

How Do Mobile Technologies Affect Work and Private Lives? The Case of Turkish Banking Professionals

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Abstract--Mobile technologies (MTs) became important part of infrastructure in service industries. The impacts of MT usage in work are shown to be significant; improving the productivity, responsiveness, effectiveness and flexibility of companies, while reshaping the work place organization and making employees accessible on a 7/24 basis. However, there are great differences in terms of the types and levels of these impacts on organizations and individuals as the industry, region/country changes. Moreover, not much is known about the effects of MTs in developing countries like Turkey where there is a rapidly increasing mobile penetration (mobile phone and internet subscription rates) which is a critical infrastructure component of mobile working.

Turkey has quite an advanced banking industry that has went through serious industrial restructuring. Banking industry has always been among the early adapters and first users of new information and communication technologies, as well as first applicers of new organizational development and human resource management techniques. In the last few years, mobile technologies has become key technologies for banks and accordingly, the usage of mobile devices by banking professionals for work purposes increased. As happened in other new information technologies and human resources systems, experiences of banking industry in mobile technology usage at work-place can provide best practices or lessons for practitioners form other industries.

This study tries to provide insights on the perceptions of employees in the Turkish banking industry, about the impact of these technologies on their work practices and on their private lives. A structured survey is carried out with 107 white collar professionals from 5 major retail banks in Turkey. By conducting Factors Analysis and correlation analysis, 8 main factors are identified that represents the impacts of MT usage for work purposes and their interrelations with eachother and demographic factors are explored.

Findings reveal that intensity of mobile device usage is still not high in banking industry. Employees perceive the positive impacts of mobile working on information and knowledge supply chain, time management of their organization,. Time management is one of the issues occurred due to mobile working. Attention and focus on meetings and interviews seems to be challenged due to parallel usage of mobile devices in meetings. There are correlations between feeling "Control, pressure, demand for responsiveness and workload" and intensity of mobile device usage and continous accessibility. Similarly, improvements in information and knowledge/flow and meeting organizations are correlated to the impacts of mobile working on productivity, quality and work-life balance. Research showed that the perceptions of employess about the implications of mobile work on "productivity, effectiveness and work-life balance" and "Attention and Focus on Group work like Meetings and Interviews" vary by gender, and on"Multitasking and work-shifting" vary by age. Education level also affects the perception on "Productivity, effectiveness

and work-life balance". Hence the policy makers and managers and they also must consider the demographics of the employees when designing and implementing systems about mobile working in banking industry.

I. INTRODUCTION

In the last decade, there has been a considerable growth in the use of wireless communication technologies to process, transmit and exchange data. The rapid evolution of broadband and mobile internet, technological advancements in mobile devices together with intense marketing efforts of producers, generated a significant diffusion of these devices and hence mobile working gained importance in many organizations as they are perceived a way to improve operational effectiveness. Moreover, by the introduction of mobile technologies (MTs), new forms of work organisation and work-arrangements emerged that caused changes in work-life, life quality, well-being and work-life balance of employees [69].

However, organizations are now facing the challenge of developing an effective mobile work environment. As managing and supporting mobile workers have lagged in many organizations, there is a need to understand the issues that determine the success of mobile work [17] by a multi dimensional research on the impact of MT on work, organizations and the employee's life. Many scholars have searched impacts of the MT usage on work performance, motivation, work/life balance etc. [43] [70] [60] [12] [41] [26] [44] [28] [50]. However, this study aims, to explore impacts of MTs on work, organization and employee in a specific industry, namely the banking sector in Turkey. Findings is hoped to provide insights on the social impact of MTs on organizations and employees for decision-makers, IT and HR executives in designing their policies, organization structures and processes regarding mobile work, particularly in the banking industry. It is also hoped that it will provide an example for the future research on the topic in different industries.

Based on the findings of a structured survey, we explored the perceptions of employees in 5 major banks in Turkey. The topics investigated were the intensity of mobile working, the impact of MTs on work, organization and on the professional and private lives of employees. The next two sections will examine the existing literature on different aspects of the impact of to highlight the main issues explored in the literature. Then, a brief information on MT usage in Turkey and mobile working in banking is presented to provide an understanding on the technological and social

environment of the searched industry. The subsequent section will discuss the research methodology, followed by the findings about the factors showing the basic perceptions of employees on the impacts of MTs. Finally the conclusions section, besides integrated the research findings, includes recommendations for practitioners in organizations and management researchers regarding the implications of mobile working in terms of its benefits and challenges on work, organization and employees.

A. Mobile Work Enabled by Mobile Technologies

In the literature it is showed that effective use of information technologies by firms leads to dramatical increases in worker productivity while generating significant flexibilities in the production systems and work organizations [21] [54] [53] [62]. Moreover, the usage of MTs for work, supports mobility, context and location-awareness, networking and ambient interfaces [48], as well as a better job quality (e.g. mobile broadband connectivity and specialised mobile work solutions) and decreasing costs [14].

MTs refer to hardware, system and application software, and communication/networking services. Mobile devices (MDs) include Tablet PCs, laptop computers (wireless), personal digital assistants (PDAs) and other handheld devices for data transfer and communication [67] [35] [61] [50]. Mostly performed tasks by mobile device usage are reading and responding to e-mails, accessing to enterprise transactional systems to make queries, to create job instructions, to respond to coming instructions, to give feedback on work results and reporting [17].

Today, mobile knowledge that is acquired, processed and diffused through mobile work has become common in organizations [3]. Mobile work has various dynamics like the transformative potential of technology [60] [63] diminishing importance of place in a world of globalizing flows [16], the commodification of space [13] and the unboundedness of work [5] [26] [18]. As a result, mobile work is both product and cause of the declining importance of place and it transforms previously non-work spaces into work-spaces [18]. The terms “mobile workers” [37] and “nomadic workers” [15] arose defining the employees that use computer and communication devices to access remote information from their home base, workplace, in transit, and at destination.

Mobile working differs from tele-working and telecommuting, by occurring as a supplemental work that “makes place” rather than “taking place” [13] in which employees extend their work environments beyond the office, but do not give up their office space [51] [39]. It is a kind of “the explicit arrangement (voluntary or involuntary) that is made between an employee and an employer that relocates some of work tasks to the home, from an office location” (dissolving spatial and temporal boundaries, substituting the work environment with private spaces and enabling working on the move) [26] [27] [40] [43] [60] [18]. In this sense, though extension of work to home is not new [6], MTs added

new features of working out of the office like enabling employees and managers to access, edit and create files, communicate with colleagues and clients, search for information while they are away from their offices. Hence, flexibility of the assignment of tasks or deployment of personnel (functional flexibility) has significantly increased. Knowledgeable, productive and flexible employees contribute significantly to firm competitiveness [36].

