

# Chapter 1

## Introduction

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### ABSTRACT

CNR-IRCrES has investigated on the effects of the agile working on researchers and technologists, in the specific context of the Italian Public Research Organizations (PROs), during the COVID-19 pandemic. The project is one of the research initiatives launched by the CNR to deal with the emergency of COVID-19. Between February and March 2021, a year after the widespread emergency adoption of agile working during the COVID-19 pandemic, a survey was launched, which was based on a structured online questionnaire targeted to the research personnel working in two Italian PROs. Our investigation focuses on several dimensions either directly related to the research work – namely: scientific creativity and productivity, researchers' well-being, the use of ICT tools – or involving general aspects, such as the effects on the environment by the reduction of the carbon footprint.

KEYWORDS: agile working, COVID-19 pandemic, Public Research Organisations.

ISBN (online): 978-88-98193-26-4

ISBN (print): 978-88-98193-27-1

### HOW TO CITE THIS CHAPTER

Reale, E. (2022). Introduction. In Reale, E. (ed). *Agile working in Public Research Organizations during the COVID-19 pandemic. Organizational factors and individual attitudes in knowledge production* (pp. 3-8). Quaderni IRCrES 14. Moncalieri, TO: CNR-IRCrES. <http://dx.doi.org/10.23760/2499-6661.2022.14>

Agile working (henceforth the term ‘smart working’ is used as a synonym) is a dynamic and adaptable method of flexible working<sup>1</sup>. Flexibility encompasses more than one level of work activity, which is therefore carried out in times, places, and with tools that are determined and organized independently by the worker (D’Amato, 2014). Flexibility refers also to the development of the ability to adapt to sudden changes and return to the initial structure, to cope with changing situations. Smart working pushes towards the transition from hierarchical organizational models based on the physical presence to work systems that favour the achievement of results, work autonomy and the spread of relationships of trust (Butera, 2020), with strong innovation in performance achievements (Bergamante et al., 2021; Giuzio & Rizzica, 2021; Reale et al., 2020; Della Ratta-Rinaldi et al., 2020; INPS 2021; Cinque et al., 2020; Canal, Gualtieri & Zucaro, 2022).

The effects of the smart working can be observed in a variety of ways, including:

- a. the rules governing the two distinct types of work (work outside the office and work in the office),
- b. the methods by which the performance is carried out and the achievement is measured,
- c. the worker’s individual well-being and satisfaction in reconciling work and family life,
- d. the worker’s extensive use of new technologies, which increases the need for training,
- e. the new ways in which the leadership is exerted within public or private organizations, which must go beyond the traditional hierarchical relationship, in order to favour forms of collaborative and proactive forms of work by the worker (Gastaldi et al., 2014; Van der Voet et al., 2016).

The literature emphasizes the inherent logic of this type of work, which has to be directed towards greater professionalization of the employee (Oliva, 2019), a greater involvement in the achievement of the result and in the choice of means to do that, shifting from the control over the execution of the performance to the evaluation of the ability, to develop new ideas and solutions for the improvement of the work efficiency and of its effectiveness. Agile working pushes towards rethinking the working spaces, the working hours, and the tools in the name of greater freedom and empowerment for the workers (European Commission, 2005). In fact, the temporal and geographical flexibility represents non-monetary benefits to workers, in term of intellectual challenge, recognition, opportunities to make pro-social contributions, and work-life balance, all aspects that can positively influence the outcomes and motivate the efforts (Choudhury et al., 2021). Thus, the term flexibility takes on a new meaning, one that appears particularly promising when applied to intellectual and creative services, where the worker’s autonomy can promote more innovative results (Chiaro et al., 2015; Dagnino, 2016).

