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# Business Model Innovation and Organizational Changes in the era of Digital Transformation

An empirical study in the Energy Utility Industry



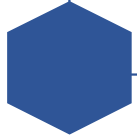
**Keywords:** business model; business model innovation; business model co-innovation; digital transformation; organizational design; organizational changes; energy utility

## Why: the choice of the research domain

This doctoral thesis aims at studying the complex relationship between business model innovation (**BMI**) and **organizational change**.

We try to shed light on


- **how organizational changes and BMI are intertwined;**
- **how proper organizational changes can facilitate the renewal of a traditional BM.**

 BMI is dictated by the firms' need to **cope with the current wave of digital transformation** which is forcing them to renew traditional BMs to **offer a novel commercial value proposition to the market**.

Digital technologies are **changing the way people live, as well as the way businesses bring value to customers**.

We studied the business of **energy utilities**, which is the context of our research, and **how the diffusion of new technologies is changing the way energy solutions are consumed and experienced**, while consumers increasingly take ownership of their consumption, acting as **“prosumers”**.

## Why: the choice of the research domain



*"The integration and embedding of digital technologies challenge the core business of many organizations to alter products, services, operations, and employees' behavior" (Autio, 2018).*

*"Digital technologies have enabled new organizational architectures and have ignited important changes at organizational level" (Sosna et al., 2010).*

*"Even firms in traditional industries are increasingly realizing the disruptive potential of the digital transformation era we are living" (Dellermann et al., 2017).*

*"Incumbent firms face significant challenges even if senior leadership teams are internally motivated to support the digital transformation of business models, structures, and processes" (Hess et al., 2016).*

*"The building of capabilities for digital transformation has received limited scholarly attention and is now an essential context for the study of strategic change" (Warner and Wager, 2019).*



## Overview of the Energy Industry

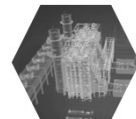
*The global energy landscape is changing...*

# 3

New pillars



**Decentralization**



**Digitalization**

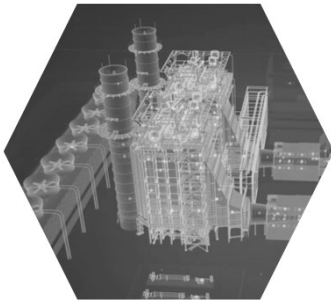


**Servitization**





## Overview of the Energy Industry

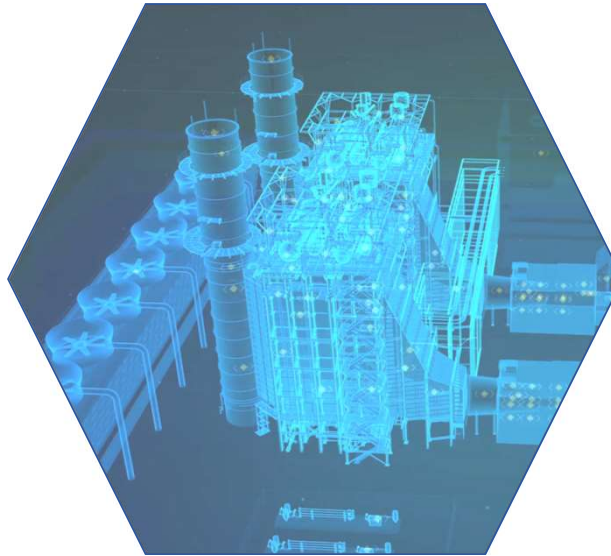


### Decentralization

... means to create a **network** of a multitude of **small plants** based on **renewables**, connected to power grid or natural gas supply network, that are able to produce and supply energy at **local level**... and consumers are turning into **prosumers**.



## Overview of the Energy Industry

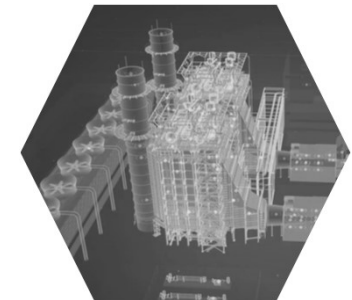


### Digitalization

... **digital technologies** are offering new **value capture** mechanisms for the energy companies are; there are good opportunities for **increasing productivity, efficiency and safety** across energy systems.