B. Impact of Mobile Technologies on Work and Organizations

MTs became one of the standard features of organizational life and work, as they are utilized by organizations for the minimization time constraints, overcoming organizational spatial constraints, continuity of spatial networks and flexibility, as well as offering other support functions such as location tracking, navigation, notification, and online job dispatching [71]. Some benefits regarding the mobile work can be listed as follows:

- Usage of MTs for work purposes continuously link and integrate the efforts of employees with organizational requirements on a continuous, pervasive basis [28] [64] [9]. This type of improved connectivity would seem to imply enhanced organizational engagement [45].
- One of the benefits of mobile computing environment is improved employee productivity [23] [44] [4] [28] [66] [33] [64] [57].
- Mobile phone, for instance, enabled employees to exist in both domestic and work domain, as well as avoiding costs associated with time-consuming locomotional activities [28] [58].
- Work extension (working outside the office and “normal” office hours) that is enabled by MT, on the other hand, provides flexibility with respect to the timing and location of work [64], empowering field employees [16]. The majority of employees believe that it would be difficult to do their job properly without their mobiles and they are content with the status of their flexible work and a significant population of employees liked more flexibility [34].
- MTs are especially becoming more prevalent among managerial and professional workers [51] [64]. However, managers who are continuously connected to business processes via mobile phones, tend to undertake “hands-on” problem solving and initiative taking rather than delegating their responsibility and encouraging initiative taking of the employees [28]. On the other hand, Wajcman et al., [66] argues that employees who can obtain information and advice regardless of time and location, face the threat of staying under-skilled, as just-in time consultation replaces traditional training and experiencing problem solving. Potential limitations of decision-making capabilities and self-management of employees due to the ‘automation of humans,’ and lack of employee autonomy, overburdening with administrative

tasks are among the risks of MT-based working that in turn can impede employee motivation.

- Mobile phones also contributed to the development of knowledge supply chain within the organizations as they are utilized as a critical component of ICT infrastructure by companies, enabling knowledge and information flow between employees, units, suppliers and customers regardless of time and location [61] [33] [9].
- It must be noted, however, that mobile work challenges organizational records management [49]. The difficulties of information storage and archiving must be considered, as users will be saving some unstructured or semi-structured information in files (documents, spreadsheets, etc.) in their MDs. This will require a synchronization of data corporate information systems and MD of employees [69].
- Responsiveness (to mobile messages, work orders, customer's orders etc.) is also improved since decision making is accelerated by MD usage for work purposes [9].
- Quick response to inquiries also enhanced customer services generating higher customer satisfaction through continuous and location-free accessibility of customers to companies' employees and vice versa [23] [16] [44] [33] [28] [1]. However, this meant overload and over-time working for employees [9].
- Mobile working increased the effectiveness of meetings and interviews. MD usage during meetings by the majority of knowledge workers creates multi-tasking [7]. This generally considered acceptable and supported by individuals and company policies, while the speaking by mobile phone is less tolerable. However, multitasking generates challenges for following and performing an effective meeting and also for the quality of tasks being carried out with MDs during the meetings.

II. IMPACT OF MOBILE TECHNOLOGIES ON WORK AND LIFE BALANCE

Although, 'work' and 'life' are traditionally viewed as separate spheres which need to be balanced such that one does not adversely affect the other [20] [46], MTs partially reinstate a premodern state of social life making the boundary between work and personal life less distinct [30]. There are numerous research and literature on the conflict between work and non-work environments [51] [31] [42] [24], 'work-life/family' balance [29] [47] and the positive and negative nature of this balance [20]. However, there is still a need for research on different dimensions of the impact of MTs on this balance—in different types of organizations, professions, industries and regions.

Some scholars claimed that MTs help employees to balance their family and working lives [66] [10] [1] [64] [19] [59] by giving back to the employee the control as to when and where that incursion takes place. By "time shifting" employees can flexibly redistribute working time around

professional and personal life and protect personal time more effectively [33].

However, a significant amount of research points out the negative impacts of MT usage for work:

- Increasing workload: Employees worked a additional 20 hours a week due to the flexible work schedules [23] [16] [44] [4] [28] [1] [64] [57] [34]. The counter productive impact of work extending technologies like MTs has also been emphasized [11] [56].
- Raising expectations on workers's continous availability: This causes anxiety by invading the private lives of employees [9]. Continuous connectedness and availability can be upheld even at times when individuals are highly mobile and involved in other social or private activities [28] [64] [9]. Some employees do not disconnect from the MT even in their private times [34].
- Reducing the quality of employees' leisure time by enlarging the sphere of employer authority by allowing him/her to reach them at leisure hours [28].
- Invasion of private life by work and further encroachment of "business time" into "personal time" [51] [9]: Working on the move may lead to an overlap or merging of the times and spaces of work and non-work' [26] [43] [60] [18]. MTs have direct influence on generating stress when private and work domains / spheres are out of balance [20].

Therefore, employees face challenges in protecting their private domain due to staying tuned continuously and hence it becomes crucial for them to maintain control (deciding when to turn off their mobile, manipulating volume of voice, restricting caller) over their accessibility [8] [28]. A key feature of the work – private life boundary is the practice of taking holidays, away from both the workplace and the drudgery of home, and having leisure activities [66]. However, as the popular term "crackberry" (inspired from Blackberry smart phone [50] describes, the addictive aspect of MD usage resulting from the continuous access to enterprise information, in particular, mobile messaging and collaboration extend the work day well into what would otherwise be personal time [10] [1] [57] reported that majority of cellphone owners had slept with their phone next to their bed.

Axtell and Hislop [4] pointed out the profession based differences in MT usage and argued that the way the engineers' used their mobile phones during working hours made the work/non-work boundary even more blurred and unclear since engineering work requires more time for working alone, driving to client sites and having face-to-face interaction with clients or colleagues. In their comparative study, Axtell & Hislop[4] concluded that the employment practices (like the level of employee monitoring and over time payments etc.) are also important when analysing impacts of mobile working on work-life balance of employees. Variations in worker-client relationships affects workers' capacity to maintain boundaries between home and

work. There are also significant research on the impact of mobile working on the work-life balance by demographic differences. For example Wajcman et al. [66] claim that managers are the ones most likely to take their phone on holidays to conduct business.

To gain a holistic understanding of mobile work, Chen and Nath [17] studied these issues from the socio-technical perspective that is based on the premise that the social and technical systems are interdependent and must be jointly optimized in order to determine the best overall solution for the organization. Hence managing the interface between the technical and social subsystems (primary social and technical constructs that are people, structure, technology, and task) and provide a fit between them becomes a critical task that managers should be concerned with. Misalignment between the technical and social subsystems may cause negative outcomes such as low morale, decreased productivity, low quality of work, increased conflict and even waste, job stress and duplication of effort [17].

Hence, employer companies need to keep work-private life boundaries and guidelines on expectations [9], employees to disconnect in their private times are recommended by some scholars and institutions [56]. Some companies began to adopt policies aiming at freeing their employees from their electronic devices and 7/24 incoming and awaiting e-mails. For example, as reported by Mohn [52], companies like Empower Public Relations in Chicago applied a regimen to force their employees to switch off their smartphones at night, weekends, while traveling and achieved an increased organizational productivity. World Bank also viewed the issue in the broader context of promoting “a healthy work-life balance” [52]. According to a report called “Balanced! - Reconciling Employees’ Work and Private Lives, Daimler developed a system deleting incoming e-mail automatically during vacations so employees do not return to a flooded in-box [52]. Google also instituted a policy setting aside time for creative thinking as they found out that MDs were distracting employees from their real work [38].

