Smart Working and Teleworking: two possible approaches to lean organisation management.

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1. Preface: New methods of work are inevitable

The wired global society in which we all live has brought with it enormous opportunities: today it is possible to buy affordable online products, keep in touch with friends, expand their horizons and learn online on any topic. The list may be unlimited. At the same time, the size and rhythm of the changes have created new challenges for people, organizations and the social system as a whole: digital divide is an example of the difficulty to grant those with low levels of schooling access to technologies which require economic investment and digital skills. Technological unemployment is another face of the challenge: as MIT researchers have reported since 2011, more and more activities are being carried out by computerised systems, which, being more sophisticated, are able to replace a large number of jobs, not just low skilled hand work, but also high skilled. [1] But at the same time, thanks to technologies, new jobs and new ways of doing them emerge (telework and smart working are the main examples) that open the way for new occasion of employment.

Another of the crucial features of the present Society is the increase in the spatial and temporal complexity that individuals have to deal with: people are constantly required to negotiate their presence in a number of different social microcosms and negotiate their own time between the different needs of life. This has definitely put the traditional synchronization of times, born in the 1800s as a necessity of industrialization and increased in the early decades of the 1900s, following the introduction of Taylor-Fordism and the assembly line[2]. Nevertheless, the cultural traditions of companies and public administrations force people to undergo a stiffness of time (working hours, the system of leave, etc.) and place where the work must be done (the office, the desk, etc.) in clear contrast with the networked Society developments.

The rigidity of times and work spaces generates an important economic damage: the opportunity to enjoy the great variety of services (commercial, cultural, entertainment) offered in modern societies cannot be fully exploited by citizens if you live in a social system with predefined times and if one spend too much time moving from home to workplace and vice versa. All this deprives individuals of a part of the day that could otherwise be better used. It is clear that companies and public administrations aware to the economic consequences of its actions cannot overlook the negative impact that the persistence of organizational system not congruent with the age have against the Society.

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[1] Brynjolfsson, E., McAfee, A., *Race against the machine: How the digital revolution is accelerating innovation, driving productivity, and irreversibly transforming employment and the economy*. Digital Frontier Press Lexington, MA, 2011; Frey C.B., Osborne M.A., *The future of employment: How susceptible are jobs to computerisation?*, Oxford Martin School, University of Oxford, Sept. 2016.

[2] Gutman H.G., *Work, Culture, and Society in Industrializing America*, ed. New York: Knopf, 1976; Nelson, D., *Frederick W. Taylor and the Rise of Scientific Management*, Madison: The University of Wisconsin Press, 1980.

Moreover, the need for space-time flexibility at work is particularly felt by employees who carry out activities where creativity and concentration are required, conditions that are often achieved more frequently being free to choose the time and place where to do their own work. In Italy, in 2010, at least 31% of the employed were estimated to operate in a highly knowledge-intensive economic sector, and one in three mainly used email for job contacts, while knowledge workers estimated by Istat accounted for more than 13% of the total work force[3]. It is clear that, in such a context, innovating work methods, adopting telework or its more flexible version, Smart Working, becomes a need not to be delayed even for the Public Administration.

It should be remembered that diffusion of telework and smart working in Europe is very unequal. As reported by Eurofound in 2017[4], the average is about 17% (sum of regular and occasional teleworkers), but in some countries there are peaks over 30% and in others - including Italy - teleworkers are below 10%.