## Overview of the Energy Industry



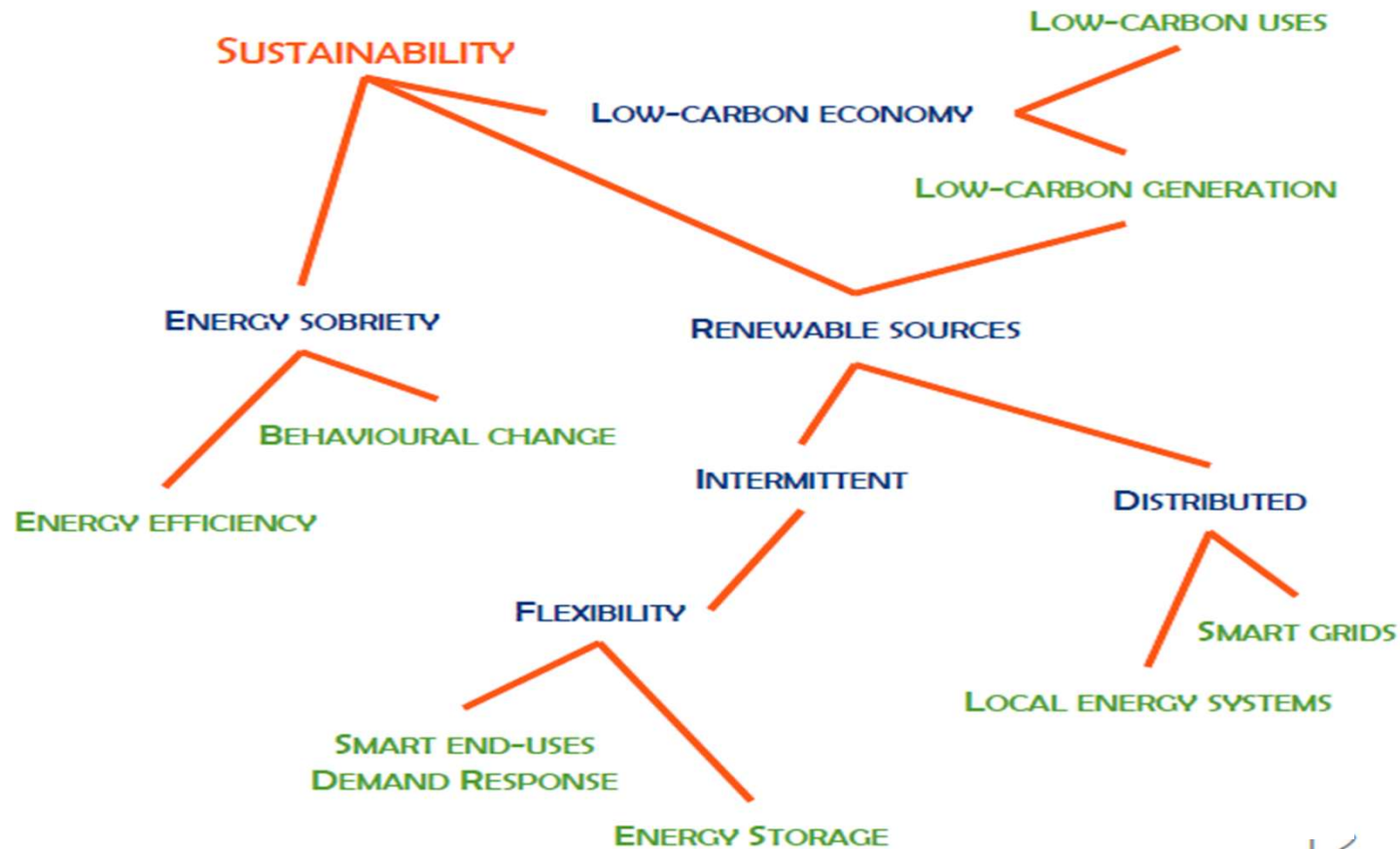
## Servitization

... energy companies are focusing on **improving** the whole **customer experience**: clients will be offered **value-added services** that will reduce energy consumption and will propose new energy applications... They will move **from** offering energy as a **commodity** to offer a wide set of **services**.





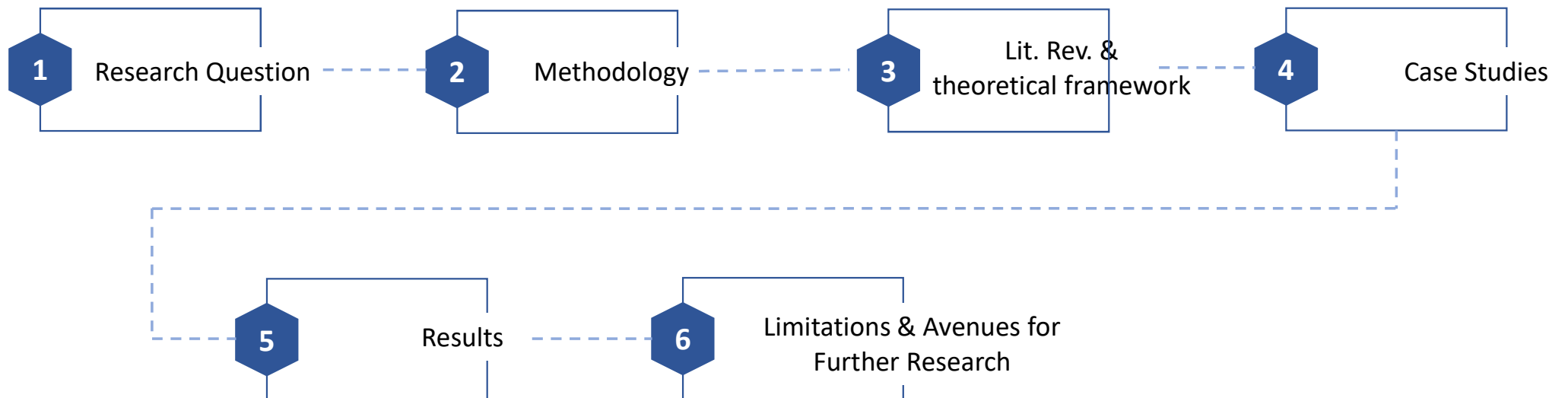
## *The keywords' connection for the energy utility of the future*







## Agenda

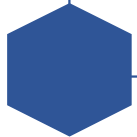




## Research Question(s)

*What organizational changes BMI requires and why? Is organizational change an enabler of BMI and how?*

- **Paper A:** *what organizational changes does BMI require and why? How does organizational change influence BMI?*
- **Paper B:** *how do established companies embrace organizational re-design to innovate their business model while exploiting digital technologies?*
- **Paper C:** *what are the micro-foundations of business model co-innovation in digital transformation?*





## Papers A-B-C

	<p><b>Paper A:</b></p> <p><b>Manfredi Latilla, V.</b>, Frattini, F. Franzò, S. and Chiesa, V. (2019) Organizational change and business model innovation: an exploratory study of an energy utility company. <i>International Journal of Innovation Management</i>, In press</p>
	<p><b>Paper B:</b></p> <p><b>Manfredi Latilla, V.</b>, Urbinati, A., Cavallo, A., Franzò, S. and Ghezzi, A. Organizational Re-Design for Business Model Innovation while exploiting digital technologies: A Single Case Study of an Energy Company. (2019) Special Issues on Digital Innovation Management, <i>International Journal of Innovation and Technology Management</i>. Under review.</p>
	<p><b>Paper C:</b></p> <p>Loock, Moritz; Vernay, Anne Lorène; Cousse, Julia; <b>Manfredi Latilla, Vito</b>. Microfoundation of Business Model Co-Innovation in Digital Transformation. Special issue on Digital Innovation, <i>Journal of Product Innovation Management</i>. R&amp;R, due date: October 20<sup>th</sup>, 2019.</p>



## Methodology

### Choice of the Case Studies

**Two companies interviewed for papers A and B (single case studies).** Such companies were selected because they have recently undertaken a **transformation process** to react to market changes and innovate their rather traditional BM, implementing relevant organizational changes.

**Paper C explores three examples.** The first is an Italian case (which I have run in person) in which a start-up proposes utilizing a digital controlling system for energy storage that will enable complete control and optimization of energy assets. The ecosystem of this digitally-enabled BMI involves four incumbent utilities, all of them extensively interviewed.

### Research Setting

1. Extensive academic literature review that ends with an **explanatory table** of the main actions performed in BMI process recurrently cited by scholars.
2. Draw up of a **semi-structured questionnaire**.
3. Refine and **elaborate data collected** during the interviews by interpolating them with **secondary data sources**.

### The Interviews

Several rounds of interviews conducted throughout my Ph.D.