It is worth to recall that the innovation brought by agile working is not always considered as a positive development. On the employers’ side, the awareness of the necessary change in the organization of the work and in the exercise of their leadership makes them cautious about the implementation of agile working. The fear of losing their control over the workers, which has traditionally been exercised ex-ante through prescriptions linked to the use of the required tools and behaviours, and only loosely linked to the achievement of a result, goes hand in hand with the awareness of a lack of tools and training aimed to manage the change towards an ex-post control of the work, that focuses on the results achieved by the worker on the basis of a negotiated

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<sup>1</sup> In the present book we use the terms ‘agile working’, ‘smart working’, ‘remote working’, and ‘work from home’ as synonyms. The authors are aware that the literature coined several definitions for the agile working aimed at distinguishing between different forms, characteristics, and requirements. However, the mentioned classifications/distinctions are not relevant for the purposes of this study. Therefore, we will use the mentioned expressions as equivalent, all indicating the special features of smart working implemented during the COVID-19 pandemic, which entailed conducting research and technological work outside the office – and initially exclusively from home – in compliance with the extraordinary mandatory rules related to health emergency.

schedule in which the worker maintains a wide space of autonomy for the achievement of the identified objective.

From the trade union side, it is feared that the supposed “professionalization” of the worker will have a very high price in terms of union protection, leaving the worker at the mercy of the employer for what concerns the evaluation of the service rendered, with possible effects on the remuneration or even on the permanence in the workplace. In fact, the substance of agile working lies in the profound change in the structure of the contractual relationship, which replaces the measurement of the amount of work rendered based on the time dedicated, with the observation of the performance rendered in relation to the immediate result achieved; the worker is responsible for the achievement (or non-achievement) of this result, even in the possibility that the non-achievement depends on causes not attributable to him/her. Furthermore, the absence of a clear distinction between the time dedicated to work and the one dedicated to the family presents the risk of activating a sort of continuous cycle of work with consequent psychological implications (Klehe & Anderson, 2007); also, the continuous use of web connections for work needs could have potentially harmful consequences for the health, with the need to configure a “right to disconnect” (Ray, 2016).

Having in mind the mentioned problems, the CNR-IRCrES investigates on the effects of the agile working on researchers and technologists, in the specific context of the Italian Public Research Organizations (PROs), during the COVID-19 pandemic. The project is one of the research initiatives launched by the CNR to deal with the emergency of COVID-19.

Between February and March 2021, a year after the widespread emergency adoption of agile working during the COVID-19 pandemic, a survey was launched, which was based on a structured online questionnaire targeted to the research personnel working in two Italian PROs<sup>2</sup>. Prior to the pandemic, agile working was either in the experimental phase or had never been experienced in PROs (Reale et al., 2020), but during the most intense phase of the COVID-19 pandemic, suddenly it became the ordinary and exclusive mode (with the concept of delocalization of work partially eluded because everyone works at home, with no possibility of choosing an alternative workplace, at a first stage, and no voluntary agreement between the employees and the employer to work in a ‘smart’ mode).

Despite the special features of smart working during the pandemic event, investigating the attitudes and the opinions of the PRO researchers and technologists can shed light on the effects it has produced for a special type of professionals, whose activity is characterized by the highest level of creativity; it is commonly organized by projects and objectives to be achieved, with a highly flexible mode of working. To researchers and technologists are already guaranteed rather high levels of autonomy, which allow them to decide for themselves when and how they can work; however, they face some constraints in their choice of workplace, which in most cases does not include working at home. The mentioned features let us expect that we will find positive effects of the smart working despite the exceptional circumstances and the time of its implementation.

However, there are several open questions about the consequences of smart working, including the possible psychological effects of an extensive use of ICTs, the possible phenomena of gender discrimination that would affect the women and their productivity, since the reconciliation between working time and family care is often not easy and is likely to produce discrimination in practice. Furthermore, the problems deriving from the loss of socialization between the colleagues deprive the individuals of the benefits deriving from interpersonal relationships and collaboration, but leave intact (or even increase) the phenomena of internal competition. Finally, the positive and negative effects of agile working on the scientific productivity still need to be monitored more accurately (Reale, 2020). The evidence gathered on this extreme case could suggest changes to the national legislation, which would allow greater room for manoeuvres in the different organizational contexts and would allow to adapt the performance of agile working to the actual configuration of the work and to the various existing performance objectives. Our investigation

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<sup>2</sup> The questionnaire created for the survey is reported in its entirety at the end of the volume.

focuses on several dimensions either directly related to the research work – namely: scientific creativity and productivity, researchers’ well-being, the use of ICT tools – or involving general aspects, such as the effects on the environment by the reduction of the carbon footprint.

