Rethink! Prototyping
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When we purchased a car in the past, we selected a standardised model that we liked more or less. Henry Ford is credited with saying: “Any customer can have a car painted any colour that he wants so long as it is black”. If we buy a new car today, we can choose from dozens of seat features, glazing and electronic assistance systems, and so on. Products are being adapted more and more to be compatible to our specific needs. Quite soon, we will probably design the cars we purchase ourselves. A car becomes a so-called hybrid performance bundle where the manufacturing and the service components merge together. At the same time, the danger of overwhelmed consumers who can no longer cope with the wide range of possibilities and the consequences of their choice certainly exists. In the project called “Rethinking Prototyping”, designers and engineers examined the requirements that the development of hybrid products impose on them and the role that prototypes will assume in the future. “Rethinking Prototyping” is one of 30 projects that are currently funded by the Einstein Foundation Berlin (Einstein Stiftung Berlin). What were the criteria for support?

The Einstein Foundation funds outstanding scientific and creative projects in Berlin, on the highest international level, a special feature of the foundation. All the Berlin universities and the Charité—Universitätsmedizin Berlin (Charité University Medicine) are entitled to submit an application. Enabling Berlin to shine like a beacon at the summit of research and simultaneously reinforcing the creative potential of the city are the goals that the Einstein Foundation has adopted. The Einstein Foundation considers itself a partner of universities in Berlin. The subsidy programmes should act as a catalyst in collaboration with various institutions, fields and research groups, as well as provide significant added value for the city as a result. There are no quotas in terms of disciplines or institutions.

Einstein research projects are characterised by the fact that they are innovative and potentially risky in the most positive sense, while being supported by multiple institutions in the city. In each round of funding, the foundation receives significantly more good applications than can be approved. “Rethinking Prototyping” was able to prevail in a highly competitive process before renowned professional experts:
the project meets the criteria of the Einstein Foundation in an exemplary way. Interdisciplinary research teams at the Berlin University of the Arts and the Technische Universität Berlin carried out the three-year research project jointly. It was not only the first project on the “Hybrid Plattform”, a joint network involving the UdK Berlin and the TU Berlin, but also the first project funded by the Einstein Foundation that brought together engineers and designers.

The underlying transdisciplinary approach defined the project. Close collaboration between various disciplines required that the participants question and overhaul their own conceptual patterns and knowledge concepts. New concepts for prototyping were supposed to result from the synthesis of knowledge from various disciplines. The results will now flow into research and teaching and be made available to the creative economy in Berlin.

This final publication presents the knowledge gained from the “Rethinking Prototyping” project and the conclusions that it permits for the transdisciplinary approach. For the Einstein Foundation, one thing is certainly clear: it was a courageous path that the applicants endeavoured to take, and it will be necessary to support these transdisciplinary approaches in the future, as well.

We hope you find the publication stimulating.

Prof. Dr. Dr. h.c. mult. Martin Grötschel
Einstein Foundation Berlin
Preface

This book is the result of three years of intensive research work on prototyping. The cooperating fields and departments shared a scientific interest in both new approaches to development processes and a collective understanding of prototyping. The project called “Rethinking Prototyping—New Hybrid Concepts for Prototyping” brought together fields that often differ greatly in terms of their methodology, terminology and hypotheses or even partially contradict each other: the engineering disciplines at Technische Universität Berlin and the artistic design disciplines at the Berlin University of the Arts.

In this project, the researchers embarked on a journey into uncharted territory since there was often a lack of established interdisciplinary experience between the fields. It was common practice to think laterally and outside the box in the three interdisciplinary sub-projects entitled “Hybrid Prototyping”, “Blended Prototyping” and “Beyond Prototyping”. The theoretical and practical exchange was not solely on a research level; however, all the researchers were involved in the establishment of a discourse wherein the generally formulated search for a collective understanding of prototyping played the main role. In practice, transdisciplinary research required additional reflection from all participants in regarding their own perspectives and openness in considering other scientific points of view. The process of finding suitable research formats and methods was itself the object of much consideration during the course of the project. The experiences and scientific knowledge that resulted from this intercultural experiment is documented in this book and also includes scientific contributions from guest experts whose ideas stimulated and supplemented the research as well, both directly and indirectly.

This publication itself is the result of a searching process. For the prototypical, self-reflecting and optimising overall project, we sought an appropriate format that reflects the character of the experimental research and in which the results are manifested in part plastically and thus become perceptible. We realised the solution in a comprehensive package that includes this book and other objects that were developed in the prototyping process. The analogue and digital elements of this so-called layer cake impart knowledge in a playful, appealing and generally
understandable way, all stemming from extensive reflections on a common understanding of prototyping. You will find more information on the entire package in this book (Ångeslevä et al. “Results of Rethinking Prototyping”) and on the project’s Website www.rethinking-prototyping.org. The “layer cake” will be released in a limited edition.

One of these layers is the book that you have in your hands. It is a hybrid anthology that has high expectations for integration. It shares the transdisciplinary scientific knowledge gained in this research project that can be used for future basic research and also has potential for future application. In addition to the articles on the results from the research project itself, the anthology also provides a multi-perspective view of the broad theoretical and practice-relevant field of prototyping through inclusion of additional external perspectives provided by guest experts. Furthermore, this book also describes the experiences gained from the coordinating support for the project, which can be useful for the planning of future interdisciplinary projects.

The conclusion of a research project manifests itself, as a rule, in a scientific publication. This publication and its findings and observations, however, always remain only one static picture of an ongoing discourse that is also needs to continue regarding prototyping research. In this sense, we wish you an exciting and inspiring read and hope it encourages you to reflect and to continue rethinking prototyping.

Berlin Christoph Gengnagel
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