Figure 1: Diffusion of telework and mobile work in Europe
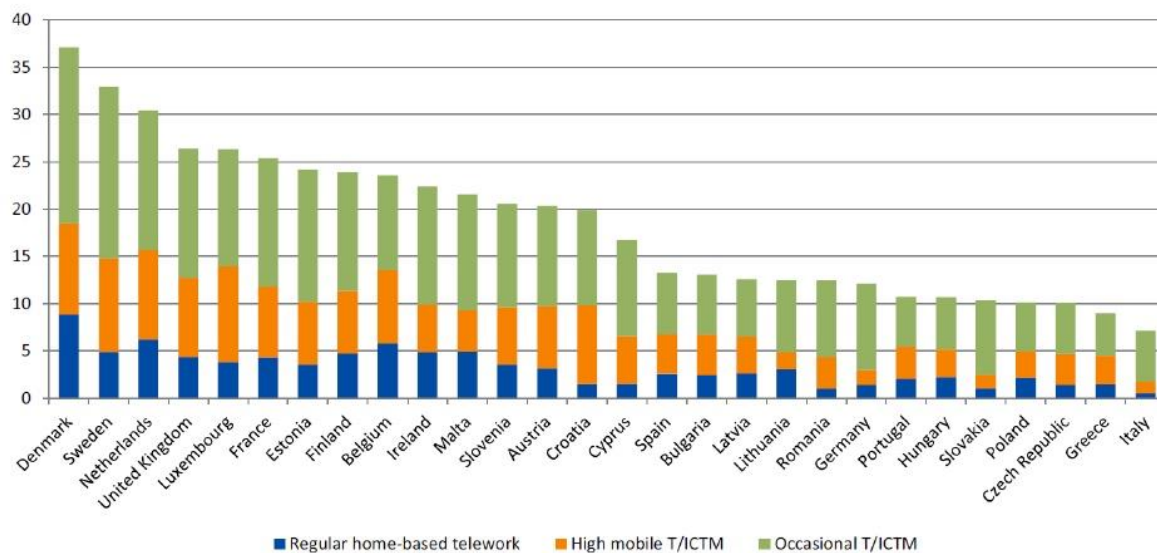
Source: EWCS 2015.

What are teleworking and smart working

In the eighteenth century, the industrial revolution transformed society by mechanizing human activity and introducing new methods of work and new places of work. The population, composed mainly of peasants and craftsmen who worked at home or in small shops, moved into the cities to enter the factories to work on machines of size and productivity never seen before. By the end of the twentieth century, the outsourcing of the economy and the birth of the Digital Society was an analogous, radical revolution that breaks the spatial and temporal links between worker and workplace. In this context, telework is a way to work independently of the geographic location of the office or business. With telework the worker will not necessarily requested to go to an office every morning: his job, thanks to the Internet, can be anywhere. People can return to work from home, just as they did in ancient times, reducing stress and pollution and achieving a better work-life balance.

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[3] Istat, *Rapporto BES 2013*, Capitolo 11 (http://www.istat.it/it/files/2013/03/11_Ricerca-e-innovazione.pdf)

[4] Eurofound, *Work–life balance and flexible working arrangements in the European Union*, Eurofound, Dublin, 2017

In almost all nations teleworking in public employment is subject to specific legislation, while the private sector relies on national and company agreements, often stipulated according to the 2002 European Telework Framework Agreement.

Smart Working, a new version of telework, is an innovative workflow based on a strong element of flexibility in terms of hours and location of job, which applies to companies with flexible organizational models. Working at office or outside can be alternated according to the needs of the production. Smart working does not require special enabling technologies that are not already in the hands of the worker, such as laptops, tablets, smartphone.

According to some analysts, smart work will squash telework, for which legislation - such as the one in the public sector - is excessively rigid and restrictive, does not take into account the evolution of technological tools and built a highly penalizing legal "superstructure" who limit the flexibility.

In Italy, a law has recently been approved to encourage companies to adopt smart working overcoming the impasse on telework by creating new rules with lightweight characteristics and obligations (for the worker and the employer). In the public sector, instead, it was recently issued a government directive for civil servants, intended to stimulate a deep cultural change in the concept of work: the shift from "stamping the time-card" to work for goals, where the worker have large freedom to self-organize job as long as they meet the goals set at the due dates. The innovative part of the directive is to configure smart working as an organizational tool and not as a contractual type, with the aim of making it workable by all employees who carry out tasks that are compatible with smart working.

2. Invisible Telework

The new challenges of modernization have led companies and Public Administrations to deal with a globalized and competitive market that requires organizational flexibility, cost-effective business policies and more attention to digitization[5] and entrepreneurship in decision making[6]. Lean production, horizontal coordination, network adoption, and open source logic as an organizational model, strategic value assigned to managing and enhancing knowledge: they are the main levers that characterize corporate reorganization processes in the new scenario outlined by the information age. In this context, telework, which has been invoked by a large number of innovators since the nineties[7], is a concrete opportunity for companies. It is unquestionable that today we talk about telework much less than we did in the previous decades. This may mean two very different things: a) that telework failed its objectives, and the idea of working out of the office was impractical for various reasons, from the centrality of the office's social environment to the worker's distrust; b) teleworking, thanks to the evolution and pervasiveness of digital communication technologies, transformed itself, and has become smart work, agile work, mobile work, home-based performance beyond working hours and holidays, and so on. Telework is now so widespread in organizations that have become "invisible": it lost the prefix "tele" and is in fact indistinguishable from work *tout court*.

