

Preface

The first book¹ in this subject area covered the key aspects of collaboration and communication in Research and Development (R&D), and how technology may be used to support creativity in the R&D process. This included how research and development in art and design may be formulated, and framed, and then evaluated and measured, and the valuable contribution that art and design makes to the scientific and technological enterprise and vice versa. A second book² covered the collaboration between the academy and industry to support developments in the creative industries and more general industrial applications.

This book examines the relationship between art, design, and technology—in particular, in the areas of collaboration and implementation. These aspects are also illustrated with a number of illustrative case studies. The latter are used to examine how the processes of collaboration and implementation work out in practice, and the lessons that may be learned from this.

Art and design have a long history of using a variety of tools and materials—whether naturally occurring or man-made—to produce a creative work, or artifact, or achieve a particular design objective. Thus, technology and collaboration have always been implicit in art and design to some degree—whether to learn how to optimally use a tool (e.g., stone, pencil, paint brush, or iPad) or to interact with other artists to gain from their knowledge and experience.

Many artworks also reveal their interaction with the social and cultural environments in which they were first produced. They often had a theme, some form of message, and also used a selection of materials from the contemporary world. The outputs resulting from this creativity also had the potential to subsequently modify the sociocultural environment that first produced them.

¹Earnshaw, R.A.: Research and Development in Art, Design and Creativity. Springer (2016) <http://dx.doi.org/10.1007/978-3-319-33005-1>.

²Earnshaw, R.A.: Research and Development in the Academy: Creative Industries and Applications. Springer (2017) DOI [10.1007/978-3-319-54081-8](https://doi.org/10.1007/978-3-319-54081-8).

It is also clear that the extensive nature of many artworks produced by ancient civilizations means that it is likely that many were collaborative efforts—both to obtain the raw materials and then to transform them into their final art forms. However, it can be challenging to collaborate effectively across different discipline areas due to different cultures and ways of working. These challenges are summarized.

The digital revolution has created a connected world. The consequences for art galleries and museums are immense:

The future of the museum may be rooted in the buildings they occupy but it will address audiences across the world—a place where people across the world will have a conversation. Those institutions which take up this notion fastest and furthest will be the ones which have the authority in the future

— Sir Nicholas Serota³

The digital revolution has provided many user-friendly tools and facilities for the artist (e.g., iPad—David Hockney). Technology has facilitated the production of new kinds of artwork that have not been produced before (e.g., wall displays by David Hockney). Thus, it could be said to have facilitated creativity. Technology also provides low-cost multimedia interfaces and virtual reality. This can provide new dimensions of interactivity with artworks, as well as provide access to remote viewers over networks and the Internet.

Wireless digital technology (e.g., mobile phones) can be used to interact with installation art. The digital revolution has provided low-cost interfaces (e.g., multimedia, VR) to enable the viewer to interact with, and explore, large artworks such as installation art which may not be directly accessible to viewers.

A wide variety of low-cost, or free, application software is available to assist the artist and designer. High-functionality hardware is also available to perform functions in art and design that were not possible before—or at least, not easily, e.g., laser scanning, 3D printing, stereolithography. Software is also available to support art galleries and museums in the management and organization of exhibits.

The case studies in Chaps. 6–8 provide examples of how technology may be integrated with arts applications for a particular purpose, and the lessons that were learned from this. Each case study is authored by a specialist author (or authors), and they are detailed in the Acknowledgements section at the end of this Preface.

The University of Bradford, UK, pioneered the area of digital media in the mid-1990s by tripartite collaborations between technology, art and design, and media and broadcasting. It was done by setting up a new academic department because it did not sit easily within existing academic disciplines and structures. It was very successful in attracting students and also meeting the needs and requirements of industry. It also highlighted the benefits and advantages of interdisciplinary collaborations. Involvement in a number of large interdisciplinary

³Serota, N.: The Museum of the 21st Century, London School of Economics (7 July 2009) <http://www.youtube.com/watch?v=tVhXp9wU5sw> (52 min 43 sec).

European Projects over the years at the Universities of Leeds and Bradford required R&D in a number of application areas, such as multimedia assets for design, collaborative visualization over networks, and virtual entertainment and led to a number of important results. These are detailed in the first book referred to above.

Involvement as a professor in the School of Creative Arts at Glyndwr University, Wales, over recent years has provided opportunity to think about these aspects and publish a number of papers in collaboration with the faculty.

The book is being published in the Springer Briefs series which are summaries of the state of the art in a particular area. It is being published as a print book, a Kindle book, and an e-book. In the latter, each chapter will be downloadable separately. This is why the Further Reading and References appear at the end of each chapter. Thus, a chapter contains the main points in the area and the reasons for their significance. It is not intended to examine each of these points in detail—there is insufficient space to do this. However, the interested reader can follow up in the Further Reading or References for further detail and information.

It is hoped that this book makes a useful contribution to an important area of discussion and debate.

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