III. MOBILE TECHNOLOGY USAGE IN TURKEY

Previous research on the MT usage for work purposes is also very limited. There is, however, a report that was prepared by Deloitte [22] for GSMA Intelligence for exploring the impacts of mobile telephone usage for work purposes in Turkey. In this report, it is concluded that mobile telephone generates productivity increases in business (like enabling M2M (machine-to-machine) transactions, improved efficiency in payments etc.).

Since mobile working is enabled by infrastructural components, mobile readiness level provides an indication on the intensity of mobile working within that country. Europe Innova Initiative [25] that measures the mobile technology penetration and utilization level of European Regions and countries, included the “Penetration Rates for Mobile Phones / 1000 Citizens”, “Costs of Mobile Services” and “mobile internet subscription rates” as the indicators of “infrastructure” factor in their scoring model for “Mobile Readiness Index”. In this section by presenting some basic figures for mobile infrastructure in Turkey, we will try to give an idea about the potential of mobile working in the country. Basic enabler of mobile working is mobile subscription of workers. As reported by OECD Broadband portal [55], terrestrial mobile wireless broadband subscriptions per 100 inhabitants in Turkey is 12,5 million in June 2013. Another important measure for mobile penetration in this category is “Mobile Subscribers per 100 Habitants” which is 88 for June 2013 in Turkey [55] (Table 1). That makes the country 33th among 35 OECD countries that is below the OECD countries average of 122 subscribers per 100 habitants, while higher than the most non-OECD countries in the developing world.

Almost 9% of total mobile subscribers are corporate subscribers while the rest are individuals [32]. There are almost 69 million mobile subscribers corresponding to 91.1% penetration rate (near to European countries average that is 135 %) [68]. Mobile penetration rate exceeds 100% when 0-9 year’s old population are excluded. Number of 3G subscribers has reached to 47.5 million. Number of mobile broadband subscribers (computer and mobile handset) is around 25.5 million.

TABLE I. MOBILE MARKET INDICATORS ABOUT MOBILE PENETRATION IN TURKEY (QUARTERLY DATA FOR 2009-2013)

Quarterly Market Data	Units	09' Q1	09' Q2	09' Q3	09' Q4	10' Q1	10' Q2	10' Q3	10' Q4	11' Q1	11' Q2	11' Q3	11' Q4	12' Q1	12' Q2	12' Q3	12' Q4	13' Q1	13' Q2	13' Q3
Subscribers	Millions	64	64	64	63	62	62	62	62	62	64	65	65	66	66	67	68	68	68	69
3G Subscribers	Millions	-	-	5,4	7,1	8,7	11	17	19	21	25	29	31	35	38	40	41	44	45	48
2G Subscribers	Millions	64	64	58	56	53	50	45	42	40	39	36	34	31	29	27	27	24	23	21
Population Penetration	%	90	89	89	88	85	85	85	85	84	87	88	89	88	89	90	90	90	90	91
Mobile Broadband	1000 Tbyte	-	-	0,3	1	2	2,6	3,2	4,2	5,5	6,4	8,6	10	14	15	19	20	21	22	24
Mobile Internet Population Penetration	%	-	-	-	-	-	-	-	-	2,7	5,1	7,2	8,8	12	14	16	17	18	19	20

Source: ICTA, 2014[32]

The rate of enterprises that have mobile internet connection in total number of enterprises in Turkey grew from 24% in 2010 to 52% while total internet penetration is 91% [65]. Turkey is among the developing countries that have high, rapidly increasing internet penetration [55]. However it is still below the OECD average [55]. Since mobile penetration [32] and specifically smartphone (that is the mostly used mobile device) penetration in Turkey takes place among the first 36 countries with highest penetration rates with 14 % [2] , the impact of these technologies on working life in Turkey is worth exploring.

IV. METHODOLOGY

This study aims to determine the perceptions of white collar employees in the Turkish banking industry about the impact of MT usage on work, organization, and on work-life balance. A structured survey is carried out with 107 professionals (engineers, specialists and middle level managers) from 5 major retailing banks in Turkey. Demographic characteristics of the respondents are also surveyed and presented on Table 2.

The survey questions are grouped under 10 Factors that are derived from the literature review discussed in detail in the previous sections. In the questionnaire, four questions under “Factor 1 - Obligation for mobile device usage” uses 2 scale by “Yes” or “No” choices. For rest of the questions (from 5 to-54) grouped under Factors 2 to 10; 5 point Lykert scale (1- Strongly disagree, 2- Disagree, 3- Somewhat agree, 4- Agree, 5- Strongly agree) is used.

A Factor Analysis is conducted for the 107 responses to 54 questions. “Kaiser Meyer Olkin Measure of Sampling Adequacy” is used (together with “Bartlett’s Test of Sphericity”) and the reliability of the survey is tested. Accordingly, eight questions that have low values is omitted (Appendix A). The final factor reliability is measured and found to be 0,737 which is an acceptable level. Omitted questions in the end of the factor analysis are as follows:

- 13.I can decide when to switch off my mobile device.
- 14. I can filter the calls in my mobile phone.
- 15. I switch off my MD during meetings.
- 16. I silence my MD during meetings.
- 21. Using my MD for my work creates challenges for me in organizing and storing the information related to my

work due to distributed files and data in MDs, corporate systems and PCs.

- 35. I use my MD at non-work hours and at my personal area because I am unable to finish the work during office hours.
- 45. I am more motivated with using my MD in work-related issues.
- 53. My MD gives back to me the control as to when and where the incursion from my work into my personal time takes place.

Remaining questions are tested for their reliability with Cronbach's Alpha method and the test results are shown on Appendix B. In the end of factors analysis, Factor 10 with low reliability is omitted, “Kaiser Meyer Olkin Measure of Sampling Adequacy” of the answers is measured again and found to be 0,741.

Descriptive statistics for reliable factors and for the responses given to questions within factors in 5-Lykert Scale is given in Appendix C. As can be seen from Appendix C, additionally two main scales are formed; Responses to scale “1- Strongly disagree” and “2- Disagree” are added up to form a “Total Disagree” category. Similarly, responses to scale “5- Strongly agree” and “4- Agree” are added up in a “Total Agree” category. Distribution of responses for this scale are given in Appendix C for each question in different factor groups.

Additionally, by conducting correlation analysis between these factors and between the demographics and the factors, we tested if there are significant relationships between them by applying Mann Whitney U tests. Confidence level that is used in statistical tests is 95 %.

V. FINDINGS

A. Obligation for Mobile Device Usage

Figure 1 presents response details for 4 questions of Factor 1:“Obligation for mobile device usage for work”; though majority of respondents (75%) mostly us their MDs for work, they do not feel they are forced to use them for work by their employers or MD usage for work is a corporate policy of their companies (as the connection bills are not paid by their employers either.)