From our point of view, both explanations are true, at least in part. Telework was simultaneously unsuccessful (where it claimed to be a total replacement of work done in the office with home-work), is endemic in many ICT-based jobs (think about who works on the Web or in research centers) and it has been transformed (as in the case of those who have jobs that involve the presence in several different physical places).

[5] Carr, N.C., *The Digital Enterprise: How to Reshape Your Business for a Connected World*, Harvard Business Review Book, 1999

[6] Di Nicola P., Rosati S.,(a cura di) *Visioni sul futuro delle organizzazioni*, Guerini, Milano, 2009.

[7] Di Nicola P., *Manuale del telelavoro. Nuovi modi di lavorare nella società dell'informazione*, Seam, Roma, 1997

In this perspective, telework and smart working are, more than ever, a possible response to the needs of both workers and businesses, and are a *win-win strategy*. Thanks to these, on the one hand, work becomes less rigid and more productive, the costs for organizations are reduced and stimulate the process of cultural change of the organization by better ICT usage; on the other hand, the strict separation of working time and life time is reduced, ensuring a greater interchange and balance between the professional and personal dimensions.

Unfortunately, although with large exceptions, many teleworking experiences in both companies and public administrations were often still seen as "other than themselves" in relation to the organizational ratio and have remained limited, numerically marginal, and do not really affect the organization's form. In Italy, this process was particularly evident with the entry into force of reforms of public sector, which in the mid-2000s paid particular attention to the check of the physical presence of the employee in the work premises. This made difficult the adoption of telework and other flexible forms of work. Instead, introducing teleworking in public work should be part of a joint cost optimization and organizational problem solving strategy to create new time and space arrangements that can lead to better productivity. Peraphs, in agreement with the innovations introduced with Europe 2020 and the European Digital Agenda, the fundamental exchange that teleworking and smart working assume is between a greater freedom of the worker and a lower cost for Public Administrations.

3. The evolutionary phases of telework and the Istat case

At the end of the century, telework was ripe throughout Europe. Telecommuters in 1999 reached 9 million (for two-thirds regular teleworkers), while in the United States they approached 16 million. But beyond the merely numerical data, the years 1998-1999 mark a phase-shift of telework experiences. Until that years, telework was driven by a generic "environmental vocation" of businesses, and above all by the desire to experience the benefits of teleworking, understanding the activities best suited to become "distant jobs". The new phase that started in 2000, on the other hand, identify telework as an opportunity for innovative business, creation of new employment, and streamlining the companies in order to recover a serious delay in usage of ICT. Firms understand that telework is just the tip of the iceberg, the visible part of an innovative digital eco-system that span between businesses, Public Administrations and Society as a whole. But the potential of telework to deploy to the best needs three elements: flexibility in work performance; organizational flexibility; innovative business management practices, even in public administration. Items that are not always found in all organizations.

The Istat teleworking experience is a "son" of the above cultural climate. It began with a trial in 2006 and become operational in 2008 with the activation of 81 telework positions, which grew over time to reach in 2016 the maximum value of 175 (7.9% of total staff).

By the end of 2016, teleworkers were 169 (113 women and 56 men), and they are present in all the jobs of the Institute: administration, ICT, research and statistical area.

Table 1: Telework evolution at Istat 2006-2016

	2006 (test phase)	2008	2009	2011	2016
Nr. Teleworkers	13	97	110	133	169 (on a maximum of 175)

Of the 169 teleworkers, 53.2% of teleworkers required teleworking because of serious personal or family care needs.