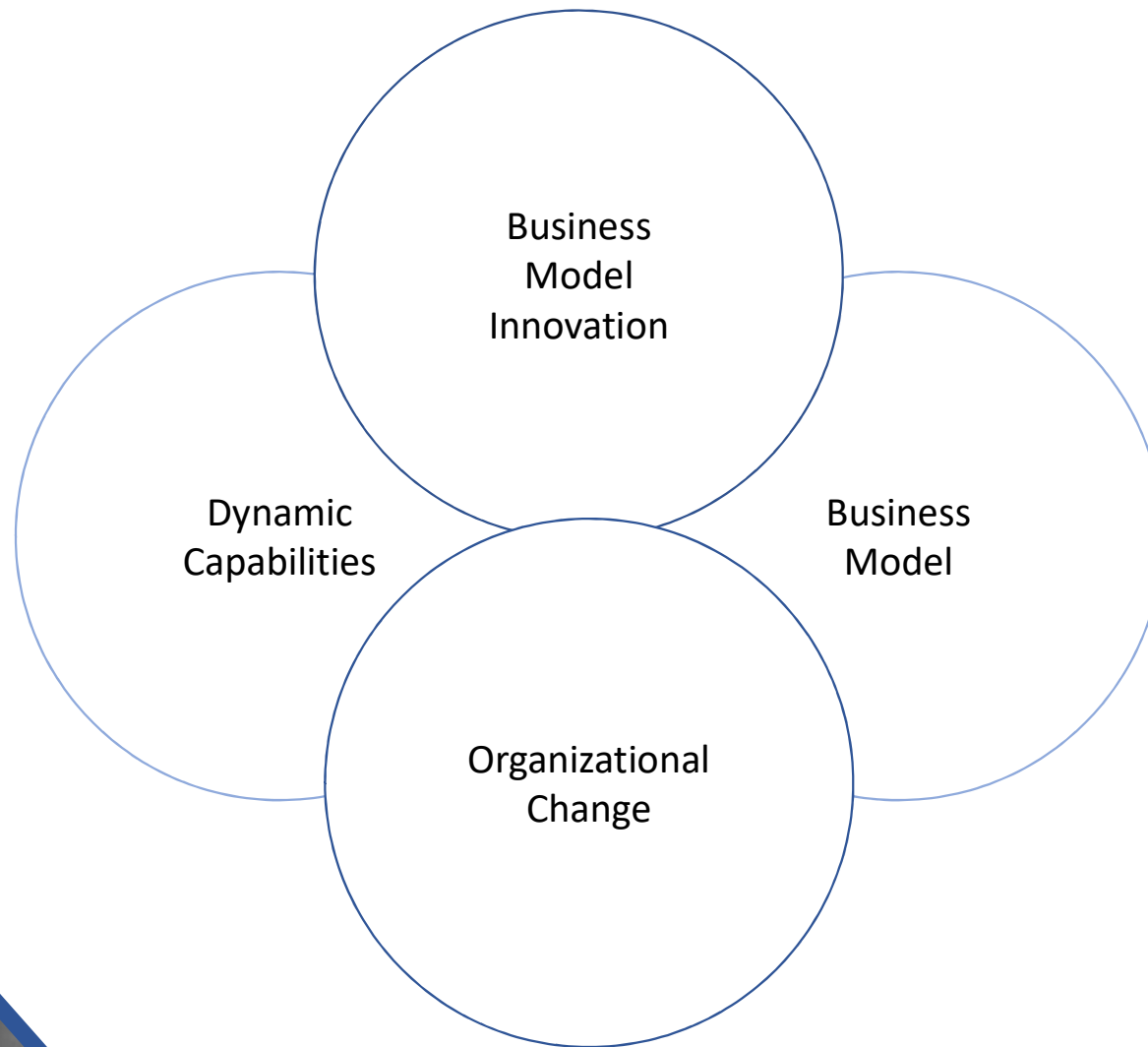
*Top Management interviews*

*Informal conversations with middle management*

*Semi-structured Questionnaire*

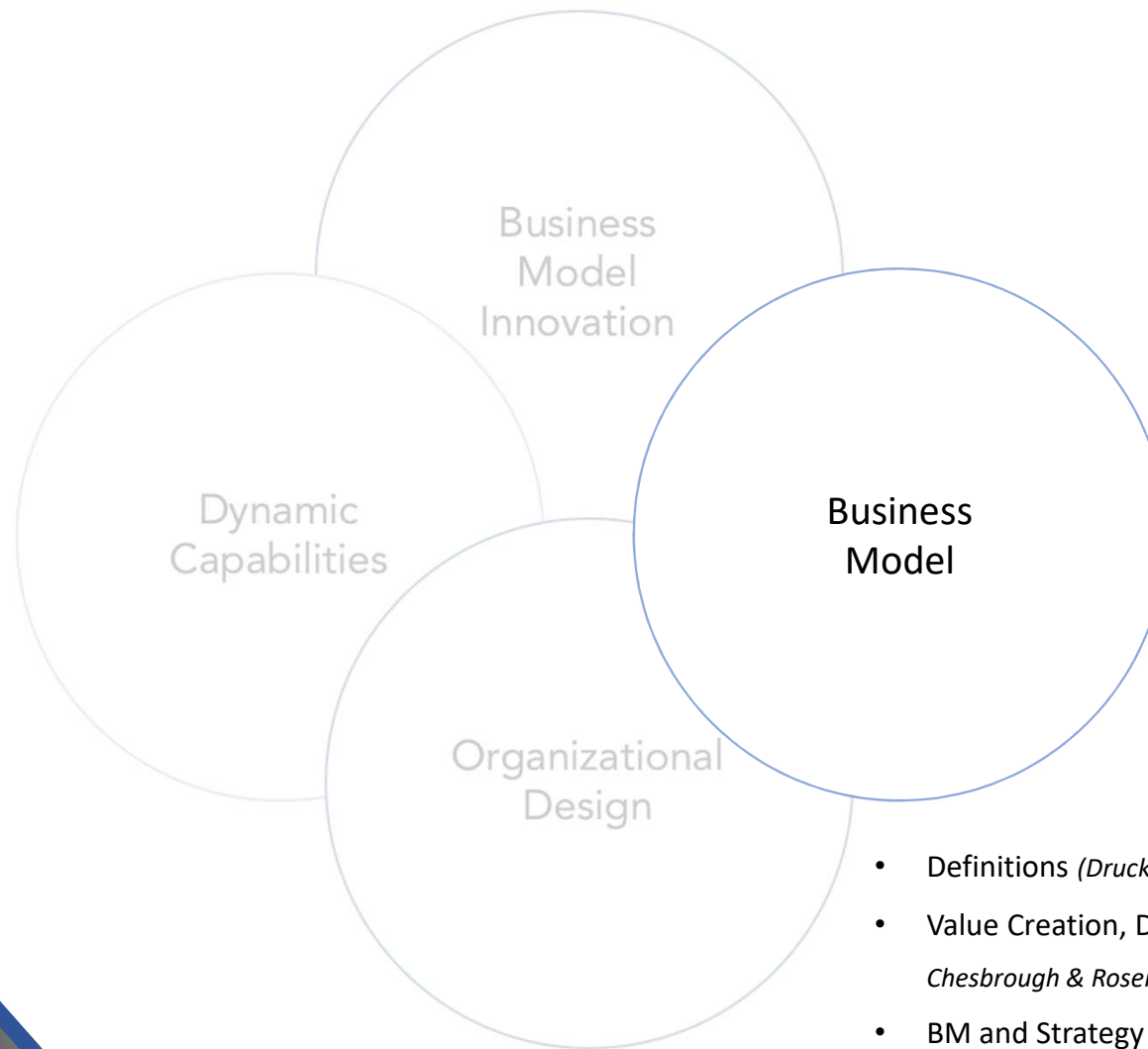


## Literature Review





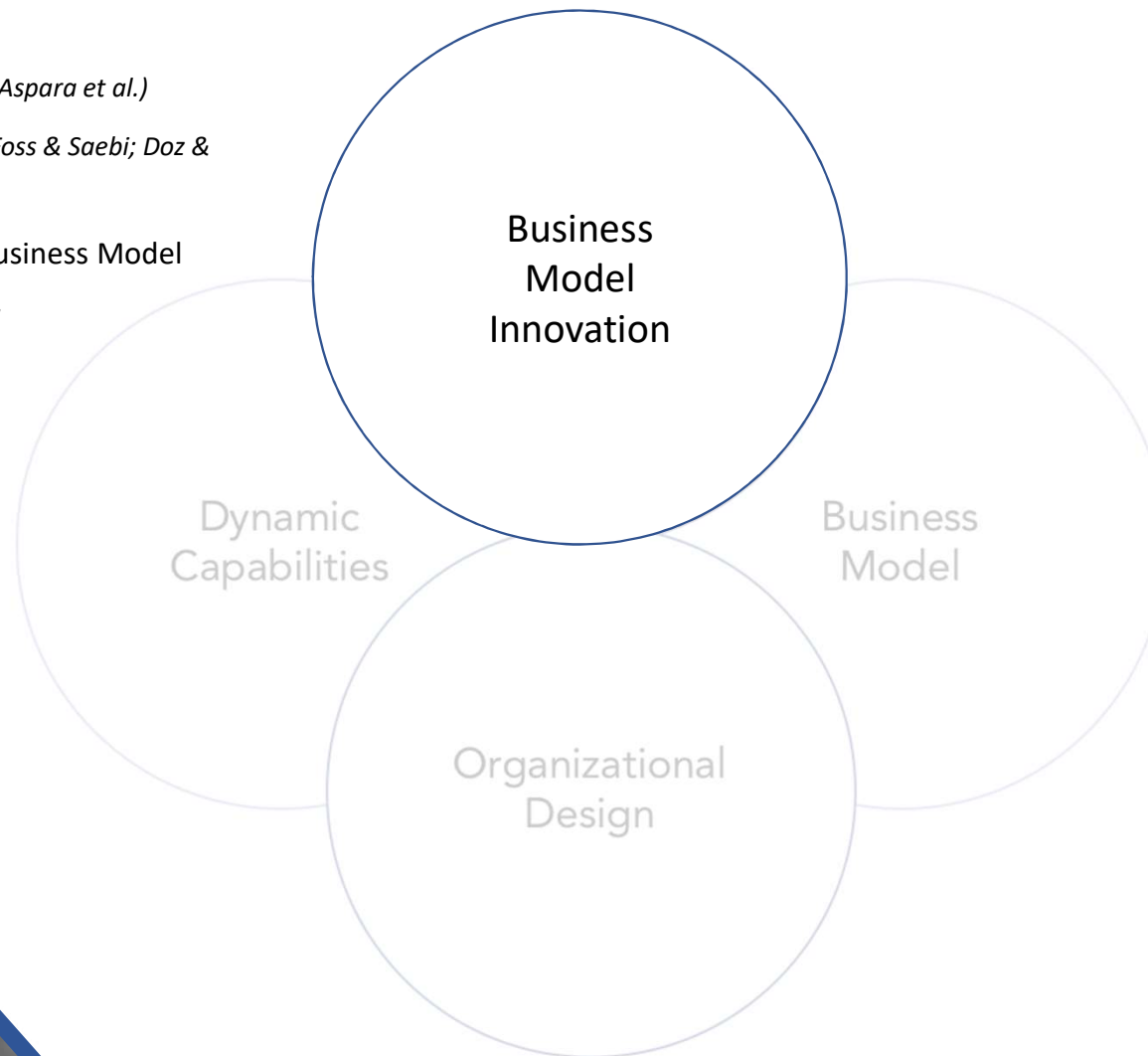
## Literature Review





## Literature Review

- Definitions (*Foss & Saebi; Teece; Aspara et al.*)
- Antecedents and Outcomes (*Foss & Saebi; Doz & Kosonen*)
- Business Model Design and Business Model Reconfiguration (*Massa & Tucci; Zott & Amit; Osiyevskyy & Dewald*)

