WORKING ANYTIME, ANYWHERE: THE EVOLUTION OF TELEWORK AND ITS EFFECTS ON THE WORLD OF WORK

Jon C. Messenger

Team Leader, Working Conditions Group, WORKQUALITY Department

ILO Geneva

Abstract

New information and communications technologies have revolutionised work and life in the 21st century. The constant connectivity enabled by these devices allows work to be performed at any time and from almost anywhere. This paper synthesises the findings from a joint ILO-Eurofound report[1], based on national studies from 15 countries, and the Sixth European Working Conditions Survey, to analyse the effects of Telework and ICT-Mobile Work (T/ICTM) on the world of work. Available data suggests that the incidence of this type of work arrangement varies substantially across countries, ranging between 2% and 40% of all employees, depending on the particular country and the frequency with which employees carry out T/ICTM work. Positive effects of T/ICTM work include a shortening of commuting time, greater working time autonomy, better overall work-life balance, and higher productivity. At the same time, disadvantages include its tendency to lengthen working hours, to create interference between work and personal life, and to result in work intensification, which can lead to high levels of stress with negative consequences for workers' health and well-being. The ambiguous and even contradictory effects of T/ICTM work on working conditions represent a current, real-world example about both the opportunities and the challenges of the future of work.

Las nuevas tecnologías de la información y la comunicación han revolucionado el trabajo y la vida en el siglo XXI. La conectividad constante habilitada por estos dispositivos permite que el trabajo se realice en cualquier momento y desde casi cualquier lugar. Este artículo sintetiza las conclusiones de un informe conjunto OIT-Eurofound, basado en estudios de 15 países, y la Sexta Encuesta Europea de Condiciones de Trabajo, para analizar los efectos del Teletrabajo y las TIC-Trabajo móvil (T/ICTM) en el mundo del trabajo. Los datos disponibles sugieren que la incidencia de este tipo de trabajo varía sustancialmente entre los países, oscilando entre el 2% y el 40% de todos los empleados, dependiendo del país en concreto y la frecuencia con la que los empleados llevan a cabo el trabajo T/ICTM. Los efectos positivos del trabajo T/ICTM incluyen un acortamiento del tiempo de traslado, una mayor autonomía de tiempo de trabajo, un

---

[1] Eurofound and the International Labour Office (2017), *Working anytime, anywhere: The effects on the world of work*, Publications Office of the European Union, Luxembourg, and the International Labour Office, Geneva.

mejor equilibrio general de trabajo-vida y una mayor productividad. Al mismo tiempo, las desventajas incluyen la tendencia a alargar las horas de trabajo, crear interferencias entre el trabajo y la vida personal, y dar lugar a la intensificación del trabajo, lo que puede conducir a altos niveles de estrés con consecuencias negativas para la salud y el bienestar de los trabajadores. Los efectos ambiguos e incluso contradictorios del trabajo de T/ICTM sobre las condiciones de trabajo representan un ejemplo actual y real sobre las oportunidades y los desafíos del futuro del trabajo.

Título: Trabajando en cualquier momento, en cualquier lugar: la evolución del teletrabajo y sus efectos sobre el mundo del trabajo

Keywords: telework, new technologies, working time, work-life balance, stress.
Palabras clave: teletrabajo, nuevas tecnologías, tiempo de trabajo, conciliación de la vida laboral y familiar, estrés.

Summary

1. Introduction

New Information and Communications Technologies (New ICTs), such as smartphones and tablet computers, have revolutionized everyday work and life in the 21st Century. On the one hand, they enable constant connection with friends and family, as well as with work colleagues and supervisors; on the other hand, paid work may increasingly intrude into the time periods and physical spaces normally reserved for personal life. Crucial to this development is the detachment of work from traditional office spaces. 21st Century office work is often supported by internet connections, and thus can be done from basically anywhere and at any time. This new independence of work from place changes the role of technology in the work environment dramatically. Scholars are increasingly concerned with the advantages and disadvantages of New ICTs for working time, workplace relations, individual and organizational performance, occupational safety and health, and work-life balance.