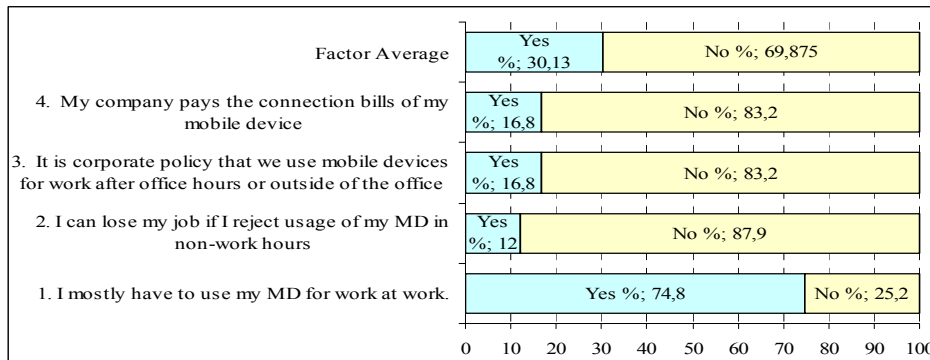


Figure 1- Obligation of Mobile Device Usage for Work

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B. Intensity of Mobile Device Usage for work purposes

As the responses to the questions under Factor 2 can be seen in Figure 2 and Appendix C, respondents do not seem to have an intense usage of and addiction to their mobile devices, (as Factor Mean is =2,62 (less than “3- Somewhat Agree in”5-lykert scale) with an average 23 % of total agree).

Majority of respondents does not work from their MD when they arrive home, or after other family members go to bed at night, and during lunch. These findings show that the respondents can prevent their work intruding to their private time through MD usage (Q 8,9,11). However, a significant number of respondents lack the IT documentation management/ information management systems for enabling them to overcome challenges in organizing and storing the information by using their MDs for work purposes (Q22).

C. Increased control, pressure, responsiveness and workload

As previously discussed, the usage of MDs for work purposes bring continuous accessibility of employees, hence require higher levels of responsiveness creating a pressure and extra workload on them. According to the Factor

Analysis, ten survey questions were found to be significantly related and grouped under Factor 3, named as “Increased control, pressure, responsiveness and workload”. As can be seen in Figure 3, respondents somehow agreed (with a factor average of 3,05 as shown in Appendix C) that they felt an increased control, pressure, responsiveness and workload due to the MD usage for work purposes.

A significant proportion (43%, with an average score of 3,17) of the respondents agreed that their family complain about the fact that their mobile working in their free times (Q.49) . Another issue (Q.31) is that respondents (average score 3,16) felt the increase in organization’s expectations from them. This increase caused conflicts among organizational and personal expectations (Q.47). The proportion of respondents who believe that usage of MDs for work decrease the quality of their leisure time is higher (in Q.52, 38% agree vs. 25% disagree). However, responses to Q.32 shows that MD usage do not cause a challenge in organizational differentiation by keeping the managers “on duty” all the time instead of delegating responsibility to subordinates.

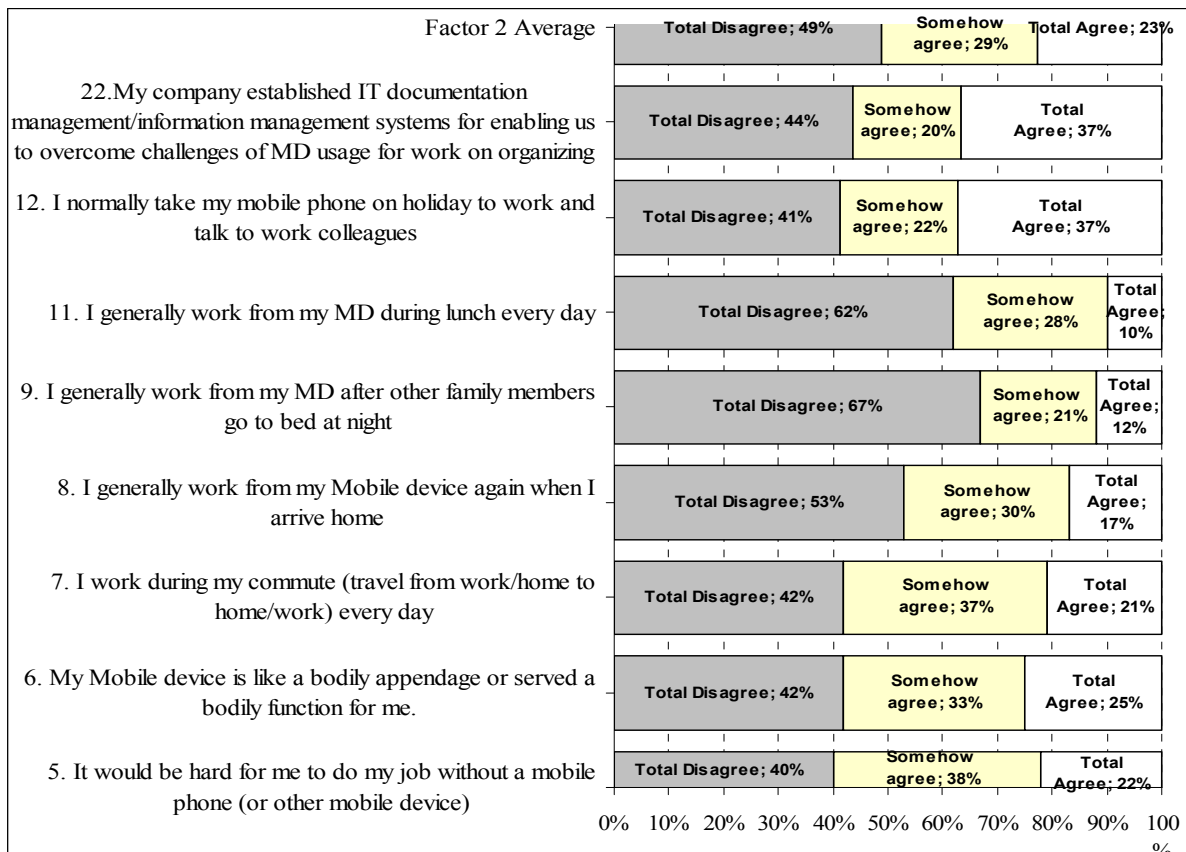


Figure 2- Responses to questions under Factor 2: “Intensity of Mobile Device Usage for Work”