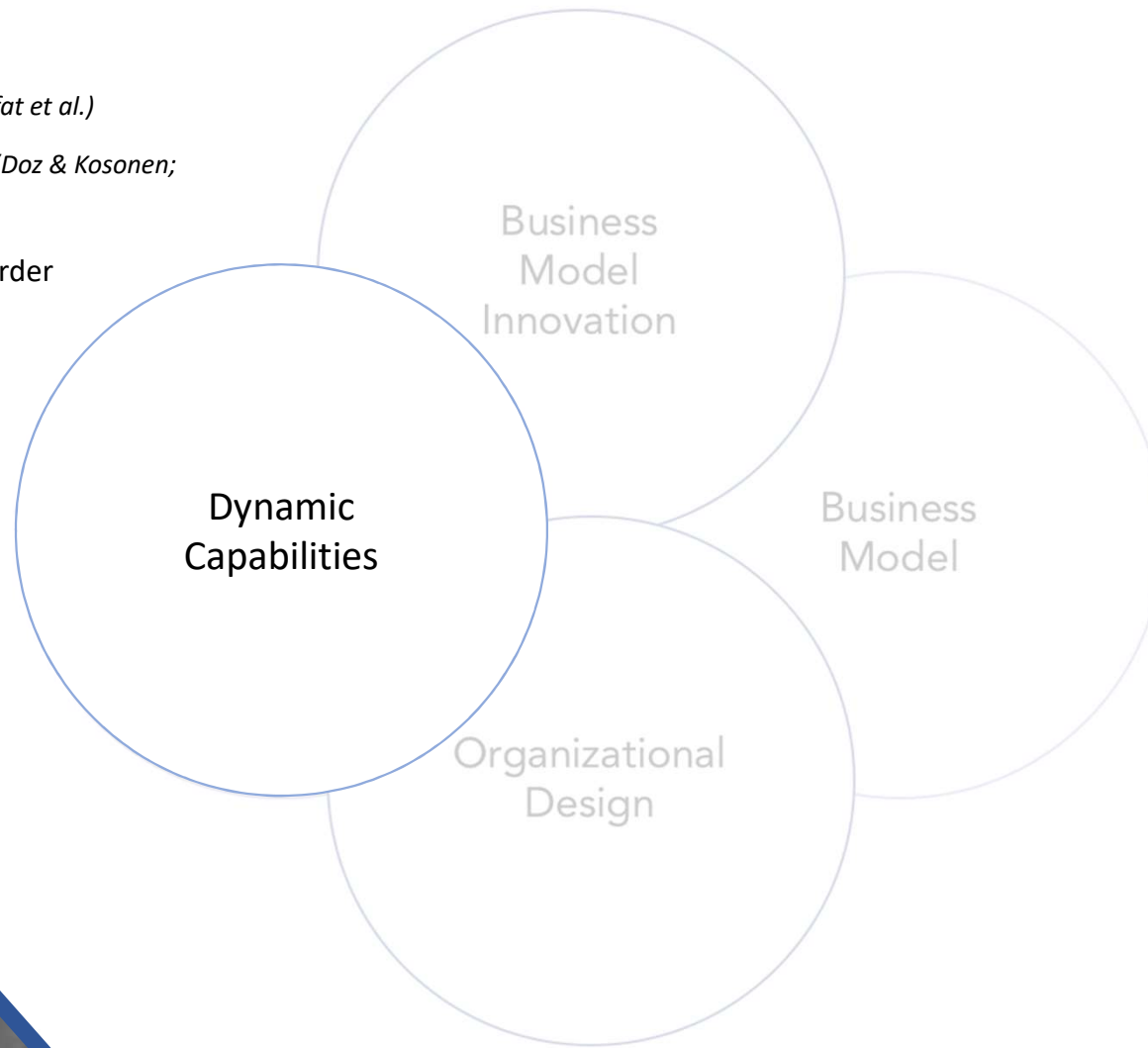






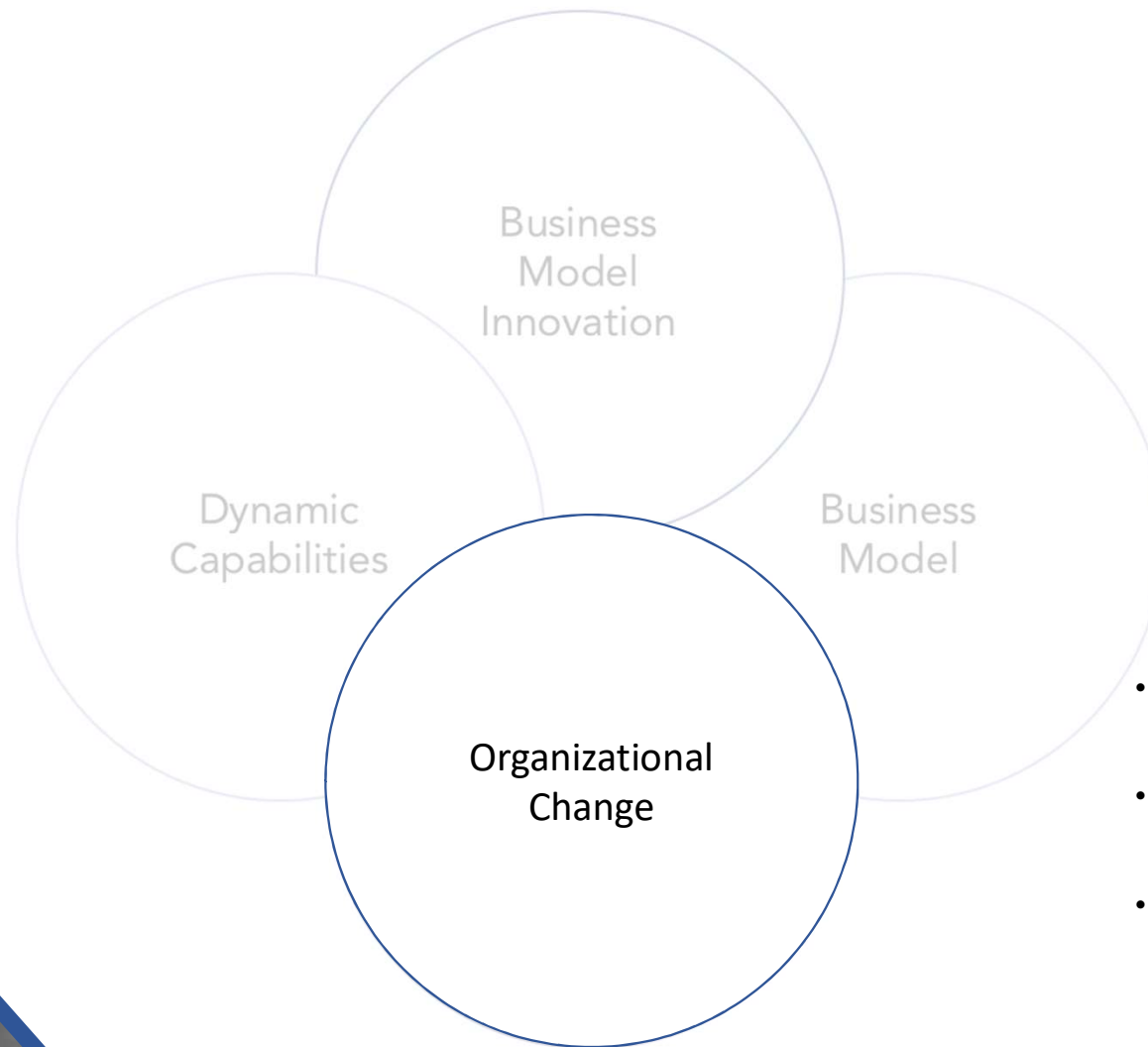
## Literature Review

- Definitions (*Teece; Winter; Helfat et al.*)
- Sense, Seize and Transform (*Doz & Kosonen; Teece; Nelson & Winter*)
- Microfoundations and High-order Capabilities (*Teece*)