A close analysis of the relevant literature reveals that research on the detachment of work from the employer's premises and its effects actually dates back to the previous century (MESSENGER and GSCHWIND, 2015). In the 1970s and 1980s, visionaries such as Jack NILLES (NILLES, 1975, 1988) and Allan Toffler (Toffler, 1980) predicted that the work of the future would be relocated into, or close to, employees' homes with the help of modern technology – so-called "Telecommuting" or "Telework". To fully understand the effects of New ICTs on the world of work, it is thus important to make a conceptual link between the early days of Telework/Telecommuting and such arrangements today. Technological advances are the motor of change in this context, and they have fostered *the evolution of Telework in three distinct stages or "generations"* (see MESSENGER and GSCHWIND, 2016 for a full discussion of this evolutionary process). First, personal computers and fixed telephones replaced long commuting hours between home and the office; this was the First Generation of Telework, the Home Office. Second, laptop computers and mobile phones enabled wireless, portable work "on the move" from locations other than home or the office (so-called "third spaces"), accompanied by a fast-growing dispersion of the Internet and the World Wide Web; this was beginning of mobile working, the Mobile Office, which is the Second Generation of Telework. Finally, online connections via radio links and the shrinking of transistors triggered the development of New ICTs (e.g., smartphones, tablet computers). *New ICTs enabled the mobile, virtual connection of workers to the "office" from almost anywhere at any time*; this is the Third Generation of Telework, the Virtual Office (MESSENGER and GSCHWIND, 2016). Analysing the advancements of technology and how they shaped the evolution of telework over these three generations from the 1970s up to the present time sheds a new light on the term, "telework". Today's location-independent, technology-enabled new ways of working, from the mobile full-time sales person to the occasional work-related e-mail or phone call

from home, are all part of the same (r)evolution in the inter-relationship between paid work and personal life.

This paper considers the effects of this "Third Generation Telework" –which is referred to as Telework/ICT-Mobile Work (T/ICTM)– on the world of work. T/ICTM work can be defined as the use of ICTs –such as smartphones, tablets, laptops and desktop computers– for the purposes of work outside the employer's premises. The paper synthesises research from a joint report, which was carried out by the European Foundation for the Improvement of Living and Working Conditions (Eurofound) network of European correspondents in 10 EU Member States – Belgium, Finland, France, Germany, Hungary, Italy, the Netherlands, Spain, Sweden and the UK – and by ILO country experts in five countries from other regions of the world -- Argentina, Brazil, India, Japan and the US.[2]

In addition, the paper classifies employees performing T/ICTM work in relation to their place of work (home, office and/or another location) and also the intensity and frequency of their work using ICTs outside the employer's premises. The following groups of T/ICTM workers were identified: regular home-based teleworkers; occasional T/ICTM workers, with mid-to-low mobility and frequency of work outside the employer's premises, either at home or another location; and high mobile T/ICTM workers, who have a high frequency of working in various places outside the employer's premises, including working from home.

The extent of the adoption of T/ICTM work across different countries, and its effects on working time, performance, work–life balance, and health and well-being are analysed using information from the 15 national studies, supplemented by data from the sixth European Working Conditions Survey (EWCS, 2015). These research findings can contribute to the development of effective policies in the areas of digitalisation, fair working conditions and decent work in Europe and other regions of the world.

