	**,044**	**,118**
Profession*							**-,601**	**,010**	**-,117**	**,043**	**-,202**	**-,032**
Financial well-being							**-,397**	**,008**	**-,078**	**,028**	**-,133**	**-,022**
Constant	-1,154	,000					-,069	,909				
Hosmer–Lemeshow Chi-square						1,190						6,970
Prob Chi-square						,276						,539
Pearson Chi-square***						2,780						97,600
Prob Chi-square						,250						,035
* two-categorical variable						N=476						N=472

10.2

Variables	Model1 (without control variables)						Model2 (with control variables)					
	B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval		B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval	
Private mobile emails in work time	,301	,066	,062	,033	-,002	,125	,329	,063	,064	,034	-,002	,131
Doing overwork							,232	,077	,045	,025	-,004	,095
Profession*							**-,594**	**,036**	**-,115**	**,052**	**-,218**	**-,012**
Financial well-being							-,263	,155	-,052	,036	-,122	,019
Constant	-1,336	,000					-,179	,804				
Hosmer–Lemeshow Chi-square						,150						12,530
Prob Chi-square						,698						,129
Pearson Chi-square***						,560						72,630
Prob Chi-square						,754						,079
* two-categorical variable						N=304						N=301

11) Estimating **time** dimension of negative life-to-work spillover (frequency when family commitments prevent you from dedicate time enough to your job)

11.1

Variables	Model1 (without control variables)						Model2 (with control variables)					
	B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval		B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval	
Private calls/SMS in work time	,164	,295	,026	,025	-,023	,076	,019	,914	,003	,027	-,051	,057
Doing overwork							**,253**	**,027**	**,040**	**,018**	**,005**	**,075**
Flexible working hours							,201	,091	,032	,019	-,005	,069
Constant	**-1,704**	**,000**					**-2,354**	**,000**				
Hosmer–Lemeshow Chi-square						,780						18,270
Prob Chi-square						,376						,019
Pearson Chi-square***						2,170						49,600
Prob Chi-square						,337						,489
						N=476						N=476

11.2

Variables	Model1 (without control variables)						Model2 (with control variables)					
	B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval		B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval	
Private emails in work time	**,498**	**,004**	**,084**	**,028**	**,029**	**,138**	**,420**	**,025**	**,070**	**,031**	**,011**	**,130**
Doing overwork							,100	,480	,017	,024	-,030	,063
Flexible working hours							,114	,396	,019	,023	-,025	,063
Constant	-2,016	,000					**-2,349**	**,000**				
Hosmer–Lemeshow Chi-square						2,870						14,280
Prob Chi-square						,090						,075
Pearson Chi-square***						3,040						41,680
Prob Chi-square						,218						,529
						N=303						N=303

12.1 Estimating **behavioural** dimension of negative life-to-work spillover (frequency you are dealing with family problems even when you are working)

Variables	Model1 (without control variables)						Model2 (with control variables)					
	B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval		B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval	
Private mobile calls and SMS in work time	,180	,160	,045	,031	-,017	,106	,235	,083	,055	,031	-,006	,117
Doing overwork							**,361**	**,000**	**,085**	**,021**	**,044**	**,126**
Profession**							**-,604**	**,002**	**-,140**	**,042**	**-,222**	**-,058**
Constant	-,311	,258					-,404	,312				
Hosmer–Lemeshow Chi-square						,060						27,640
Prob Chi-square						,801						,430
Pearson Chi-square***						,170						6,740
Prob Chi-square						,919						,346
** two-cathegoric item						N=475						N=472

12.2

Variables	Model1 (without control variables)						Model2 (with control variables)					
	B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval		B coeff.	Sign.	AME	Std. Err.	95% Conf. Interval	
Private mobile emails in work time	**,458**	**,006**	**,109**	**,037**	**,037**	**,182**	**,504**	**,004**	**,116**	**,037**	**,043**	**,190**
Doing overwork							,208	,086	,049	,028	-,005	,103
Profession**							**-,634**	**,008**	**-,145**	**,050**	**-,243**	**-,047**
Constant	-,550	,039					-,194	,680				
Hosmer–Lemeshow Chi-square						,430						8,220
Prob Chi-square						,512						,222
Pearson Chi-square***						2,090						32,600
Prob Chi-square						,352						,068
** two-cathegoric item						N=302						N=299