## Literature Review



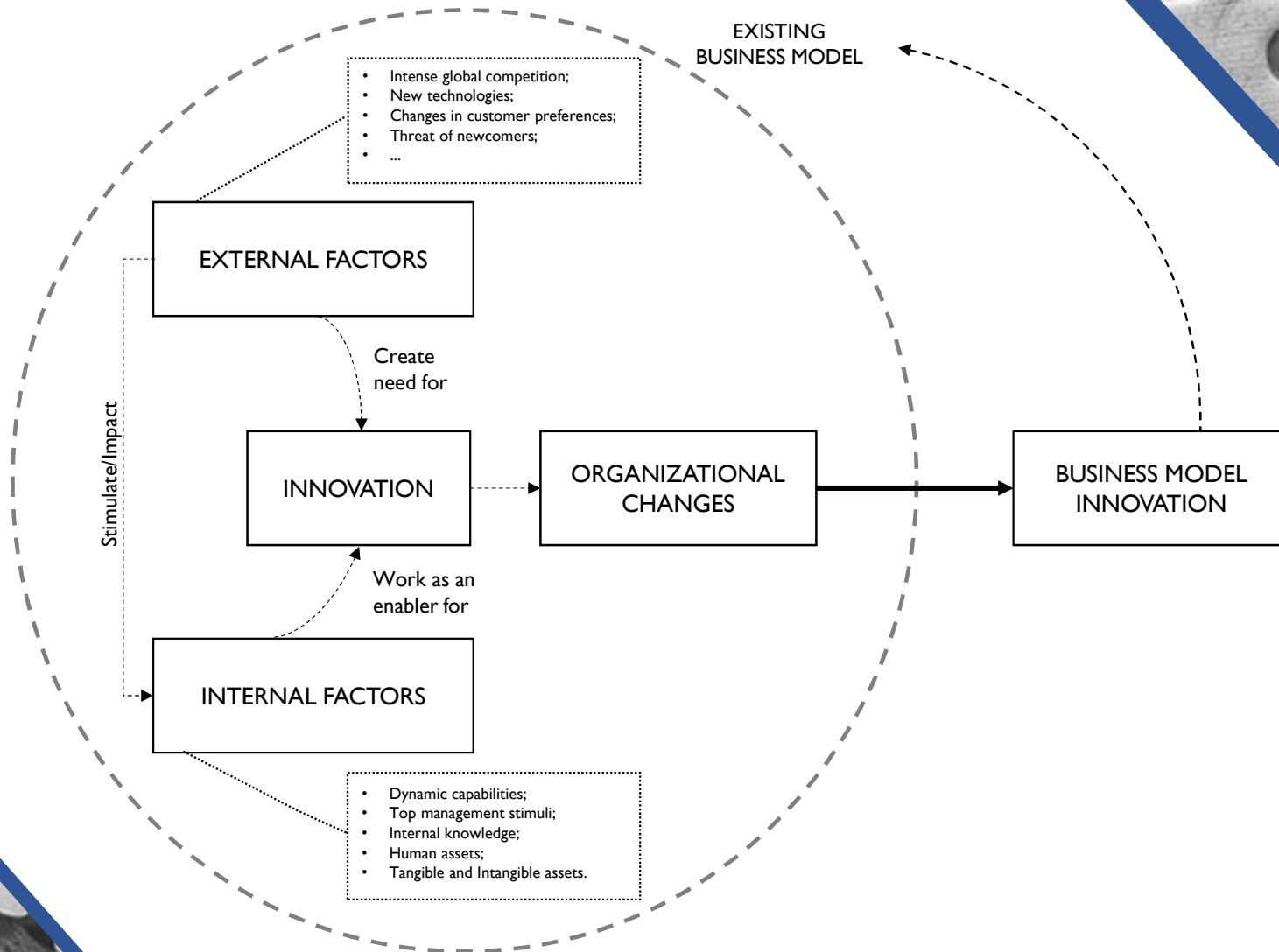
- Definitions (*Foss; Chandler; Damanpour; Leih, Linden & Teece*)
- Adaptation vs. Innovation (*Saebi, Lien & Foss; Demil & Lecocq; Teece*)
- Inertia and the role of top management (*Ginsberg; Amburgey; Galbraith; Rumelt*)

## Explanatory Table

Tab. 6												
The most recurring change actions for BMI												
<i>Authors in the literature</i>		Miles et al. 1978	Ginsberg 1988	Amburgey et al. 1993	Damanpour1996	Gibson and Birkinshaw 2004	Doz and Kosonen 2010	Leih, Linden and Teece 2015	Neilson, Estupinan and Sethi 2015	Foss and Saebi 2017	Teece 2017	Fjeldstad and Snow 2018
<i>Change actions</i>												
CHANGES IN THE ORGANIZATION OF THE FIRM	Creation/Re-organization of new/existing business units				X							
	Definition of new internal functions and departments	X			X	X						
	Recombination of existing routines	X		X								
	Decentralization of authority (weak management hierarchies)			X		X		X		X	X	
	Establishment of an appropriate organizational culture		X				X	X		X	X	
	Adoption of new processes and practices			X					X			X
CHANGES IN THE BOUNDARIES OF THE FIRM	Extend boundaries of the firm (collaboration, network)						X	X		X		X
	Outsourcing non-core capabilities and focus on core ones.							X			X	
CHANGES IN THE PROFILE OF INTERNAL RESOURCES	External hiring of new employees with specific skills	X	X	X	X							
	Training of the workforce to use new solutions and technologies				X				X	X	X	
	Build distinctive new capabilities						X	X	X	X		




## Theoretical Framework





## Focus on Paper A




**Short abstract:** this manuscript aims at studying the intricate relationship between BMI and the organizational changes it engenders, trying to shed light on how organizational change and BMI are intertwined, and how proper organizational changes can facilitate the renewal of a traditional BM. To do so, the manuscript builds on an inductive, longitudinal single case study of an energy utility, describing the mechanisms through which the business model of the utility has been innovated over time and the organizational changes that enabled and fostered such innovation.

**Main contribution:** this manuscript contributes to the ongoing academic debate on BMI and its practical application, adding to the broad discussion on organizational ambidexterity and to the analysis of the most relevant organizational changes adopted by the company for implementing an effective BMI.