2. Incidence and Intensity of Telework and ICT-Mobile Work

The incidence of T/ICTM work seems to be related to the level of technological development in various countries, but the actual adoption of such work arrangements is also closely linked to economic structures and cultures of work. The countries with relatively high shares of workers using ICTs to perform work outside the employer's premises are Finland, Japan, the Netherlands, Sweden and the US. Different forms of T/ICTM work can be expected to continue to develop on different paths. While working

---

[2] The national contributors were asked to review and summarise the findings from the available datasets and research literature on the subject of T/ICTM in their respective countries.

regularly with ICTs from outside the employer's premises is still comparatively rare in most of the countries analysed, the findings of this study suggest that important changes are taking place for a growing part of the workforce; the number of employees working flexibly in relation to space and time is growing – and will likely continue to grow – enabled by ICT developments. However, T/ICTM work will probably not grow across all occupations and in all sectors. Rather, it is more likely to become an established work arrangement for those whose tasks are already ICT-enabled. However, current trends suggest that larger shares of workers will have ICT-enabled jobs in the future (EWCS, 2015).

The incidence of T/ICTM work varies substantially across countries, ranging between 2% and 40% of all employees, depending on the particular country and the frequency with which employees carry out T/ICTM work. Across the EU, it has been estimated that at least a total of about 17% of employees do T/ICTM work (EWCS, 2015). When occasional T/ICTM work is included, such as phone calls or emails outside the office, the proportion rises to an estimated 40% of all employees in Japan and the US.

There are important differences in the incidence of T/ICTM work for different groups of workers. T/ICTM work is more common among professionals and managers, but is also relevant for clerical support and sales workers. Regarding gender, in general men are more likely to perform T/ICTM work than women in all of the countries analysed. However, women tend to use more regular home-based telework (rather than working in other places outside the office) and in most contexts they appear to do so mainly to balance work and family-related tasks. This suggests that gender matters in relation to T/ICTM work, and that country-specific gender role and models of work and family life are likely to shape the use of ICTs for work outside the employer's premises.

3. The Effects of Telework and ICT-Mobile Work

The results presented in this paper demonstrate that the working hours of T/ICTM workers, and particularly high mobile T/ICTM workers, are typically longer than of those workers who always work at the employer's premises. T/ICTM workers in general are also more likely to perform paid work in the evenings and on weekends than those workers who always work in the office, although they are less likely to work at night. Finally, a substantially higher share of T/ICTM workers enjoy a significant degree of working time autonomy than their office-based counterparts, which is important in relation to the reported work–life balance of workers. The findings also show differences among countries, which seem to be related to country-specific working time patterns, cultures and gender roles. How workers experience their working time qualitatively and

the implications of these new time patterns for working time regulation need to be further explored.

A number of studies[3] indicate generally positive effects of T/ICTM work on individual performance. The potential for an increase in productivity with T/ICTM work is mainly related to the spatial and time flexibility that such work offers and the associated consequences, such as reduced commuting time, savings on office space, increased working time autonomy, innovative work behavior, as well as the possibility of working longer and with fewer interruptions. Individual characteristics like motivation and skills seem to play a role, but so too does work efficiency associated with the use of ICTs. Other issues of relevance include the use of teleworking for maintaining business continuity in the case of natural disasters or other crises, and companies addressing mobility issues among employees.

Regarding the effects of T/ICTM work on work–life balance, it can be concluded that T/ICTM work, particularly working from home (home-based telework), appears to have a positive effect on overall work–life balance, mainly because of the reduction in commuting time and increased autonomy to organize working time based on individual workers' needs and preferences. At the same time, there is some risk of overlap between work and private or family life –that is, work-home interference– because of longer hours of work and the combination of paid work and other responsibilities, which may result in increased work-family conflict.

Although it appears that T/ICTM work can help to facilitate a better work-life balance for workers, it seems that a significant part of this work arrangement has a supplemental character –that is, it leads to working beyond normal/contractual working hours, which often appears to be unpaid. Therefore, this arrangement does not always reduce work–family conflict. On the contrary, the findings show that a high level of use of ICTs outside the employer's premises can jeopardize work–life balance. In fact, in all types of T/ICTM work there is a clear risk of working time impinging on non-working time. This is a consequence of the typically longer working days and weeks of employees doing T/ICTM work, but seems also to be related to a lack of 'boundary management'. Thus, it seems that the higher working time autonomy of employees doing T/ICTM can only contribute to improved work–life balance for regular home-based teleworkers and those working only occasionally outside the employer's premises; it does not seem to have this effect for those doing high mobile T/ICTM or T/ICTM work with high intensity.