Content of private mobile use

How often do you use your mobile phone for…	Never		Sometimes		Frequently		Always		N/A	
	Freq.	Percent	Freq.	Percent	Freq.	Percent	Freq.	Percent	Freq.	Percent
… arranging family meals	238	37,01%	248	38,57%	136	21,15%	20	3,11%	1	0,16%
…arranging meetings with family members or members of the household	85	13,22%	260	40,44%	253	39,35%	44	6,84%	1	0,16%
… shopping	302	46,97%	224	34,84%	93	14,46%	23	3,58%	1	0,16%
… finding out where the family members are	93	14,46%	287	44,63%	215	33,44%	47	7,31%	1	0,16%
… bringing the children home	409	63,61%	111	17,26%	89	13,84%	21	3,27%	13	2,02%
… informing others about home arrival	117	18,20%	269	41,84%	208	32,35%	47	7,31%	2	0,31%
… calling the doctor	207	32,19%	347	53,97%	65	10,11%	21	3,27%	3	0,47%
arranging with babysitter, cleaning woman	570	88,65%	33	5,13%	24	3,73%	6	0,93%	10	1,56%
arranging maintanence of flat, houes, car	315	48,99%	267	41,52%	50	7,78%	8	1,24%	3	0,47%
Keeping connection with old relatives, nursers	213	33,13%	232	36,08%	148	23,02%	43	6,69%	7	1,09%
Arranging children's preschool, school (e.g. with classmates' parents, teachers, organising events, camps)	388	60,34%	139	21,62%	86	13,37%	19	2,95%	11	1,71%
Other	530	82,43%	22	3,42%	17	2,64%	14	2,18%	60	9,33%

N=643

Comparing mobile e-mail users to non-users

I'm doing overwork. How much does this caracterise your work?	Sample			Non-mobile-email-subscribers		
	Freq.	Perc.	Cumm. Perc.	Freq.	Perc.	Cumm. Perc.
Never	138	29,810	29,810	61	38,360	38,360
Seldom	140	30,240	60,040	44	27,670	66,400
Often	137	29,590	89,630	40	25,160	91,190
Always	48	10,370	100,000	14	8,810	100,000
Sum	463	100		159	100	
Mean			2,210			2,044
Std. Dev.			0,984			0,995

N=622

Comparing mobile e-mail users to non-users

I'm doing overwork. How much does this caracterise your work?	Never	At least Seldom	SUM	OR	1/OR
Mobile User (non-conditional distribution)	77	227	304	**0,545**	**1,835**
Non-Mobile User (conditional distribution)	61	98	159		
	138,000	325,000	463,000		

I'm doing overwork. How much does this caracterise your work?	Always	Never, Seldom, Frequently	SUM	OR	1/OR
Mobile User (non-conditional distribution)	34	270	304	**1,304**	**0,767**
Non-Mobile User (conditional distribution)	14	145	159		
	48,000	415,000	463,000		

I have flexible working hours. How much does this caracterise your work?	Sample			Non-mobile-email-subscribers		
	Freq.	Perc.	Cumm. Perc.	Freq.	Perc.	Cumm. Perc.
Never	269	58,100	58,100	109	68,550	68,550
Seldom	82	17,710	75,810	23	14,470	83,020
Often	73	15,770	91,580	21	13,210	96,230
Always	39	8,420	100,000	6	3,770	100,000
Sum	463	100		159	100	
Mean			1,750			1,522
Std. Dev.			0,890			0,863

N=622

Comparing mobile e-mail users to non-users

I have flexible working hours. How much does this caracterise your work?	Never	At least Seldom	SUM	OR	1/OR
Mobile User (non-conditional distribution)	160	144	304	**0,510**	**1,962**
Non-Mobile User (conditional distribution)	109	50	159		
	269,000	194,000	463,000		