**Relation to the thesis:** the focus is on the intertwined relationship between the innovation of a traditional BM of an incumbent firm and how, to effectively realize such innovation, major changes in the organizational design of the firm were required: new functions and units were established and new managerial roles were assigned within the firm throughout the transformational period that we investigated.



## Focus on Paper B




**Short abstract:** digital technologies are bringing a wide spectrum of business opportunities as well as significant organizational challenges for incumbent firms operating in traditional industries such as energy. The diffusion of new technologies is changing the way energy solutions are consumed and experienced, while consumers increasingly take ownership of their consumption, turning into “prosumers”. In this evolving scenario, incumbents are urged to reshape their BMs, explore new opportunities and change their organizational structures. Still, the required organizational re-design process enabling incumbents to undergo BMI while exploiting digital technologies is partially neglected in literature.

**Main contribution:** the findings show how the establishment of a business unit dedicated to digital technologies exploitation enabled the firm BMI. More specifically, we point at the critical role played by the know-how and the industrial capabilities to sustain not only the innovation activities of the new business unit, but also the overall firm performance and the shift towards a renewed BM.

**Relation to the thesis:** also this Paper B is the result of an extensive case study run in a major energy utility. Here the focus is on how the diffusion of new technologies is changing the way energy solutions are consumed and experienced, hence how an incumbent utility innovates its BM changing the internal design of the organization to accommodate the innovation process.



## Focus on Paper C (*under round II of review at JPIM*)



**Short abstract:** earlier research shows that BMs are “innovation devices” that facilitate coordination between diverse stakeholders in regard to value creation and value capture. However, there exists little insights into how collaboration of different stakeholders to co-create value and to co-capture value comes about. We have limited understanding of how BMs are developed, who contributes to what, and how each stakeholder influences the mechanisms of value creation, delivery and capture. Researchers seem to metaphorically point out to the “key partner box” in the Osterwalder canvas, without further questioning and investigating the micro-foundations of business model co-innovation.

**Main contribution:** this paper aims to investigate which are the micro-foundations of BM co-innovation. This is an important and timely task as BMI increasingly happens at the eco-system level and require to integrate heterogeneous stakeholders. Several developments drive this phenomenon: some industries are increasingly initiating novel collaborations with actors from other industries, such as between the transport and energy industries where alliances are made to offer novel products such as V-2-G solutions.

**Relation to the thesis:** the aim was to investigate the innovation experience of startups with the utilities and the vice versa, in order to analyze which are the patterns of co-innovation and how managers approach the overall innovation process, at technological and BM level.

This paper is part of my research as visiting Ph.D. at the university of St. Gallen, where I collaborated with prof. Moritz Looch, contributing to the manuscript with a case study from Italy. Specifically, I interviewed the founder of an Italian startup which cooperated with four large Italian utilities, where I interviewed the innovation managers of each of the utilities involved in the project.





## Results: the Key Enablers for BMI

Establishment of an  
Appropriate  
Organizational Culture

Training of the Workforce to Use New  
Solutions and Technologies

External Hiring of  
New Employees  
with Specific Skills

Definition of New  
Internal Functions and  
Departments

Build Distinctive New  
Capabilities

Creation/Re-organization of  
new/existing Business Units

Recombination of Existing Routines

Decentralization of  
Authority

Adoption of New Processes and  
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Outsourcing Non-core  
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Extend  
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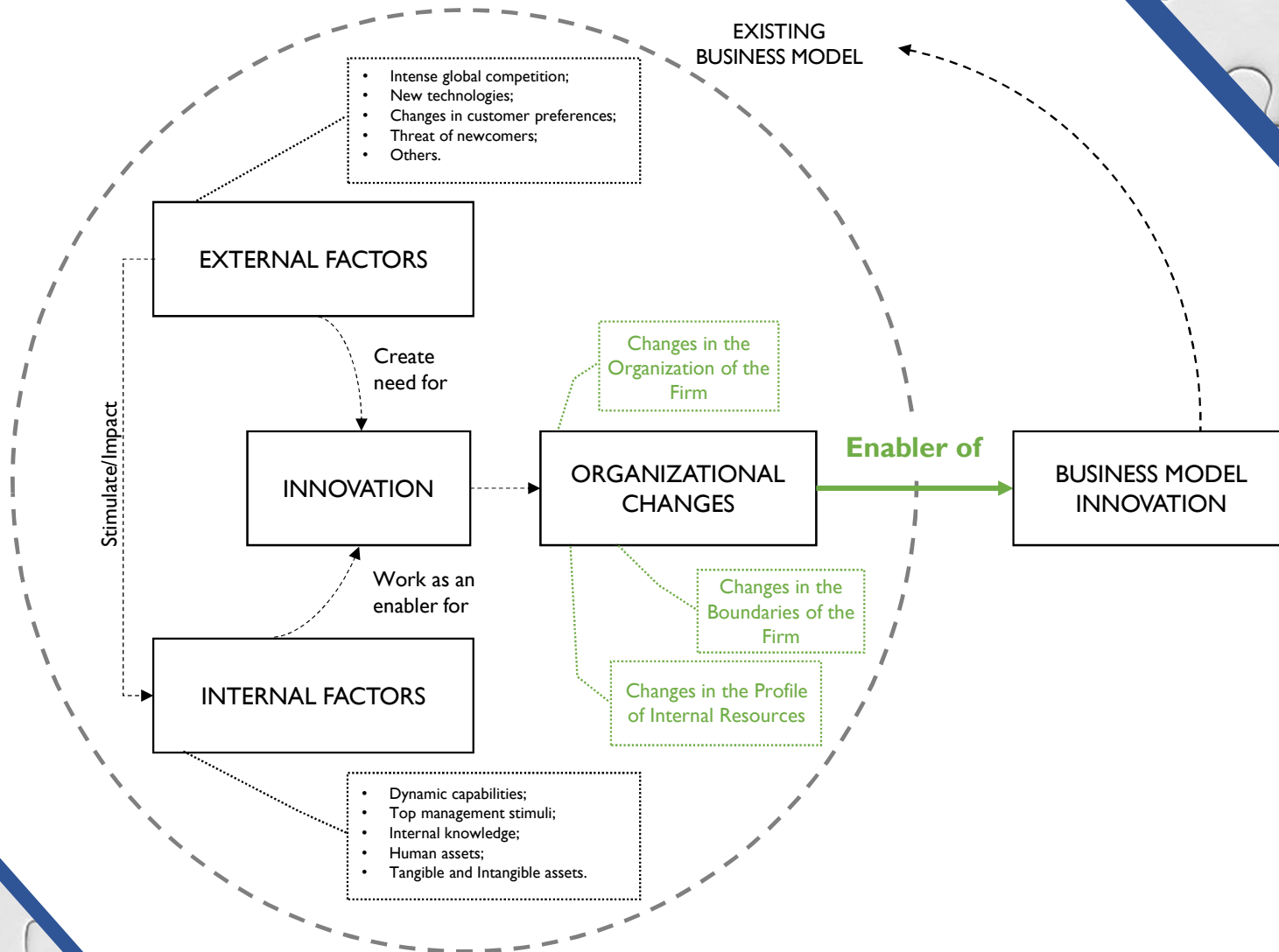


