Foreword

Open source software development has received considerable scholarly attention, much of which is based on the presumption that the 'open source model' holds some lessons of broader applicability. Nonetheless, knowledge of its deployment outside the software industry is very limited. Until recently, limitations to the availability of successful empirical examples of this 'new innovation model' outside software may have been a key reason for this gap. Kerstin Balka's dissertation focuses on the open source development of tangible objects, so-called open design. She proposes a generalized definition of open source development and a more careful treatment of the meaning of openness. Openness is often regarded as a dichotomous variable (open-source vs. closed-source) and it is assumed that online developer communities demand full opening of the product's source.

To explore the landscape of open source development in the world of atoms, this dissertation presents a comprehensive study of open design projects ($n = 104$) in order to analyze project characteristics, structures, and success, and to investigate similarities and dissimilarities to open source software development. Drawing on six comparative case studies, it subsequently analyzes the workings of open design in close detail.

The following quantitative study aims to explore openness as a gradual and multi-dimensional concept. Kerstin Balka conducts an Internet survey ($n = 309$) among participants of 20 open design communities in the domain of IT hardware and consumer electronics. She finds that open design projects pursue complex strategies short of complete openness and that communities value openness of software more highly than openness of hardware. A multilevel statistical model shows how openness impacts developer's satisfaction and their contribution.

The findings of Kerstin Balka show that open source development can be successfully applied to physical objects as tangible products can be increasingly developed like digital products. They further suggest that open design companies can successfully implement strategies of partial openness to safeguard value capture without alienating their developer community.

This dissertation addresses both academics and practitioners and becomes a “must read” for everybody dealing with the phenomenon of Open Source Innovation in theory and practice.

Univ. Prof. Dr. Cornelius Herstatt