I'm doing overwork. How much does this caracterise your work?	Always	Never, Seldom, Frequently	SUM	OR	1/OR
Mobile User (non-conditional distribution)	33	271	304	**3,105**	**0,322**
Non-Mobile User (conditional distribution)	6	153	159		
	39,000	424,000	463,000		

	Sample			Non-mobile-email-subscribers		
Education	Freq.	Perc.	Cumm. Perc.	Freq.	Perc.	Cumm. Perc.
Maximum 8 years of elementary school	39	8,410	8,410	18	11,250	11,250
Skilled workman	158	34,050	42,460	67	41,880	53,130
High-school graduation	172	37,070	79,530	58	36,250	89,380
Higher education	95	20,470	100,000	17	10,630	100,000
Sum	464	100		160	100	
Mean			2,696			2,460
Std. Dev.			0,889			0,830

N=624

Comparing mobile e-mail users to non-users

Sex	Sample			Non-mobile-email-subscribers		
	Freq.	Perc.	Cumm. Perc.	Freq.	Perc.	Cumm. Perc.
Male	239	51,510	51,510	81	50,630	50,630
Female	225	48,490	100,000	79	49,380	100,000
Sum	464	100,000		160	100,010	
Mean			1,485			1,493
Std. Dev.			0,500			0,502

N=624

Profession	Sample			Non-mobile-email-subscribers		
	Freq.	Perc.	Cumm. Perc.	Freq.	Perc.	Cumm. Perc.
Blue collar worker	308	66,810	66,810	122	76,250	76,250
White collar worker	153	33,190	100,000	38	23,750	100,000
Sum	461	100,000		160	100,000	
Mean			1,331			1,240
Std. Dev.			0,471			0,427

N=621

Financial well-being	Sample			Non-mobile-email-subscribers		
	Freq.	Perc.	Cumm. Perc.	Freq.	Perc.	Cumm. Perc.
I am in necessity	2	0,430	0,430	1	0,630	0,630
I have financial problems month by month	29	6,260	6,700	11	6,920	7,550
I hardly make ends meet	201	43,410	50,110	74	46,540	54,090
I have to economize to make ends meet	205	44,280	94,380	68	42,770	96,860
No financial problems	26	6	100	5	3	100
Sum	463	100,000		159	100,000	
Mean			3,480			3,400
Std. Dev.			0,717			0,695

N=622

Comparing mobile e-mail users to non-users

Family status	Sample			Non-mobile-email-subscribers		
	Freq.	Perc.	Cumm. Perc.	Freq.	Perc.	Cumm. Perc.
Single	159	34,270	34,270	56	35,000	35,000
Linving with partner	305	65,730	100,000	104	65,000	100,000
Sum	464	100,000		160	100,000	
Mean			1,657			1,650
Std. Dev.			0,475			0,478

N=624

Sation of living	Sample			Non-mobile-email-subscribers		
	Freq.	Perc.	Cumm. Perc.	Freq.	Perc.	Cumm. Perc.
County town	116	25,000	25,000	53	33,130	33,130
Town	169	36,420	61,420	59	36,880	70,000
Village	89	19,180	80,600	27	16,880	86,880
Budapest	90	19,400	100,000	21	13,130	100,000
Sum	464	100,000		160	100,020	
Mean			2,320			2,100
Std. Dev.			1,054			1,011

N=624

Age	Sample			Non-mobile-email-subscribers		
	Freq.	Perc.	Cumm. Perc.	Freq.	Perc.	Cumm. Perc.
18-24	28	6,050	6,050	8	5,000	5,000
25-29	37	7,990	14,040	9	5,630	10,630
30-31	55	11,880	25,920	16	10,000	20,630
35-39	81	17,490	43,410	24	15,000	35,630
40-44	61	13,170	56,590	19	11,880	47,500
45-49	61	13,170	69,760	27	16,880	64,380
50-54	63	13,610	83,370	34	21,250	85,630
55-59	54	11,660	95,030	16	10,000	95,630
60-66	23	4,970	100,000	7	4,380	100,000
Sum	463	99,990		160	100,020	
Mean			5,505			5,350
Std. Dev.			2,210			2,090

N=623