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## Editorial

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**Biographical notes:** Francesca Sgobbi is an Associate Professor of Organisation and HRM at the University of Brescia, Italy. She received her PhD from the Polytechnical University of Milan, Italy. Her research interests include three different, yet closely related areas: (1) the reward for skills and competences; (2) the relationship between technological, institutional and organisational change and (3) the diffusion of information and communication technologies. She has participated in several research programmes and published papers in refereed journals and international conferences.

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The everlasting debate on the changes in the workplace and the evolution of labour content has recently focused around two interconnected ideas, both claiming the central role played by human resources. Firstly, remarkable complementarities exist between technological and organisational change and their role is particularly important when pervasive technologies such as Information and Communication Technologies (ICTs) are involved (Bresnahan et al., 2002). Secondly, a skill-biased nature has characterised the change of work in recent decades, which has been progressively marginalising poorly skilled workers and individuals lacking basic ICT capabilities (Piva et al., 2005).

Despite the growing body of available literature, important pieces to build up the comprehensive puzzle of how work is changing in the era of ICTs are still missing. In particular, most existing analyses try to assess the impact of change over firm performance or workforce composition. Less effort has been devoted to understanding how the joint effect of technological and organisational changes affect skills, competencies and performance at the individual level. Nonetheless, analysis at the microlevel represents a compulsory step to evaluate if and how the achieved results will be sustainable in the future.

This Special Issue addresses the relationship between ICT-based technological and organisational change on the one hand, and individual skills and performances on the other one, in search for the tools and solutions which promise the better sustainability of learning processes and the narrowing of the digital divide among workers. The selected papers address different aspects of the examined issue and sketch a variegated picture of a still evolving framework. However, despite the different cultural background of their authors, the variety of the examined themes and contexts and the differentiated theoretical or empirical approaches, all papers support a central and active role of human resources in accommodating and driving ICT-based technological and organisational change.

The first three papers share a common emphasis on the ICTs as a bundle of technological innovations which accelerate and reinforce phenomena which have long

affected work flows and labour organisation both at the level of the firm and for the whole economic system (Child and McGrath, 2001). The contribution by Connolly and Gray opens the Special Issue by discussing how ICTs-enabled off-shoring is affecting the competitiveness of the IT industry in the UK. By reducing space and time distances, ICTs support the diffusion of non-traditional organisational models, off-shoring included. However, this paper supports the thesis that as the value added of delocalised services increases, off-shoring can turn into a double-edged weapon. Not only short term advantages could be accompanied by the erosion of the stock of skills and competencies in off-shoring countries, but unexpected shortcomings can sometimes significantly downsize the actual net benefits.

The subsequent paper, by Deng and Poole, explores how ICTs are modifying another pre-ICTs phenomenon, that is, learning in social networks. Researchers have long recognised the importance of social networks as a means of individual, organisational and collective learning. However, the much higher potential of ICT-enabled social networks has stimulated a new wave of analysis. Arguing that literature so far overlooked how the interplay of network structural properties, ICT features and social interaction affect the quality of individual learning in ICT-enabled social networks, the authors develop a theoretical model and put forward several testable hypotheses which set an articulated agenda for future empirical research. The architecture described by Gómez Berbis, Colomo Palacios, García Crespo and Ruiz Mezcua provides a potential test bed for assessing the learning processes sketched by Deng and Poole. The authors present a currently under development software architecture based on semantic web to support the exchange of information and knowledge across ICT-enabled social networks. Semantic webs represents concepts through codified information and natural language, as well as multimedia. The idea of semantic web particularly fits with learning in social networks, because it stresses the need for meaningful information to build up those reliable and trustworthy relationships which foster individual and organisational learning.

The last three papers of the Special Issue empirically illustrate how the skills and the participation of the involved personnel influence the effectiveness of ICT-based technological and organisational innovations adopted by business companies. The paper by Gargallo-Castel and Ramírez-Alesón reverses the approach to skill-biased technological change usually found in economic literature. Instead of assessing how the adoption of ICTs affects firm performance and workforce composition, the authors check if and to what extent the quality of available human resources constrains investment in knowledge-intensive technologies. The positive answer provided by the analysis of the Spanish case bears significant policy implications: if a poorly skilled workforce obstacles the adoption of new technologies in general, and ICTs in particular, public support to education and training initiatives may be justified in order to reap the fruits of innovation diffusion.

Marzona and Pighin propose a quality–quantitative case study concerning ICT-intensive technological and organisational change by a chair manufacturer. The authors argue that the outcome of ICT-based workplace reorganisation can fall below expectations when change does not match the culture of the involved employees. The authors show that involvement in the design of the organisational change is a critical step to encourage the active adherence to new routines and procedures. Should this condition fail, not only employees from the operation core, but also line managers and top managers will not make sense of the new organisational design and passively face it.

An additional case study dealing with the effects of technological change on work organisation and on the skills of involved employees is provided by Capaldo, Rippa and Teta. The authors discuss the implications of shifting from a traditional, document-based organisation of software development to an interactive and recursive approach. As in the contribution by Connolly and Gray, also in this case ICTs are both the object of change – the case study is about software development – and a driver of change, in the form of a technical solution that, when coupled with proper workflow transformation, meets the customer need for the continuous update of product requirements. Besides supporting the thesis that technological change always requires organisational and cultural change, this case study shows that the identification of emerging organisational needs (in the examined case, a new work organisation and a new professional role) can significantly profit from the contribution of the involved employees.

The papers in this Special Issue suggest that additional theoretical and empirical work is still needed to support the development, the implementation and the evaluation of business initiatives and policy measures. However, no matter how labour organisation changes and how working tools evolve, human beings still represent the most critical asset of every workplace.

### Acknowledgements

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