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The Impact of Virtual, Remote, and Real Logistics Labs

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Preface

This volume contains the proceedings of the first international conference on "The Impact of Virtual, Remote and Real Labs in Logistics" 2012 (ImViReLL 2012). The conference took place in combination with the "International Conference of Dynamics in Logistics" 2012 (LDIC 2012) in Bremen, Germany.

The importance of logistics labs in supporting the transition from fundamental to applied research is undisputed. Lately, the Internet (of Things) has changed the scope of these labs. Firstly, the Internet of Things is addressed as a research topic in these labs. Secondly, the Internet supports virtualization of testing infrastructures and remote access to logistics labs for increased collaboration between researchers across different research disciplines and locations. The goal of the conference was to focus on lab-based research and education, evaluate their impact in research and education and investigate specific demands, opportunities and challenges.

The idea to have a conference focusing on the role of logistics labs and their relevance for research and education has largely been influenced by corresponding research on labs in other disciplines, such as chemistry, electronics, engineering and automation. Collaborations, such as the Virtual and Remote Labs Community (www.vrlcom.com), lab2go (www.lab2go.net), Global Online Laboratory Consortium (online-lab.org) as well as conferences (e.g., Remote Engineering and Virtual Instrumentation – REV) and journals, such as the *International Journal of Online Engineering – iJOE*, have provided different platforms to exchange ideas and research results about lab-based research. However, logistics labs have spread during the last years without an established information exchange community.

The ImViReLL conference tries to fill this gap. On the one hand, it provides a platform for information exchange between lab researchers in logistics. It thus supports and complements the work of the Global RF Lab Alliance (www.grlfa.org), RFID in Europe and the *International Journal of RF Technologies*, which are focused on radio-frequency-based research and applications in logistics. On the other hand, ImViReLL invites researchers from other disciplines to support interdisciplinary research and information exchange. This approach is not without problems, however. Some reviews, for example, have been declined by scientific committee members from other disciplines if papers were too domain-specific to logistics. It will take further efforts to differentiate domain-specific from domain-independent topics.

ImViReLL 2012 provided a venue for researchers from academia and industry interested in future-oriented logistics labs as a nucleus for innovation. The conference covered research in logistics from a wide range of fields, for instance, engineering, computer science, distributed education and collaborative research.

The conference addressed numerous specific areas of interest, such as lab-based technology and feasibility studies, pilots and demonstrators, lab-centric specifics of logistic labs, virtual and remote research environments and communities, the role of RFID, sensors, actuators, robots, intelligent material handling, and (de-) centralized data processing in logistic labs, architecture developments for multiple (networked) demonstrators, social networking technology in research and educational implications. This diversity of topics is reflected in the conference papers.

We would like to thank all authors, Scientific Committee members and reviewers for their work. Additionally, we would like to thank RFID in Europe, Concord, LogDynamics, the Global RF Lab Alliance and *RFID Journal* for their helpful support.

March 2012   Dieter Uckelmann
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Organization

Conference Chairs

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Bernd Scholz-Reiter	University of Bremen, Germany
Ingrid Rügge	University of Bremen, Germany
Bonghee Hong	Institute of Logistics Information Technology (LIT), Pusan National University, Korea
Antonio Rizzi	RFid Lab, University of Parma, Italy

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Local Organization

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