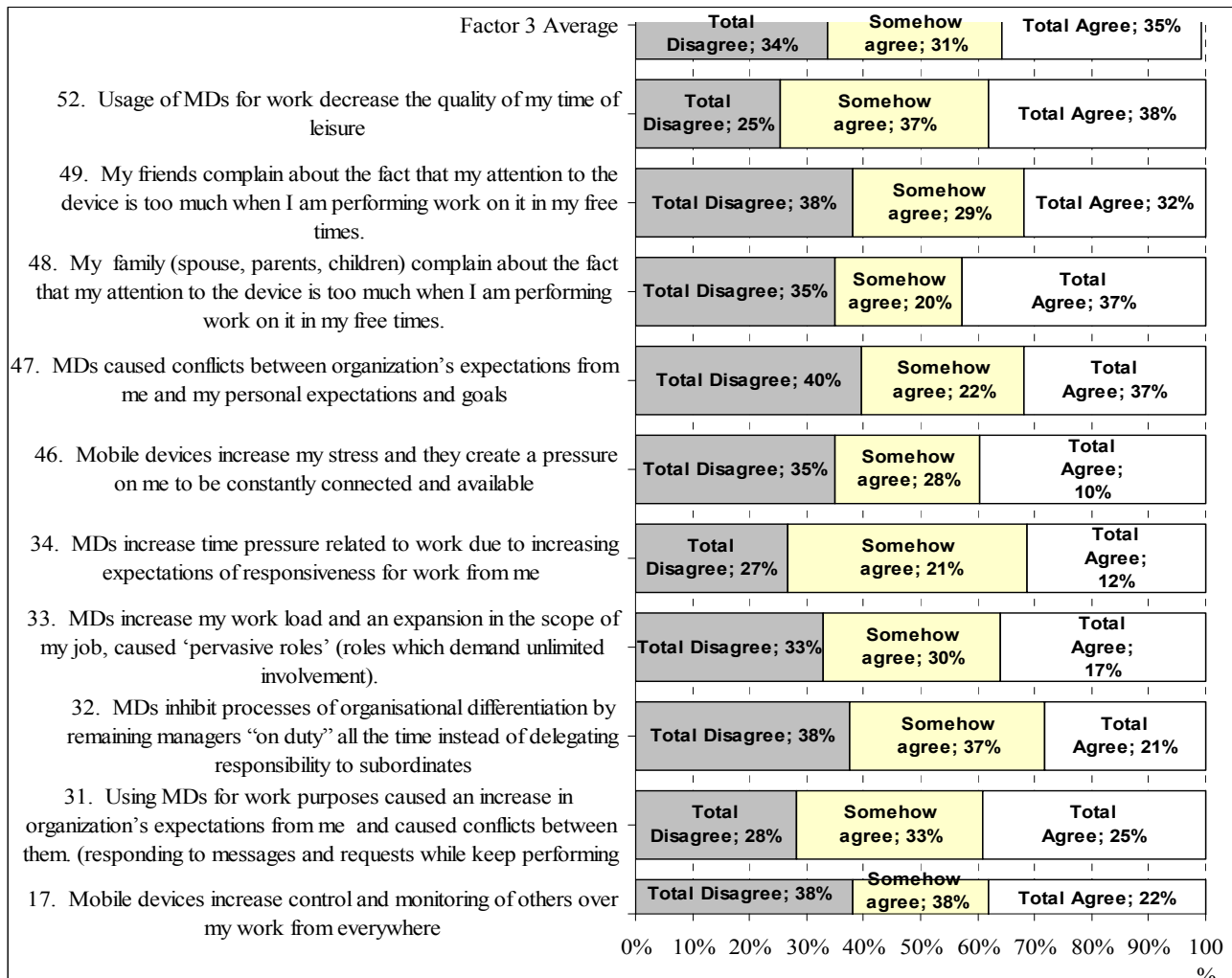


Figure 3- Responses to questions under Factor 3: "Increased control, pressure, responsiveness and workload"

D. Increased Productivity, quality and work-life balance

The fourth factor that is found according to the Factor Analysis is about the impact of MDs on productivity, quality and work life balance that combines different impacts. As the responses to the questions that are grouped in Factor 4, shown in Figure 4 suggests, responses did not show a significant difference in this Factor as a whole. However, when we analyzed the questions one by one, a significant part of the respondents agreed (45% in Q.23) that the MD usage has a positive impact on productivity. Majority (55% with a mean value of 3.37 as shown in Appendix C that is above

"somehow agree") believe that MDs enable catching and avoiding problems on time (Q.24), giving clues about their positive perceptions about the MD impact on effectiveness.

Most of the respondents did not agree that (63% in Q.41) there are complaints about their usage of MDs on other work related issues during meetings and interviews.

On the other hand, answers to Q50, 51, 54 within Factor 4 indicates that the respondents do not perceive that MD usage for work purposes have a significant impact on work-life balance.

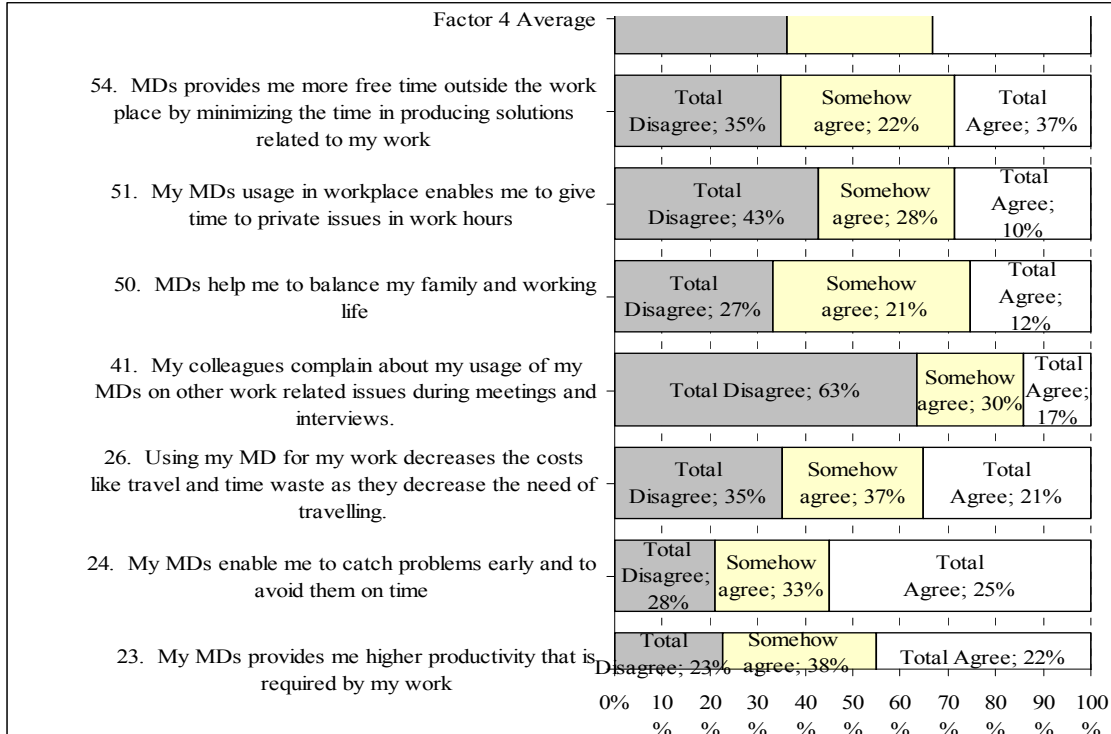


Figure 4- Responses to questions under Factor 4 : “Increased Productivity, effectiveness and work-life balance”

E. Continuous accessibility/reach and time-management

According to the Factor Analysis, five survey questions that are related to “Continuous accessibility/reach and time-management” were grouped under Factor 5 as Figure 5 shows. Half of the respondents agreed on that MD usage has positive impacts on time-management in terms of solving problems.

Factor average score of 3,30 (/5) indicates (see Appendix C). that the usage of MDs for work purposes are agreed to generate continuous accessibility of employees by customers and their continuous reach to customers as well (Q.28 and Q.29). MDs also contributed to time effectiveness in solving problems (Q.25). A significant proportion (41%) of respondents agreed that MD usage also enabled multi-tasking during interactive times like meetings and interviews (Q.39).

