**EXPLORING THE DETERMINANTS OF INNOVATION AND EXPORT PERFORMANCE IN THE GREEK ECOSYSTEM**

**I. Danias1,\*, D. Stamopoulos2, P. Dimas3, A. Tsakanikas4**

|  |
| --- |
| 1 [johndanias@gmail.com](mailto:johndanias@gmail.com), NTUA |
| 2 [dstamopoulos@mail.ntua.gr](mailto:dstamopoulos@mail.ntua.gr), LIEE-NTUA |
| 3 [petrdimas@chemeng.ntua.gr](mailto:petrdimas@chemeng.ntua.gr), LIEE-NTUA |
| 4 [atsaka@central.ntua.gr](mailto:atsaka@central.ntua.gr), LIEE-NTUA |
|  |

**ABSTRACT**

The purpose of this study is to investigate the impact of Industry 4.0 technologies (I4.0T), Information Systems (IMs) and Management Systems (MSs) on innovation and export performance of firms.We build our empirical strategy and test our research hypotheses based on the results of a field survey on a diverse sample of 831 Greek firms from different economic sectors. The statistical analysis of the data includes descriptive examination as well as two Ordinal Logistic Regression Models (ORRMs) that quantify the impact magnitude of the usage of I4.0T, IMs and MSs on innovation and export performance. The dependent and explanatory variables are constructs formed directly from the field research questionnaires. We identify Artificial Intelligence, Lean Manufacturing, Customer Relationship Management and Business Intelligence as the key drivers for the innovation performance of Greek enterprises. Furthermore, training intensity and the business ecosystem are identified as significant factors as well, with enterprises from the Agri-food ecosystem being more likely to innovate. Focusing on export performance, the main factors are Total Quality Management, Six Sigma and Enterprise Resource Planning while using Augmented Reality seems to have negative effects. Moreover, enterprises from the Agri-food ecosystem emerge as more likely to have higher export performance. Our findings provide fertile ground for evidence-based industrial policymaking. Greece’s lack of digital infrastructure has been identified as a major setback in the process of the digital transformation of the local business ecosystem. Amplifying these digitalization efforts will enable greater innovation output.

**KEYWORDS:** Industry 4.0, 4th Industrial Revolution, Innovation Performance, Management Systems, Information Systems

**REFERENCES**

[1] Dennis Kolberg, Detlef Zühlke. 2015. *Lean Automation enabled by Industry 4.0 Technologies*, IFAC 48-3: 1870-1875, https://doi.org/10.1016/j.ifacol.2015.06.359

[2] Núbia Carvalho, Omar Chaim, Edson Cazarini, Mateus Gerolamo. 2018. *Manufacturing in the fourth industrial revolution: A positive prospect in Sustainable Manufacturing*. Procedia Manufacturing 21: 671–678, https://doi.org/10.1016/j.promfg.2018.02.170

[3] Sanders, Adam; Elangeswaran, Chola; Wulfsberg, Jens P. 2016. *Industry 4.0 implies lean manufacturing: Research activities in industry 4.0 function as enablers for lean manufacturing*, Journal of Industrial Engineering and Management (JIEM), ISSN 2013-0953, OmniaScience, Barcelona, Vol. 9, Iss. 3, pp. 811-833, http://dx.doi.org/10.3926/jiem.1940

[4] Tobias Wagner, Christoph Herrmann, Sebastian Thiede. 2017. *Industry 4.0 impacts on lean production systems*. Procedia CIRP 63: 125–131, https://doi.org/10.1016/j.procir.2017.02.041.