

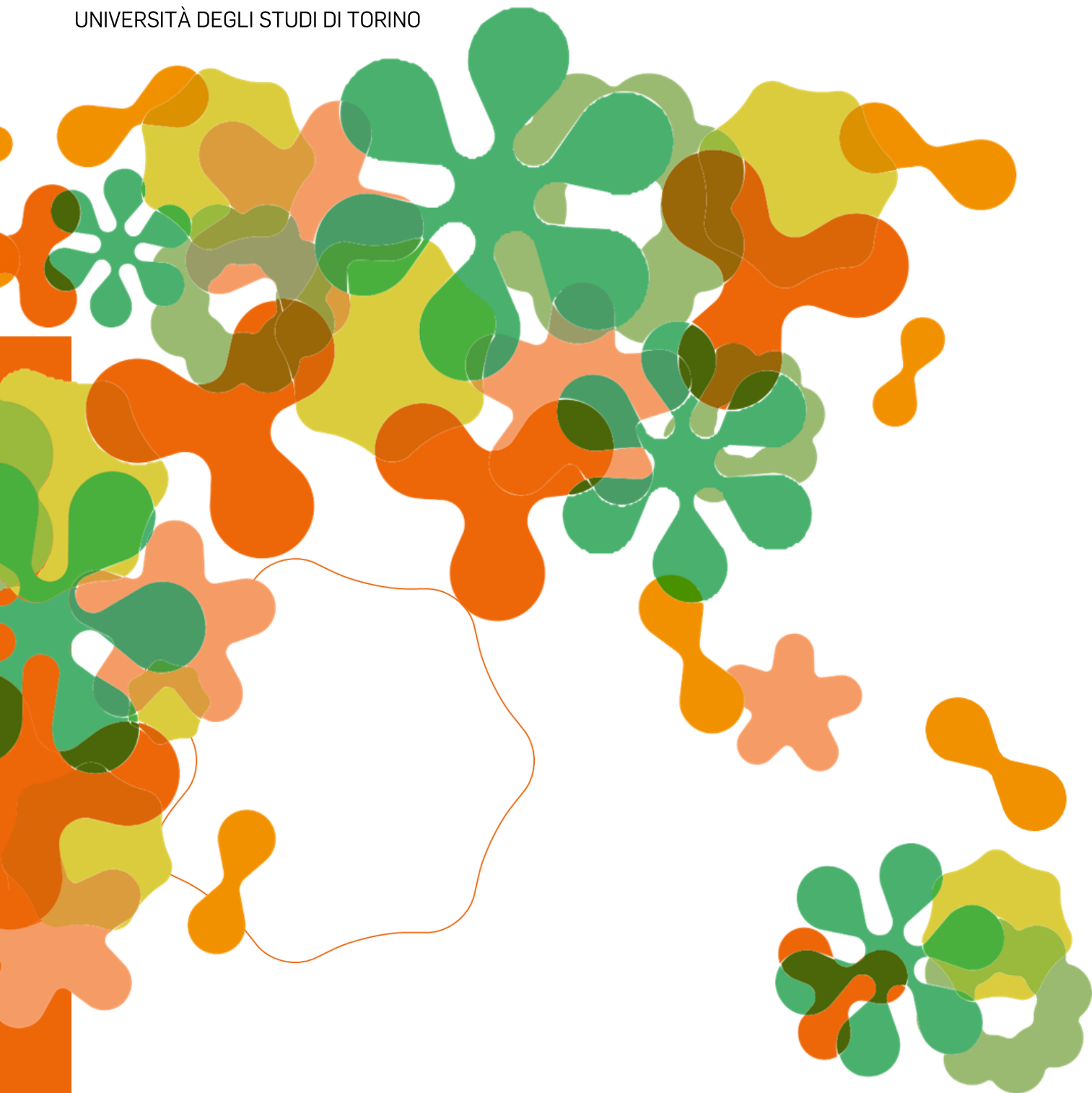
UniTo & the challenges of Industry 4.0

2017



**Università
di Torino**



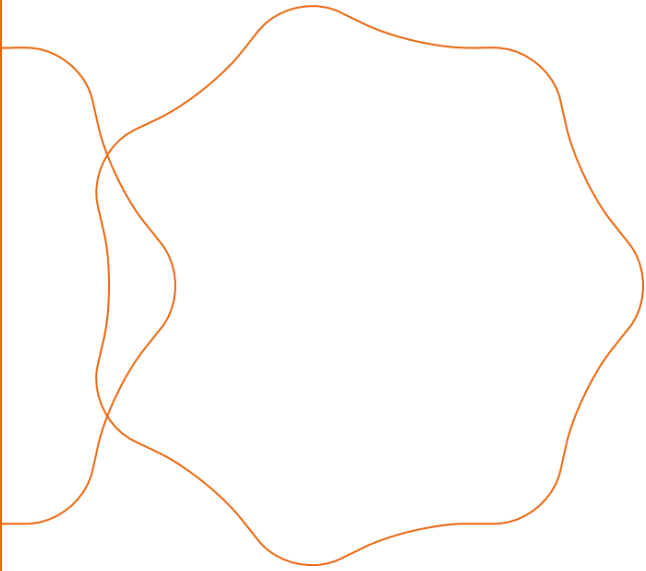


University of Torino

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Foreword

This report originates from the need to gain comprehensive knowledge about the competences developed by researchers at the University of Torino in scientific domains that are crucial to address the challenges raised by the transition of the society towards the so-called Industry 4.0.

A working group has been created as of November 2016, involving several researchers affiliated to a wide array of Departments. The main aim of this working group was to provide a synthetic description of the scientific activities carried out by research teams, which show a high complementarity degree with the principles inspiring the Industry 4.0 paradigm or having high potential in supporting its successful implementation, by maximizing the returns and minimizing the social and economic costs.

The Departments involved in this enterprise were the following:

Department of Agricultural, Forest and Food Sciences

Department of Chemistry

Department of Clinical and Biological Sciences

Department of Computer Science

Department of Cultures, Politics and Society

Department of Economics and Statistics "Cognetti de Martiis"

Department of Law

Department of Life Sciences and Systems Biology

Department of Management

Department of Mathematics "Giuseppe Peano"

Department of Medical Sciences

Department of Physics

Department of Psychology

In addition, three Interdepartmental Research Centers took part to the activities of the working group:

Centre on ICTs and Innovation for the Society and Territory (ICxT)

Centre on Nanostructured Interfaces and Surfaces (NIS)

Competence Centre on Scientific Calculus (C3S)

The report intends to provide systematic evidence of the strengths of researchers at the University of Torino in the wake of the fourth industrial revolution, as well as of the opportunities for large companies, small firms and other stakeholders to establish fruitful collaborations to cope with the multifaceted nature of the transformation imposed by the new paradigm.

This report has been produced by a team that collected and processed the knowledge provided by the participants at the working group. The team is composed by:

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Francesco Quatraro (*Department of Economics and Statistics Cognetti de Martiis*)

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Preface

The challenges brought by I4.0 call for a renewed role of the University as it implies to further strengthen its deep integration over its territory to support the continuous improvement of its manufacturing system. Tasks in educational and training programs and in the selection of research projects have to be refocussed towards the main needs of the ongoing industrial transformation.

The University will be more and more integrated in the engine of the development of its territory.

The University of Torino is keen to play this role and contribute to maintain for Turin and Piedmont their primary position in the field of manufacturing industry. To tackle this task, a Working Group (WG) formed by delegates from several Departments has been set up with the commitment to start to make an inventory of what UniTo may contribute along the challenging avenues of I4.0. The contributions have been summarized in this document that aims at being the starting point for the development of new interdisciplinary collaborations between UniTo and the industrial system in the frame of the new horizons opened by I4.0.

Silvio Aime