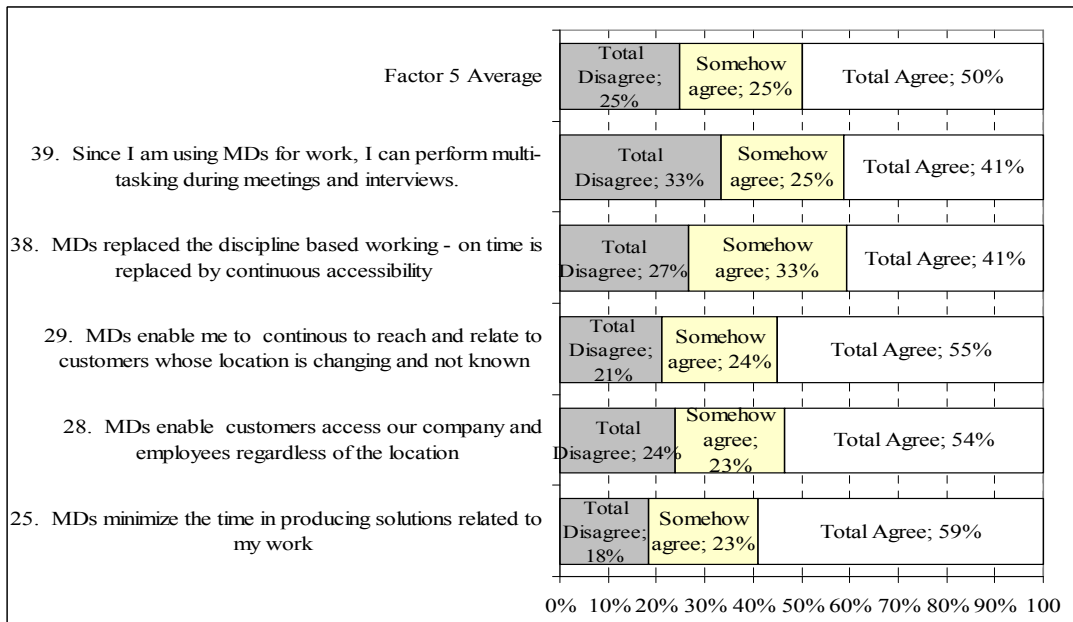


Figure 5- Responses to questions under Factor 5: “Continuous accessibility/reach and time-management ”

F. Attention and Focus on Group work like Meetings and Interviews

Survey questions grouped under Factor 6 are about the impacts of parallel MD usage for work purposes on the focusing and paying attention to meetings and interviews. Average score of this factor is 3,4 (see Appendix C); 53% of respondents agree on the impacts that are presented in Figure 6. Majority of respondents (60%) sees the usage of MDs during a meeting as a rude behavior and 52 % feels disturbed about it (Q.43 and Q.44). They admit that they lost attention when they have to use MDs in meetings.

G. Information/knowledge flow

Three survey questions that are related to “information flow, knowledge sharing and responsiveness” are grouped under Factor 7 according to the Factor Analysis. Majority (66%) agreed that MD usage contributes to information flow and knowledge sharing in the organization as shown in Figure 7. As can be seen from Appendix C, Factor average

score is found as 3,64 (/5) that is close to 4(/5) that corresponds to “Agree”. Survey respondents highly agree that MD usage improved responsiveness (Q. 20) indicating the effective usage of MDs for work purposes in banking industry in Turkey.

H. Other Factors- Multi tasking, work shifting, communication needs

Each of the remaining two factors (Factor 8 and Factor 9) has two questions. No consensus was found among responses to questions within Factor 8 that represented the impacts of MD usage for work on multi tasking and work-shifting. Similarly, for Factor 9 which groups the questions on communication needs the factor average is 3,02(/5) that corresponds to “somehow agree”, hence could not provide a clear understanding on the respondents’ perceptions. However, majority of respondents agreed that MDs increased their responsibility on reading or responding to messages in a specific time (Q.30).

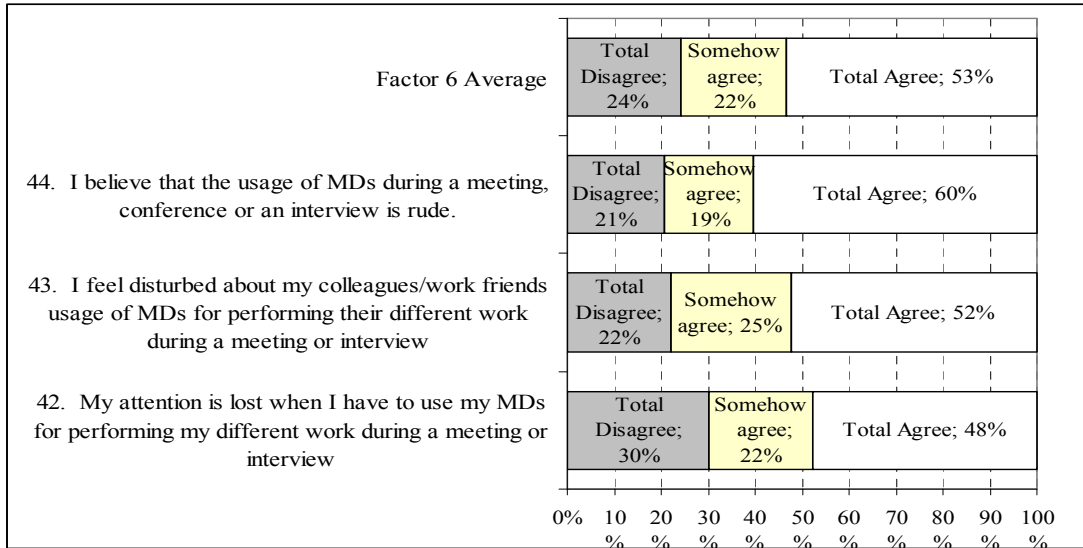


Figure 6- Responses to questions in Factor 6: “Attention and Focus on Group work like Meetings, Interviews”

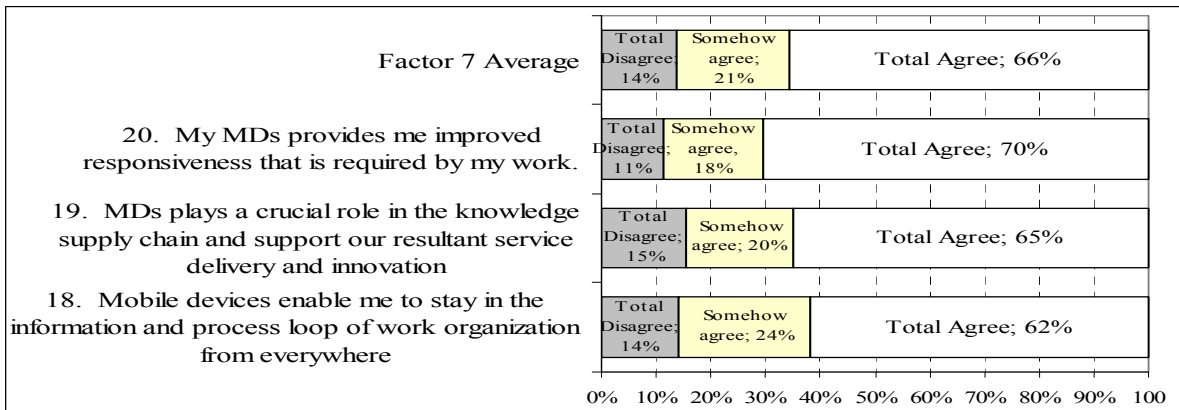


Figure 7- Responses to questions under Factor 7 “Information/knowledge flow”

