POLITECNICO DI MILANO

PhD in INGEGNERIA GESTIONALE / MANAGEMENT ENGINEERING - 38th cycle

PNRR_352 Research Field: AI-ENABLED BUSINESS MODEL INNOVATION TO ACHIEVE DECARBONIZATION TARGETS

Monthly net income of PhDscholarship (max 36 months)
€ 1450.0 In case of a change of the welfare rates during the three-year period, the amount could be modified.

Context of the research activity	
Motivation and objectives of the research in this field	In the last years, the economic scenario has been dramatically reshaped by the growing diffusion of digital technologies (DTs). The spread of DTs has been expanding the potential business opportunities that firms can tap by adopting them and, consequently, they are becoming increasingly pervasive to several industries. Actually, through DTs, companies can sensitively change the design of the mechanisms they use to create value for customers and appropriate the same value, as well as their architecture, eventually innovating their business models. Business model innovation (BMI) triggered by DTs allows companies to increase the scope of products and services that they offer to their customers and also to create new markets. Hence, companies may leverage DTs to sustain or establish sustainable competitive advantage through BMI. However, little is known on how actually business models evolve because of the adoption of DTs. Indeed, the integration of DTs within an existing business model requires a deep and thorough revision of its main components, which eventually results in its innovation. Among digital technologies, artificial intelligence (AI) is being recognized as one of the most promising ones, whose spread can be related to a plethora of sectors. One the most promising ones is the energy sector, where AI can help to enable the different trends that are reshaping it to achieve decarbonization targets, such as the spread of renewable energy sources (RES) and energy storage

	systems (ESS). Nevertheless, despite the awareness that AI will play an important role in the future energy system, it is unclear whether and how AI can enable BMI by companies aiming at exploiting its potentialities. The PhD project will build on existing literature and develop new theoretical insights concerning BMI enabled by AI in the energy sector. Starting from the identification of the energy-related AI application fields, the research will inform theory and practice to boost the BMI capacity and performance of companies, thus enabling innovation business transformation in fast-changing competitive contexts such as the energy sector. Such topic is very relevant not only from scholars and practitioners, but also for policy makers. Indeed, the achievement of decarbonization targets while exploiting (among the others) DTs has been put at the top of the agenda by national and supranational policymakers. For example, the Italian Recovery and Resilience Plan includes DTs and the technologies for the energy transition among the different Missions that will help Italy to emerge from the current crisis and bring it at the forefront of European and international development. The results of the research will hopefully inform policymakers on the role that DTs, and in particular AI, can play to enable BMI in the energy sector as well as the on role of contextual factors (such as the policy-related ones) in affecting such BMI process.
Methods and techniques that will be developed and used to carry out the research	The research will apply rigorous methods as established in the international research community and relevant literature on innovation management and energy management. The methods will center around qualitative methodologies such as in-depth single and multiple case studies of companies that exploit AI to innovate their BM . Data will be collected through interviews, archives and real-time observations. As far as the empirical setting is concerned, the research will focus on the energy sector. Such sector has been already characterised by BMI enabled by DTs, since DTs enable different opportunities such as allowing to collect detailed data on energy usage, predicting energy consumption behaviours, and providing consumers with timely suggestions aiming at reducing

	energy consumption and favouring energy cost savings.
Educational objectives	The research aims at developing an internationally-excellent research profile who will build the following skills: • In-depth knowledge of business model innovation management theory and practice • Advanced understanding and application of qualitative methodologieis and multiple case studies • Applicable knwoeldge and skills needed to design business model innovation strategies and implement them effectively in organizational contexts.
Job opportunities	The research will develop a highly trained researcher and professional who will be competitive in the academic job market as well as appealing to a variety of organizations and consultancy firms.
Composition of the research group	3 Full Professors 0 Associated Professors 1 Assistant Professors 2 PhD Students
Name of the research directors	Chiesa V., Frattini F., Chiaroni D., Franzo S.

Contacts
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Additional support - Financial aid per PhD student per year (gross amount)	
Housing - Foreign Students	--
Housing - Out-of-town residents (more than 80Km out of Milano)	--

Scholarship Increase for a period abroad	
Amount monthly	725.0 €
By number of months	6

National Operational Program for Research and Innovation

Company where the candidate will attend the stage (name and brief description)	Intellico - https://intellico.ai/
By number of months at the company	6
Institution or company where the candidate will spend the period abroad (name and brief description)	The PhD student will spend a period of at least 6 months abroad to interact with researchers and participate in joint activities potentially foreseen in the project, according to specific needs. Indeed, the project is highly interdisciplinary, and this favors the collaboration with foreign research centers where the candidate can acquire in-depth knowledge on the theme.
By number of months abroad	6

Additional information: educational activity, teaching assistantship, computer availability, desk availability, any other information
Funding for educational activities: 4.900,00 Euros for three years. *Teaching assistantship: There are various forms of financial aid for activities of support to the teaching practice. The PhD student is encouraged to take part in these activities, within the limits allowed by the regulations.* *Desk availability: shared use Computer availability: individual use*