## Results: the Key Enablers for BMI

	Establishment of an Appropriate Organizational Culture	Creation/Re-organization of new/existing Business Units	Adoption of New Processes and Practices
<i>Enabling capabilities</i>	Strong top management endorsement	Dynamic capabilities	Ability to exploit technological innovation; Collaboration
<i>Enabled capabilities</i>	Sense opportunities and exploit latent capabilities	Exploit new market trends through dedicated BU	Ability to shift from selling commodities to selling services
<i>Barriers</i>	Organizational inertia	Organizational inertia	Organizational inertia
<i>Benefit Sought</i>	Stimulate innovation and continuous improvement	Structural separation between ordinary and innovation activities; Increase flexibility	Eliminate inefficiencies; Routinize the innovation process




## Results: Framework





## Limitations, practical implications, future research



**Limitations:** first, we were not able to emphasize the role of the managerial commitment to guide the organizational re-design process along the shift towards the BMI. In addition, a more in-depth analysis on the mechanisms of internalization of new knowledge from the external environment deserves more attention in future studies. Finally, the exploratory nature of our research does not allow generalizing the findings.





**Practical implications:** we hope our work will help managers to have an external perspective towards BMI and to identify which of the organizational changes they can perform are the most important enablers for innovating their BM.

**Future research:** this thesis can work as an informative tool for researchers that will investigate this subject in the future. Additionally, through a wider spectrum of systematic literature review and through the expansion of the sample of research, it will be possible to enrich the proposed framework.

With specific regard to paper C, one important aspect is the role of proximity for innovation among different actors and organizations to highlight the specific benefits of an optimal level of proximity. Of special interest would be to study what happens when co-innovation reaches a stage when it can create economic value and how partners negotiate how much of that value they can capture.



## List of additional publications

	Chiaroni, D., Chiesa, V., Franzo', S., Frattini, F. and <b>Manfredi Latilla, V.</b> (2016). Overcoming Internal Barriers to Energy Efficiency through Energy Audit: a Case Study of a Large Manufacturing Company in the Home Appliances Industry. <i>Clean Technologies and Environmental Policy</i> , 19(4), pp. 1031-1046.
	Chiaroni, D., Chiesa, V., Franzo', S., Frattini, F. and <b>Manfredi Latilla, V.</b> (2017). The impact of the electricity tariff reform on renewable energies and energy efficiency investments: the case of the Italian residential market. <i>International Journal of Green Energy</i> , 14(11), pp. 889-898.
	<b>Manfredi Latilla, V.</b> , Frattini, F., Messeni Petruzzelli, A., Berner, M. (2018). Knowledge management, knowledge transfer and organizational performance in the arts&crafts industry: a literature review. <i>Journal of Knowledge Management</i> , 22(6), 2018
	<b>Manfredi Latilla, V.</b> , Frattini, F., Messeni Petruzzelli, A., Berner, M. (2019). Knowledge management and knowledge transfer in arts & crafts organizations: evidence from an exploratory multiple case-study analysis. <i>Journal of Knowledge Management</i> , In press, 2019

## Conference papers

- Franzò S., Frattini F., Manfredi Latilla V., Brenna M., Foiadelli F., Longo M. (2017) "The diffusion of Electric Vehicles in Italy as a means to tackle main environmental issues", Twelfth International Conference on Ecological Vehicles and Renewable Energies (**EVER**), Monaco, 2017.
- Franzò S., Frattini F., Manfredi Latilla V., Longo M., Foiadelli F. (2017) "Towards the diffusion of Smart Buildings: the Economic Viability of the Adoption of a Home Automation System in an Existing Building", 12th IEEE Power and Energy Society PowerTech Conference, **PowerTech** Manchester (UK), 2017.
- Franzò S., Frattini F., Manfredi Latilla V., Foiadelli F., Longo M. (2017) "The Electricity Tariffs Reform for the Residential Market in Italy", 6th International Conference on Clean Electrical Power (**ICCEP**), Santa Margherita Ligure (Italy), 2017.
- Franzò S., Frattini F., Manfredi Latilla V., Foiadelli F., Longo M. (2017) "Towards the Development of Residential Smart Districts: the Role of EVs", **IEEE** 17th International Conference on Environment and Electrical Engineering and 1st Industrial and Commercial Power Systems Europe, Milan (Italy), 2017.
- Urbinati A., Manfredi Latilla V., Chiaroni D., Frattini F. (2017) "The PLM implementation challenges in the Power Generation Industry". The XXVIII **ISPIM** Innovation Conference – Composing the Innovation Symphony, Wien (Austria), 2017.
- Manfredi Latilla, V., Urbinati, A., Frattini, F., Chiaroni, D. (2017). Harnessing Open Innovation in the reorganization of an energy utility. 18th International **CiNet** Conference, 2017 Potsdam (Germany) 2017.
- Urbinati, A., Manfredi Latilla, V. and Chiaroni, D. (2018). The Role of Product Design practices in a Circular Economy Business Model: A Single Case Study Analysis of an Italian Manufacturing Company. **ISPIM** Innovation Conference 2018, Stockholm (Sweden).
- Manfredi Latilla, V., Franzò, S., Frattini, F. (2018). Organizational Re-Design and Digital Technologies: a single case study analysis through the perspective of Business Model Innovation. **R&D Management** Conference 2018, Milan (Italy).

### Further publications:

- De Massis A., Frattini F., Manfredi Latilla V. (2017). Digitale, da minaccia a vantaggio: Ripensare i modelli di business. *Sistemi & Impresa*, Giugno 2017, pp. 19-21.
- De Massis A., Frattini F., Manfredi Latilla V. (2018). Domanda energetica e tecnologie: Ripensare il business delle utility. *Sistemi & Impresa*, Gennaio/Febbraio 2018, pp. 93-96.
- Gregori, O., Sylos Labini, S., Franzò, S. Manfredi Latilla, V. (2018). Green Business Models e finanziamento di progetti di Smart Adaptive Lighting e Smart Street Services. DOI 10.12910/EAI2018-009.





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