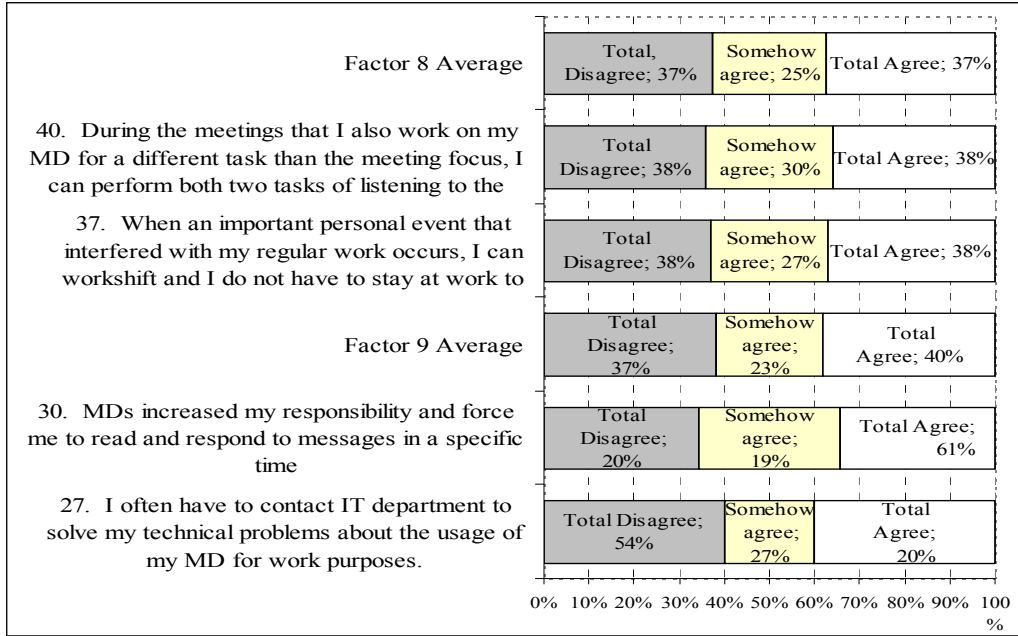


Figure 8-Responses to questions under Factor8: “Multitasking/work-shifting” & Factor9 “Communication need”

I. Correlation Analysis on Factors for Impact of Mobile device usage for work

Correlations between the factors and demographics are also tested with Nonparametric test and k independent tests (Mann Whitney U test for their significance at the 0,01 and 0.05 level (2-tailed). The strongest positive correlations (at the 0,01 level) are summarized below:

- Higher obligation for MD usage lead to increased control, pressure and workload (a moderate correlation between Factor 3 and Factor 1 (0,645)).
- Employees who feel higher control, pressure and workload feels also the positive impact of MD usage on productivity and quality and work life balance. However, they face the challenge of losing attention and focus on meetings due to multi tasking (a moderate correlation between Factor 3 and Factor 4 (0,632), also Factor 6 (0,631)).
- As the information and knowledge flow improves by MD usage for work, productivity and quality also improves (a moderate correlation between Factor 7 and Factor 4 (0,628)).

VI. CONCLUSION

As it has been discussed in the literature, mobile work that is based on the usage of MDs for work purposes has a nature to remove spatial and social boundaries of work-place. It generates improvements on productivity, flexibility, quality, continuity and collaborativeness for organizations. However, for employees some challenges may rise due to over-loaded work, incursion of private life that lead to stress, feeling under pressure and exhaustiveness, and in the end, demotivation. These implications of mobile work, however,

may vary by industry, by job types and by regions, as the environmental factors can change the attitudes and perceptions of the employees. In this context, this study aimed to provide highlights on the perceptions of banking industry employees on the impacts of MD usage on their work, organization and lives.

Intensity of MD usage is not found to be high in banking industry. Most of the employees agree that the mobile working improves information and knowledge supply chain in their organization, through continuous accessibility. Time management is one of the issues occurred due to mobile working. Attention and focus on meetings and interviews seems to be challenged due to parallel usage of MDs in meetings.

According to our research outputs, there are correlations between feeling “Control, pressure, demand for responsiveness and workload” and intensity of MD usage and continuous accessibility. Similarly, improvements in information and knowledge/flow and meeting organizations are affecting the perceptions about the impact of mobile working on productivity, quality and work-life balance.

Perceived impacts of mobile work by MD usage for work purposes are also explored whether they differentiate by demographic characteristics of employees. Research showed that implications of mobile work on “productivity, effectiveness and work-life balance” and “Attention and Focus on Group work like Meetings and Interviews” vary by gender. The perceptions about the impact of mobile work on “Multitasking and work-shifting” vary by age. Education level also affects the perception on “Productivity, effectiveness and work-life balance”, while perceptions on the impact of mobile work on “Continuous accessibility/reach and time-management” differs by the years of experience.

These findings reveal that human resource managers and system designers must consider the demographics of the employees when assigning tasks and objectives related to mobile work.

Impact of intensions of employees to resist new technologies is not searched in the context of this study. In further research, these intensions can be included and eliminated when exploring the perceptions of employees on the impacts of mobile technologies on their work and life.

Our research aimed to provide a framework for identifying the implications of mobile working in a specific industry, namely the banking industry in Turkey that is known as a leader in technology-adopter in information and communication technologies. Hence, as an early adopters/users MTs, the experiences of banking industry employees can provide insights to the executives from other industries that may be starting to adapt mobile work.. Hence, the findings of this study is hoped to contribute to the development of more effective organizational policies and processes on mobile work.

The findings on the negative effects of MTs that are perceived by e employees should carefully be considered in generating organizational and technological solutions to overcome those effects as well as developing appropriate approaches to balance the requirements of effective management of technology, organizational performance and individual well-being. In a further research, expanding the survey to a wider range of professionals in whole segments of the banking industry in Turkey can provide more sensitive measures. Within the presented framework, if similar research is conducted in different industries, in different types of organizations in terms of scale or structure, and surely comparative studies that explore the similarities and differences between industries, organization types and regions can make significant contributions to the development of theoretical base on the implications of mobile work on business, systems and people. Socio-technical approaches can also be included.

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APPENDIX A. OMITTED QUESTIONS BY KAISER MEYER OLKIN MEASURE OF SAMPLING ADEQUACY.