---

[3] These studies have been referred to in the national reports prepared by country experts.

There are also important differences in these effects according to gender: Women tend to work shorter hours in T/ICTM work, and they seem to get slightly better work–life balance results than men when they do T/ICTM work. In this regard, women tend to use more regular home-based telework (rather than working in other places outside the 'office'), and in most contexts they appear to do so mainly to balance work and family-related tasks. In addition, it is worth noting that managers generally have different motives for performing T/ICTM work themselves, and they are more likely to encounter difficulties regarding work-life balance.

Employees doing T/ICTM work also seem to be exposed to risks to their health and well-being. While a higher share of workers among those doing T/ICTM work report a positive effect of this type of work on their health than other workers, there is also conversely a higher percentage of workers reporting a negative effect of such work on their health. Apart from specific job characteristics in the various occupations, the health and well-being risks faced by these employees are associated with ergonomic issues that arise while they are working outside the employer's premises. More importantly, T/ICTM work, particularly high mobile T/ICTM work, is associated with psychosocial risk factors related to work intensity, supplemental hours of work and longer working hours overall, which appear to have a negative impact on stress, sleeping problems and the perceived impact of work on health. Autonomy and support from colleagues can play a role in moderating these effects, but the findings suggest that these factors alone will not fully prevent some of the negative consequences. Reducing the intensity of work for the high mobile employees and reducing the supplemental hours for home-based teleworkers could potentially have a greater impact.

The findings suggest that the effects of T/ICTM work are highly ambiguous and perhaps even contradictory. Specifically, it appears that T/ICTM work is not unequivocally advantageous compared to traditional office work at the employer's premises. Neither does this type of work arrangement seem to result in mainly negative effects. On the positive side, T/ICTM workers report a reduction in commuting time, greater autonomy regarding the organization of their working time, better overall work–life balance and higher productivity. The disadvantages of T/ICTM work with which workers seem to struggle the most are its tendency to extend working hours, create an overlap between paid work and personal life due to a blurring of work–life boundaries, and also lead to the intensification of work. It appears that many of these ambiguous or paradoxical effects have to do with the interactions among ICT use, the place of work in specific work environments and the characteristics of different occupations. Moreover, whether T/ICTM work substitutes for work in the office, or instead supplements it, appears to be an important factor affecting whether the reported outcomes are positive or negative.

4. Policy Suggestions

It is necessary to go beyond a focus on whether T/ICTM work arrangements are 'good' or 'bad': clearly, they can be either or even both at the same time. Rather, given the highly ambiguous effects of T/ICTM work, we need to understand under what specific conditions both employees and employers can benefit from such work arrangements. In this regard, an attempt is made here to shed some light on this topic for policymakers, social partners, scholars and all those interested in the future of work, in order to understand the technology-driven changes that are occurring, and help shape such changes in a way that can benefit societies, while addressing the potentially negative side-effects. In light of this objective, we present some policy suggestions designed to promote such beneficial T/ICTM work.

- Because the use of ICTs outside the employer's premises, overall, brings benefits for both employees and companies, policymakers –including governments and social partners– should try to address the issue in such a way that the positive effects are accentuated and the negative effects are diminished. For example, this could be done by promoting 'partial' (part-time) T/ICTM work and occasional T/ICTM work, while restricting informal, supplemental T/ICTM work, excessively long working hours, and high levels of mobility and work intensity. In terms of the latter, a more rational use of ICTs is necessary, as is the creation of conditions that make that possible.

