Concluding Remarks

The purpose of this book was to show that design-type research (in particular in the Information Systems field) is a legitimate way of conducting a science. The whole argument of the book can be summarized as follows:

Much research in Information Systems in the past had ignored the system artifacts (Chapter 3). Design-type research is steadily gaining popularity in the IS community (Chapter 5). But is design-type research in IS akin to the traditional notion of science (Preface)? Design in general is a problem-solving activity aiming at creation of artifacts (Chapter 1). Science can also be viewed as a kind of problem-solving aiming to create knowledge artifacts; it is akin to reverse engineering (Chapter 2). Although there are differences between design of abstract artifact concepts and the traditional science, these differences are not essential, i.e. they do not distinctly separate the two (Chapter 4). Such traditional scientific concepts as theory, observation and discovery are also applicable to design-type research (Chapter 5). There are ways of representing IS meta-artifacts in light of design theories (Chapters 6, 7). Furthermore, well-known principles of the traditional science, such as Ockham’s razor and Popper’s falsificationism are applicable to design-type research as well (Chapters 8, 9). Typologies and taxonomies are often used in the traditional science, e.g. in Biology. Although difficult, it is possible to derive a typology of IS artifacts (Chapter 10). Research in different sciences can be viewed as design process (Chapter 11). Moreover, sometimes the workings of nature (e.g. biological evolution) as uncovered by sciences can be (almost) “copied” and “pasted” to build useful artifacts. This is essentially a reverse engineering – forward engineering process (Chapter 12). Therefore, there are no essential differences between design-type research and traditional science. Design-type research is science (Concluding remarks)!

The reader could, if he or she happens to open this concluding section, go through the above claims and read the chapters corresponding to those claims for a more thorough elaboration. The key point here is that design that aims to produce artifact types, or meta-artifacts expressed in form of design theories is at par with the traditional science and deserves as much respect. It is stressed repeatedly in the book that the key output of design-type research is a type of artifact, not the concrete implemented object. At the 5th International Conference on Design Science Research in Information Systems and Technology, the keynote speaker, Dr. Jay F. Nunamaker, had emphasized the importance of delivering the artifact to the respective end user communities. Ideas, however powerful, need to be actually embodied in concrete form to deliver the value (“go the last mile”). He outlined the three phases of artifact development and delivery: proof of concept (it works), proof of value (it is useful), and proof of use (it is used on a sustainable basis).
Surely, the delivery of the artifact as one instance of the corresponding meta-artifact is important. Yet the research output should be knowledge, i.e. the meta-artifact (abstract artifact). Theories are what makes design and science similar (indeed, the same). Throughout the book multiple arguments have been made that design is a kind of science. Some authors had also suggested that science is type of design. It does not matter how one looks at this “dilemma” as long as they are indistinguishable. The position of the book is that design-type research is a proper scientific research. If the reader by this point is confused about what is science vs. what is design, this is the positive result, because this was exactly the purpose of the author.