The distribution by gender of teleworkers reflects the generality of employees (two thirds of women and one third male), while teleworkers are commuters more distant than the average of workers: they frequently live in different cities than the workplace, in some cases even in different Regions (11.3% of teleworkers compared with 3.6% of non-teleworkers). From the professional point of view, most teleworkers come from the support staff, where teleworkers account for more than 10% of the total per level and are, instead, below 5% between the highest levels. As far as age is concerned, the vast majority of teleworkers (144 out of 169) are between 41 and 60, while young people are almost absent, a phenomenon which can easily be explained by the high number of employees seeking teleworking for medical pathologies, of course more frequent as the age increases.

Special attention is paid by Istat to monitoring the productivity of teleworkers. Data collected through staff managers are processed to build indicators that allow to estimate the quantity and quality of the performance as well as the assessment of the organizational impact and effectiveness of the measurement system itself. It should be recalled that the regulation governing teleworking at the Institute states that "Repeated misalignment with regard to teleworker objectives and / or ineffective application of the monitoring system by the competent structures can be a reason for cessation from teleworking position ".

3.1 The benefits and costs of teleworking.
Much of the existing literature attributes to telework a substantial increases in productivity. The International Labor Office, for example, notes that in some large companies - including Best Buy, British Telecom and Dow Chemical - teleworkers are 35-40% more productive than their colleagues in the office, while absenteeism is more than halved[8].
The case of Istat confirms the above. A direct benefits of the introduction of telework was the reduction of absences of staff for personal or family illness. It was observed even a reduction of cost for supplying meals at internal mess. But the larger benefits of telework are the better work-life balance and the reduction of commuting and energy consumption.
Telework has even considerable potential for increasing organizational efficiency, because it made simple individual performance audits, and allows the virtualization of workstations, which increases computer security and reduces the total cost of ownership of the equipment.

In particular, it is possible to resume the advantages of teleworking for Istat in:
- Savings for meals: 169 teleworkers work at home for an average of 477 days each week (without meal compensation). This results in a saving of € 129,000 (4.2% of the expenditure incurred by Istat)
- Productivity recovery: the rate of absenteeism for paid leave of teleworkers in 2015 was comparable to that of non-teleworkers, a good result considering the high percentage of teleworkers with disability and invalidity. Telework allows a reduction in absences of 2/3 of the total.
- Logistics optimization: the office workstation not used by teleworkers can be shared by organizing an on-line service for the booking of vacant desks, making them available to staff who have to move, on a day by day base, from one office to another.

Telework has even some costs:
- Teleworking allowance: teleworkers have the right for cost compensation for working at home (internet and communications). The monthly allowance agreed with the Unions is of € 15 for each month. The average cost is 28,000 Euro / year.
- Training costs: teleworkers, at the beginning of their experience, must attend a compulsory training course which includes a technological and a legal / administrative module. This course, is

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[8] http://www.ilo.org/rome/risorse-informative/per-la-stampa/articles/WCMS_208477/lang--it/index.htm.

currently delivered in blended mode via the Istat e-learning platform. The teaching is completely internal, so there are no additional costs for external experts.
- Computer Costs: all teleworkers have a portable PC for connecting to ISTAT via secure link. The portable, with a unit cost of about 400 euros, is recovered and redeployed at the end of the teleworking period. For the connections, the teleworker's private internet / telephone is used.
- Logistic costs: Teleworkers can request a desk and an ergonomic chair at home. These are standard office furniture, and at the end of telework the station can be retrieved.

3.2 Critical points
In the past months a team of internal experts investigated the feeling about telework delivering a questionnaire to the chiefs who manage the larger amount of teleworkers. The first results made clear that teleworkers do not identify less with the institute; they do not feel more controlled than their colleagues in office; do not suffer a sense of isolation from the working context for their condition of teleworkers.
There are some divergences between managers with respect to the working climate, perceived, in most cases, as improved with the introduction of teleworkers in the structure, although this has not resulted in improved collaboration between staff. Problematic, on the other hand, is the aspect of communication effectiveness: 77% of respondents believe that virtual interactions cannot replace in presence meetings (and therefore the shift between teleworking and office work is needed).
The overall degree of management satisfaction with the telework experience, measured on a scale 1 (little satisfied) to 5 (very satisfied) indicates an average response value of 3.7[9].