- In practical terms, the organisation of working time is changing and working time regulation needs to take this reality into account. Working time and non-working time have to be treated differently according to the type of T/ICTM work that employees are doing. Regulations have to be clear in this respect. In this context, it is particularly important to address the issue of supplemental T/ICTM work, which may well be unpaid overtime. Moreover, it is necessary to consider how the organisation of working time is changing in connection with ICT developments and, more broadly, what that means for limitations on working hours and particularly for the need to ensure that minimum rest periods are respected.

- A major challenge of T/ICTM work for the application of OSH prevention principles and of workers' health and safety legislation is related to the difficulties faced by employers regarding the supervision of the working environment and the working conditions of their employees' place of work when it is outside the employer's premises. EU-OSHA's project 'Foresight on new and emerging risks in occupational safety and health associated with ICT and work location by 2025' will produce scenarios that will help policymakers exploring strategic and policy options to address

the challenges to workers' safety and health associated with T/ICTM work (EU-OSHA, 2016).

- In order to fully harness the potential of T/ICTM work and improve the working conditions of employees performing such work, there is a need for training for both the employees affected and their managers on the effective use of ICTs when working remotely, the potential risks, and how to effectively manage the flexibility that this work arrangement provides. The blurring of boundaries is not necessarily negative if it is well managed. In relation to this aspect, it is important to work on building trust between employees and managers and to consider that those negative effects could be effectively cushioned with more appropriate managerial guidance. In this context, it appears that a higher degree of employee autonomy can enhance both work–life balance and individual performance.

- In the context of policies aimed at increasing participation in the labour market of certain groups, including older workers, women with young children and people with disabilities, T/ICTM work can play a relevant role, especially in the context of an ageing population. Examples from some countries show that T/ICTM forms a part of policies for promoting social inclusion and increasing participation in the labour market.

- The social partners are generally well positioned to address the topic of T/ICTM work, particularly in a number of EU countries, and especially in those companies where employee representation exists. Governmental initiatives and national or sectoral collective agreements are important for providing the overall framework for T/ICTM work arrangements. Of course, in the end practical application of T/ICTM will take place at company/organisational level, and thus it is also important to take into account the variety of contexts, which depend on the type of job and how ICTs are being used.

- Policies regarding T/ICTM work at the national, sectoral and organisational levels need to be adapted dynamically to technological advancements, as well as the needs and preferences of workers and employers. Therefore, it is important that these frameworks provide sufficient space to develop company-specific T/ICTM work arrangements that meet both workers' and employers' needs and preferences. For example, the European Framework Agreement on Telework could be adapted to take account of the non-regular, informal aspect of teleworking and the mobile aspect of the phenomenon.

- Finally, the differences in the conditions of work associated with different types of T/ICTM work, for example between home-based telework and high mobile T/ICTM work, have to be considered. Measures should tackle the specific reasons underlying

negative effects on working conditions which have been identified. For example, to protect workers' health, measures are needed to restrict informal, supplemental T/ICTM work by limiting the availability for work during those times typically reserved for personal life and rest periods.

In conclusion, new ICTs, such as smartphones and tablet computers, have revolutionized everyday work and life in the 21st Century. On the one hand, they enable us to constantly connect with friends and family as well as with work colleagues and supervisors; on the other hand, paid work becomes increasingly intrusive into the times and spaces normally reserved for personal life. Crucial to this development is the detachment of work from traditional office spaces. Today's office work is largely supported by Internet connections, and can thus be done at any time and from almost anywhere. This new spatial independence changes the role of technology in the work environment dramatically, offering both new opportunities and new challenges.

The future expansion of T/ICTM work is likely to manifest itself as a long series of tremors rather than as a sudden earthquake. Ultimately, however, it will lead to potentially profound consequences for working and living conditions. The policy suggestions presented above point to the importance of informing all parties −workers, employers and public authorities− about the advantages and disadvantages of different forms of T/ICTM work, and how to implement such work arrangements effectively. More research is needed on the subject, as well as a closer cooperation between policymakers, employers, workers and scholars, to pave the way for an adaption of T/ICTM work to the rapidly changing world of work in the 21st Century.

