



DIG PhD scholarship

Title	Logistics 4.0: new models for distribution enabled by innovative technologies
Theme	<p>A number of innovations enabled by digital technologies are progressively emerging. Logistics has the great opportunity to embrace solutions based on such new technologies to support the traditional physical operations and processes. For instance, combining mobile and cloud technologies, the Internet of Things (IoT) provides the ability to capture data from physical systems and share information with other entities and objects along the supply chain. The availability of data about logistics processes and the surrounding environment, increasingly in real time, allows taking better, and potentially decentralized, decisions (e.g. edge computing).</p> <p>The application of digital technologies to operations is the essence of the fourth industrial revolution and it has been named “Industry 4.0”. The implementation of this revolution in physical distribution (“Logistics 4.0”) is not easy, since there is a huge variety of application fields (different transportation modes; for each transportation mode, different services such as FTL – Full Truck Load – and LTL – Less than Truck Load; specific issues such as last mile distribution), a high complexity in terms of number of players involved (suppliers, logistics service providers, carriers, customers) and ownership of assets (transportation activity is often outsourced). In this context, traditional logistics systems and management policies could be redesigned exploiting the 4.0 paradigm to achieve higher standards in terms of efficiency, sustainability and service level. To date, the academic literature seems to be rather focused on general challenges for logistics and IT technical side of applications. There are few cases of identification of best practices or illustrative examples. In general, the link with the potential application fields (e.g. yard management; fleet management; dynamic planning process) is still lacking.</p> <p>The PhD research project has a twofold aim. First, to understand how digital technologies can enable the development of new logistics models for distribution systems in the different application fields, developing classification frameworks. Second, focusing on specific fields, to develop and validate methodologies and quantitative tools (e.g. analytical and simulation models) to support the design and management of new logistics solutions, increasingly according to a</p>



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	predictive approach. Collaborative projects with companies are planned.
DIG professors involved	1 Full Professor: Alessandro Perego 4 Associate Professors: Riccardo Mangiaracina, Marco Melacini, Sara Perotti, Angela Tumino 1 Assistant Professor: Elena Tappia
International collaborations	Claudia Colicchia: Senior Lecturer and Programme Director for MSc Logistics and Supply Chain Management at Hull University