Preface

Laboratories enjoy extraordinary popularity in business and society these days. There is hardly any institution left that does not advertise something as a laboratory. The word carries an aura of wonder and mystique. It evokes images of discovery and progress that seem to be compatible with any kind of human activity. Walking through the streets of our cities, one can encounter tango labs, espresso labs, insurance labs, and ethics labs.[1] All of them provide spaces for experimentation and the quest for novelty, which, of course, attracts the attention of innovation management.

In search for a systematic of different types of new laboratories, variations can be observed in several dimensions. Laboratories can be established on the ground of a permanent infrastructure or consist of pop-up solutions for specific events. They can be operated by a focal institution that collects input from other parties or by an intermediary that facilitates the interaction from a neutral point of view. Laboratories can be dedicated to the solution of very specific problems or allow for more diversity; they can enforce structured procedures or give everyone the freedom to decide what they want to do. Last but not least, they can be driven by very clear commercial interests or involve a broader range of social and political agendas.

A common element of all the new laboratories that are currently established, however, seems to be the attempt to overcome borders: people in the laboratory are invited to share a wide range of thoughts and suggestions with one another, experts are given the opportunity to exchange across the boundaries of their domains, different social interest groups are given a place where they can work together to solve problems. In contrast to the laboratories that have long been used in academia and industry, the new laboratories are not created as contained spaces for science and engineering, but the exact opposite: open spaces for participation and collaboration.

In view of this development, one can ask oneself whether the use of the word "laboratory" is appropriate at all. With increasing openness, many typical attributes of laboratory work disappear. Work does not take place in secret anymore; it is not focused on experiments that reproduce specific effects, but expands to a variety of different activities that go far beyond the classical tasks of researchers and engineers. To speak of a laboratory in this context seems at best to be a distant reference to scientific and technical excellence that should serve as inspiration for the contributors. However, there is one element of laboratory work that remains intact in open laboratories and radically distinguishes them from most other work environments. On the assembly line, in the office, in the classroom or operating theatre, the focus is set on repetitive routine work. The activities are oriented towards a

1 see www.tangolab.ch; www.espressolab.com; www.insurelabs.de; ethicslab.georgetown.edu;

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clearly defined outcome. Laboratory work is different. It is essentially linked to the search for something new.

Linguistically, the word laboratory belongs to the same family as labour and laborious, but also the word lapse. They all have their origin in the Latin verb *labare*, which could be translated as "staggering under a load". This expresses a different idea of work than a regular nine-to-five job. There is something radical, existential going on, something that brings someone to the edge. Laboratory work, one might say, requires true commitment. It does not leave you uninvolved. When you enter a laboratory, you must be prepared to leave it as another person. In the lab, you expose yourself to the possibility of finding something that forces you to revise your view of the world. For researchers, this normally implies a scientific insight, for engineers, an invention. For other people, laboratory work may involve a very different kind of novelty: a solution to a daily problem, an experience of a new part of reality, a new understanding of oneself, or new feelings towards something or someone. All this seems possible in an open laboratory.

Understanding an open laboratory as a space for novelty puts it on the agenda of innovation management. It raises the question of how to organize such a place to inspire creativity, enable exploration and encourage exchange. In addition, it must also be asked how novelty that results from work in the laboratory can unfold real value. This question is particularly important for decisions about investing in open laboratories. Over the last decade, considerable amounts of money and effort have been spent on the establishment of open laboratories by industrial as well as public institutions. Numerous case studies give insight into these activities and their outcomes. Surprisingly little, however, has been said so far about the managerial tasks that need to be performed in order to make the lab successful. Much too often, the open laboratory is approached like the famous field of dreams in the Kevin Costner movie by the same name: you just build it, and then something magical will happen. Neither a researcher nor a practitioner can be satisfied by this. The following chapters therefore look in more detail into the added value of open laboratories for innovation activities and the interventions that can help to maximise it.

This book is aimed at a broad audience in academia, industry and public administration. It does not only want to provide theoretical knowledge, but also actionable guidelines for management. For this reason, the book starts with an introduction to the look and feel of an open laboratory on the specific example of JOSEPHS® in Nuremberg, Germany, an open laboratory established by the Fraunhofer Institute for Integrated Circuits in collaboration with Friedrich-Alexander-University Erlangen-Nuremberg. The first part of the book gives insight into the strategic considerations behind JOSEPHS®, its role in the local innovation ecosystem and the overall open labs movement. The second part of the book presents findings from five years of work in the open laboratory, reported from practitioners on site as well as leading scientific researchers.

Part three of the book turns the attention from the specific case of JOSEPHS® towards more general questions of customer engagement and value co-creation in open laboratories. Part four puts the phenomenon of open laboratories in the larger context of innovation management from different theoretical perspectives. Part five concludes the book with an exploration of further possibilities to use open laboratories for innovation in the digital age.

We would like to thank all the authors for their excellent contributions, which together create a colourful picture of the various facets of innovation management in open laboratories. We would also like to thank all the members of the team at the Fraunhofer Institute for Integrated Circuits and the Friedrich-Alexander University Erlangen-Nuremberg who have worked on JOSEPHS® in recent years, as well as the Bavarian Ministry of Economic Affairs, Regional Development and Energy and the City of Nuremberg who got the ball rolling with their support. Furthermore, we are very grateful for the good cooperation with Professor John Bessant, the editor of this book series at De Gruyter, and all the publishing staff who supported us. Finally, Agnieszka Lubkiewicz at FAU deserves special thanks for her help in preparing the manuscript.

We hope that our book will prove to be valuable for researchers and practitioners in the field of innovation management, as well as all other persons interested in learning more about open labs and their potential for innovation management.

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Albrecht Fritzsche
Julia M. Jonas
Angela Roth
Kathrin M. Möslein