Chapter 2, entitled The methodology of the survey on the effects of agile working in Italian Public Research Organizations, describes the methodological approach implemented for the survey, emphasizing the analytical dimensions under investigation and the fundamental characteristics of the study project.

In Chapter 3, Individual autonomy and research creativity in time of COVID-19, our team investigates the value of the autonomy in the organization of the individual work, with respect to the production of new scientific knowledge in non-university academic organizations, by following two main questions: does the agile working during the COVID-19 pandemic affect the ability of the researchers to explore both already existing and new research questions/trajectories, and technologists’ attitudes towards finding innovative ways of supporting research activities? Was agile working during the pandemic a threat or an opportunity for knowledge creation? The results show the positive assessment of the scholars on the experience of smart working, even under the special conditions of the pandemic event. However, Chapter 3 also presents some limitations of smart working concerning the scientific work, which needs personal contacts and networks to increase production and productivity.

Chapter 4, entitled Scientific productivity and smart working. Evidence from researchers’ perception, deepens the issue of the productivity during the pandemic event of COVID-19 to control whether the agile working during this special period favoured or impeded the capability of researchers to explore both already existing and new research questions/trajectories, and to control technologists’ attitudes toward finding innovative ways of supporting research activities. The overarching question of the chapter is whether agile working threatened the knowledge creation, or it was an opportunity. Beyond the fact that the perceived productivity was stable or had increased during the period, the perception of the interviewed PRO researchers and technologists show a positive attitude towards the future use of smart working, even outside the pandemic emergency of COVID-19. Women feel to be more productive under the smart working scheme, but they feel less efficient and intend to use it for fewer days than men in the future.

Chapter 5, Agile working and well-being during the Covid-19 pandemic, is focused on the well-being deriving from the adoption of smart-working, questioning how researchers and technologists’ perceptions on well-being differ by gender, age groups, family composition, commuting and working habits, contractual and sectoral aspects, and the benefits and the limits perceived by the respondents with smart working during the pandemic. The chapter investigates whether agile working favours the conciliation between work and free/family time, and if there are specific characteristics that influence the respondents’ well-being, with a specific attention to the gender issues. From the combination of the textual analysis and the econometric model, five areas of advantages emerged : life quality, new working tools and methods, free time and working time conciliation, efficiency, and savings. Women generally recognize as an advantage the increased possibility of looking after children and relatives; however, limitations are visible too, since the presence of minors in the family is also a source of stress, leading to the fragmentation of the work during the day and the expansion of the daily hours worked.

In Chapter 6, The use of ICT services and tools by PRO research personnel in agile working during the COVID-19 pandemic, our team describes the mode and intensity of use of the ICT services and tools by non-academic research personnel, during the agile working performed in the course of the emergency. The focus is primarily on the individual level of adoption of ICT resources in response to out-of-office working conditions. The new working condition has forced researchers and technologists to intensify the use of some previously experimented ICTs, and has also measured for the first time the use of new ones. The transformations in the work due to the use of new tools was generally well accepted, with researchers and technologist engaged to fill eventual organizational technological gaps to perform activities in an effective and productive way.

Finally, Chapter 7, Environmental implications of agile working: an assessment of commuting emissions, deals with the positive impact that smart working can have on the environment,

looking at the work mobility emissions, and with how the new labour organization can maximize this positive impact. Despite the fact that the evolution towards a larger use of ecologic means of transport is positive (but not so strong), a positive outcome for the environment can be foreseen with the introduction of the smart working, reducing the CO2 emissions due to fewer trips to the workplace and, at the same time, due to the changes in habits of commuting means.

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