5. References

Full reference details for each of the national studies used in the joint ILO-Eurofound report are provided below:

Argentina: BOIAROV, S., T/ICTM and its effects in Argentina (unpublished ILO report), 2015.

Belgium: VERMANDERE, C., T/ICTM and its effects in Belgium (unpublished Eurofound contribution), 2015.

Brazil: MELLO, A., T/ICTM and its effects in Brazil (unpublished ILO report), 2015.

Finland: Lönnroos, L. T.; Tuomivaara, S. (Oxford Research AB and Finnish Institute of Occupational Health), T/ICTM and its effects in Finland (unpublished Eurofound contribution), 2015.

France: Schulze-Marmeling; S., Turlan, F. (IR Share), T/ICTM and its effects in France (unpublished Eurofound contribution), 2015.

Germany: Vogel, S., T/ICTM and its effects in Germany (unpublished Eurofound contribution), 2015.

Hungary: Belyo, P. T/ICTM and its effects in Hungary (unpublished Eurofound contribution).

India: Noronha, E.; D'Cruz, P. (IIM Ahmedabad), T/ICTM and its effects in India (unpublished ILO report), 2015.

Italy: Fondazione Giacomo Brodolini Moncini, T/ICTM and its effects in Italy (unpublished Eurofound contribution), 2015.

Japan: Sato, A., T/ICTM and its effects in Japan (unpublished ILO report), 2015.

Netherlands: Kraan, K.; Houtman, I. (TNO), T/ICTM and its effects in the Netherlands (unpublished Eurofound contribution), 2015.

Spain: Duran, J. and IKEI, T/ICTM and its effects in Spain (unpublished Eurofound contribution), 2015.

Sweden: Gustafsson, A.-K; Johanson, E. (Oxford Research), T/ICTM and its effects in Sweden (unpublished Eurofound contribution).

United Kingdom: Adam, D., T/ICTM and its effects in the UK (unpublished Eurofound contribution), 2015.

United States: Lister, K.; Harnish, T. (Global Workplace Analytics), T/ICTM and its effects in the US (unpublished ILO report), 2015.

Other References:

EU-OSHA, *Foresight of new and emerging occupational safety and health risks associated with information and communications technologies and work locations by 2025*, 2016.

Eurofound, *Telework in the European Union*, Publications Office of the European Union, Luxembourg, 2010.

Eurofound, *Organisation of working time: Implications for productivity and working conditions*, Publications Office of the European Union, Luxembourg, 2012.

Eurofound, *Sixth European Working Conditions Survey (2015)*, web page, accessed 1 February 2017.

Eurofound, *New forms of employment*, Publications Office of the European Union, Luxembourg, 2015.

Eurofound, *Sixth European Working Conditions Survey 2015: Overview report*, Publications Office of the European Union, Luxembourg, 2016.

MESSENGER, J. and GSCHWIND, L., T*elework, New ICTs and their effects on working time and work–life balance: Review of the literature*, (unpublished), ILO, Geneva, 2015.

MESSENGER, J. and GSCHWIND, L., "Three generations of telework: New ICTs and the (r)evolution from home office to virtual office", *New Technology, Work and Employment*, Vol. 31, No. 3, 2016, p. 195–208.

NILLES, J. M., "Telecommunications and Organizational Decentralization", *IEEE Transactions on Communications*, vol. 23, nº 10, 1975, p. 1142–1147.

NILLES, J. M., "Traffic reduction by telecommuting: A status review and selected bibliography", *Transportation Research Part A: General*, vol. 22, nº 4, 1988, p. 301–317.

TOFFLER A., *The Third Wave*, Bantam, New York, 1980.