 Overall, the main problems encountered in telework in Istat are:
• Limited opportunity to meet the requests for teleworking due to the lack of teleworking positions (ie: at the latest 2016' telework call, for the selection of 39 employees with serious personal and family reasons applicants were 100). It must be said that in 2018, under a new Government Directive, teleworking positions must be raised to 10% of total employees.
• Limited flexibility in modifying the activity carried out in the event of management / organizational changes;
• Chiefs' difficulties in the management of teleworkers, particularly in the monitoring of the activity;
• The continuous need to improve the system of indicators in use for optimum telework productivity monitoring.

3.3 From teleworking to smart working
The conditions in which telework developed in Istat since mid 2000 have deeply changed today. Technological innovation (in particular the pervasiveness of mobile Internet) and the economic crisis that requested a fast review of spending while increase productivity. The directions of change can be synthesized in a few crucial points:

- Teleworking, from a niche object that request an *ad hoc* organisational design , becomes a "natural" result of the availability of highly portable technologies but also a possible response to the demand for greater productivity and the request for better well being at work;
- Employees appear to have symptoms of intolerance for the "invasiveness" of technology, which tends to map "leopard blaze" working time and life time, increasing problems of time reconciliation;
- "Digital Youths" entered into the Organisation: they are people who come out from Universities during the maximum expansion of the Internet, and share the "net logic" in a natural way. They are bearers of new methods of work, based on knowledge sharing over the social networks;

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[9] Data on the survey were made available to the author by Anna Rita La Piazza and Letizia Marangon of Istat HRM Directorate

- It is becoming increasingly difficult for HR agents to identify and standardize the new forms of "informal teleworking" that are constantly created at workplaces. In particular, it is necessary to govern the shift from the technological aspects to the organizational conditions: digital infrastructure, co-ordination methods, group work on the network;
- It is emerging a new organizational form, based on the "Open Source" philosophy: people, beyond formal membership in a specific Office, are members in formal and informal "communities of practice" and the effective leadership of teams is often based on reputation not on hierarchy. In these communities remote work, often carried out beside the office hours, is endemic as is the temporal flexibility of work;
- Organizational systems are increasingly based on web 3.0, and most applications are transferred to the Cloud, allowing very high levels of flexibility and cooperation;
- In organisations that allow people to work wherever they wish, the need to have permanent desk in one place or another disappear. The idea of using shared desk is becoming more and more attractive.

In this changing context, teleworking experiences are running out of their ability to rethink organizational models in a heuristic sense (thus overcoming the simple duality teleworking / non-teleworking). The shift to smart working, become for organisation a strategic step to implement new management methods, which look to the work done, not to the time card.
The transition to smart working requires the definition of organizational guidelines to differentiate approaches. Therefore, traditional telework could be targeted at those who often need to work from home (for example to care themselves or family members); smart working can be seen as a "light" and de-structured form of telework, especially suitable for staff (including executive) who need to work out of the office (not necessarily at home) on occasional base, always maintaining a close link with the organisation; desk sharing could be designed to support staff working at different locations and, above all, to make the best use of the spaces for supporting high mobile staff. Using smart work it could be possible to re-design the organization to achieve a smart and lean management.

5. Conclusion

As we have seen, in recent years, the idea of telework has been flanked by the concept of Smart Working. This, thanks to an increased flexibility, could be able to involve a much larger number of companies and employees achieving gains that, for Italy, have been quantified in over 35 billion a year[10]. The keys to such success is related to regulatory simplification, best use of technology available to workers, new management awareness of having a tool that, while increasing employee well being, makes them more "agile" and productive[11].
To paraphrase Baumann, we are in a liquid society, in which the memberships and cultures are multiplied and differentiated, even those derived from work[12]. It is in view of the overturning of the values on which the work is based, before the liquid work returns to solidify, which becomes indispensable to address the nodes that smart working opens to organizations.

[10] Politecnico di Milano, *Osservatorio Smart Working*, 12 October 2016

[11] Italian Parliament, *Introduction to the Law design n. 2014* "Disposizioni per la promozione di forme flessibili e semplificate di telelavoro", 29 January 2014

[12] Bauman Z., *Work, consumerism and the new poor.* Philadelphia: Open University Press, 1998.