Step	Kaiser Meyer Olkin Measure of Sampling Adequacy	Omitted Question	Anti-Image Correlation
1	0,493	Q15	0,108
2	0,53	Q14	0,146
3	0, 59	Q16	0,235
4	0, 64	Q35	0,371
5	0, 68	Q53	0,423
6	0, 736	Q13	0,362
7	0, 741	Q21	0,481
9	0, 737		

APPENDIX B. RELIABILITY TEST RESULTS FOR FACTORS

Factors (<i>* Cronbach Alfa <0,5 not reliable; 0,5-0,6 medium reliability; 0,6-0,7 reliable; >0,7 high reliability</i>)	Nr. of Questions and Questions in Factor	Cronbach's Alpha (5% reliability)	Reliability	Correction with omitting questions
Factor 1 Obligation for mobile device usage	4 (Q1,Q2,Q3,Q4)	Not tested		
Factor 2 - Intensity of mobile device usage / Addiction	8 (Q5, Q6, Q7,Q8, Q9, Q11,Q12,Q22)	0,887	Yes	0,906 when Q 22 is added
Factor 3 - Control, pressure, responsiveness and workload	5 (Q17, Q31, Q32, Q33, Q34, Q46, Q47, Q48, Q49, Q52)	0,894	Yes	
Factor 4 - Productivity, quality and work-life balance	8(Q20,Q23,Q24,Q26,Q41, Q50,Q51,54)	0,879	Yes	0,894 when Q20 added
Factor 5 - Continous accessibility/reach and time-management	5 (Q25, Q28, Q29, Q38, Q39)	0,859	Yes	
Factor 6 - Attention and Focus on Group work like Meetings and Interviews	3 (Q42, Q43, Q44)	0,827	Yes	
Factor 7 - Information/knowledge flow	2 (Q18, Q19,Q20)	0,853	Yes	0,769 when Q20 omitted
Factor 8 – Multi tasking, work-shifting	2 (Q37, Q40)	0,722	Yes	
Factor 9-Information systems& response	2 (Q27, Q30)	0,707	Yes	
Factor 10 -	2 (Q10, Q36)	0,562	No	

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APPENDIX C. DESCRIPTIVE STATISTICS FOR FACTORS AND QUESTIONS

Factor Name	N	Mean	Std. Dev.	Totally disagree (1)	Disagree (2)	Somehow agree (3)	Agree (4)	Totally agree (5)	Total Disagree (1)+(2)	Somehow agree (3)	Total Agree (4)+(5)	
Factor 2. Intensity and continuity of usage of Mobile	Q5	100	2,82	1,01	7%	33%	38%	15%	7%	40%	38%	22%
	Q6	100	2,80	1,07	10%	32%	33%	18%	7%	42%	33%	25%
	Q7	100	2,69	1,10	16%	26%	37%	15%	6%	42%	37%	21%
	Q8	100	2,44	1,11	24%	29%	30%	13%	4%	53%	30%	17%
	Q9	100	2,24	1,05	25%	42%	21%	8%	4%	67%	21%	12%
	Q11	100	2,27	,97	23%	39%	28%	8%	2%	62%	28%	10%
	Q12	97	2,82	1,24	20%	22%	22%	31%	6%	41%	22%	37%
	Q22	71	2,89	1,09	8%	35%	20%	32%	4%	44%	20%	37%
Factor 2	96	2,62	1,08	0	0	0	18%	5%	49%	29%	23%	
Factor 3. Increased control, pressure, responsiveness and	Q17	71	3,04	1,15	7%	31%	24%	27%	11%	38%	24%	38%
	Q31	64	3,16	1,17	9%	19%	33%	25%	14%	28%	33%	39%
	Q32	64	2,86	1,04	9%	28%	34%	23%	5%	38%	34%	28%
	Q33	64	3,00	1,08	9%	23%	31%	30%	6%	33%	31%	36%
	Q34	64	3,02	1,08	11%	16%	42%	23%	8%	27%	42%	31%
	Q46	63	3,11	1,02	2%	33%	25%	32%	8%	35%	25%	40%
	Q47	63	2,97	1,08	5%	35%	29%	22%	10%	40%	29%	32%
	Q48	63	3,17	1,16	5%	30%	22%	29%	14%	35%	22%	43%
	Q49	63	3,02	1,11	5%	33%	30%	19%	13%	38%	30%	32%
	Q52	63	3,19	1,05	5%	21%	37%	27%	11%	25%	37%	38%
Factor 3	64	3,05	1,09	7%	27%	31%	26%	10%	34%	31%	35%	
Factor 4. Increased Productivity.	Q23	71	3,23	,99	6%	17%	32%	39%	6%	23%	32%	45%
	Q24	71	3,37	1,03	6%	15%	24%	46%	8%	21%	24%	55%
	Q26	71	3,00	1,07	7%	28%	30%	28%	7%	35%	30%	35%
	Q41	63	2,38	,99	16%	48%	22%	11%	3%	63%	22%	14%
	Q50	63	2,84	1,00	11%	22%	41%	22%	3%	33%	41%	25%
	Q51	63	2,79	1,03	10%	33%	29%	25%	3%	43%	29%	29%
	Q54	63	2,90	1,01	8%	27%	37%	24%	5%	35%	37%	29%
Factor 4	66	2,97	1,03	9%	27%	31%	28%	5%	36%	31%	33%	
Factor 5. Continuous	Q25	71	3,51	1,12	7%	11%	23%	42%	17%	18%	23%	59%
	Q28	71	3,37	1,14	7%	17%	23%	39%	14%	24%	23%	54%
	Q29	71	3,42	1,09	6%	15%	24%	41%	14%	21%	24%	55%
	Q38	64	3,13	1,05	8%	19%	33%	34%	6%	27%	33%	41%
	Q39	63	3,06	1,09	8%	25%	25%	35%	6%	33%	25%	41%
	Factor 5	68	3,30	1,10	7%	18%	25%	38%	12%	25%	25%	50%
Factor 6. Attention	Q42	63	3,35	1,22	5%	25%	22%	25%	22%	30%	22%	48%
	Q43	63	3,41	1,19	8%	14%	25%	33%	19%	22%	25%	52%
	Q44	63	3,57	1,10	3%	17%	19%	40%	21%	21%	19%	60%
	Factor 6	63	3,44	1,17	5%	19%	22%	33%	21%	24%	22%	53%
Factor 7. Information	Q18	71	3,58	1,04	6%	8%	24%	46%	15%	14%	24%	62%
	Q19	71	3,61	1,06	6%	10%	20%	48%	17%	15%	20%	65%
	Q20	71	3,75	1,04	6%	6%	18%	49%	21%	11%	18%	70%
	Factor 7	69	3,59	1,08	6%	11%	21%	44%	19%	16%	21%	63%
Factor 8. Multitasking	Q37	64	3,02	1,06	5%	33%	27%	28%	8%	38%	27%	36%
	Q40	63	2,84	1,12	14%	24%	30%	27%	5%	38%	30%	32%
	Factor 8	67	3,30	1,08	8%	18%	24%	37%	13%	26%	24%	50%
Factor 9. Communication	Q27	71	2,56	1,05	14%	39%	27%	15%	4%	54%	27%	20%
	Q30	64	3,47	1,13	8%	13%	19%	47%	14%	20%	19%	61%
	Factor 9	66	3,04	1,09	11%	23%	25%	32%	9%	34%	25%	41%