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Doctoral Dissertation
Doctoral Program in Management, Production and Design (31th Cycle)

The digitalization of search and recombination mechanisms

Tensions and implications
in the cultural heritage sector

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Summary

Over the last decades we have witnessed a profound digitalization of tangible products. While this shift offers new possibilities and great opportunities, it also exposes firms to significant challenges and constraints for innovation management in the digital age. Specifically, rather than centering on the corporate R&D department, firms acknowledge that innovation is an increasingly distributed activity, taking place in **networks and ecosystems** rather than within **hierarchies**. In turn, this calls for new forms of governance of information, new business models, new organizational architectures and generative technologies, encouraging new “uncoordinated” forms of innovation.

The thesis is rooted in the observation that firms need to combine different **innovation regimes** to tackle digital transformation. On one hand, physical products will remain physical goods delivering tangible value. On the other, this tangible value is increasingly enhanced by digital technologies, calling for new perspective on innovation. In addressing this challenge of searching and recombining different innovation regimes, the thesis draws on the **innovation management literature**. Among the various digital enabling technologies being considered in the digital transformation of companies, in the innovation management literature, **digitization** and **connectivity** have been associated with new possibilities and opportunities for innovation in general and for search and recombination mechanisms in particular. What has often been missing from innovation management research is the systematic consideration of digitization and connectivity as forces that not only creates **opportunities** but also changes the **organizational variables** that might affect some of the built-in assumptions in the extant innovation management literature.

This thesis addresses this gap in the literature by investigating how firms can make the search and recombination mechanisms enabled by digitization and connectivity **work for them and not against them** in the innovation process. In doing so, it introduces a systematic integrative framework – grounded in the systematic analysis of the literature on digitization and connectivity – that predicts the likely scope of search and recombination mechanisms vis-à-vis digitization of the innovation function. Overall, the thesis shows that the potential “inertial” effects of digitization and connectivity (i.e., activities set into motion) on the scope of search and recombination are far from being unidirectional and ambiguous because digitization and connectivity engender changes in the micro-mechanisms of **absorptive capacity** and **innovation governance** that are at the core of search and recombination’s scope.

Sensitizing the theoretical framework through two empirical studies of digital transformation this thesis derives several implications for theory and practice. Across two different, yet interlinked, embedded case studies in the cultural heritage sector it demonstrates the theoretical framework by leveraging differences on how digitization and connectivity affect search and recombination mechanisms in **network-centric** and **hierarchy-centric** innovation contexts.

On the question on how firms can make the search and recombination mechanisms enabled by digitization and connectivity work for them and not against them, the thesis shows that this depends on which forces unleashed by digital technology dominate over the other ones. These forces may affect a company’s innovation governance and absorptive capacity – and, in turn, the scope for search and recombination – in three ways. First, digitization and connectivity might increase formal control and centralization in the governance of the innovation process, but they might also enable informal and distributed governance of the innovation process. Second, organization’s absorptive capacity – via digitization and connectivity – might enable more formalized knowledge, better understanding of the linkages among pieces of knowledge and better communication flows. Finally, digitization and connectivity may change the distribution of skills in the innovation functions and – depending on the resulting balance between digital and legacy skills – the organization might embark in path-dependent innovation (legacy skills prevail), path-creating innovation (digital skills prevail) or more balanced innovation.