

# Digitisation of Culture: Namibian and International Perspectives

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Editors

# Digitisation of Culture: Namibian and International Perspectives

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# Foreword

UNESCO presented its first worldwide Internet study at the UNESCO General Conference in 2015, in Paris, under the title “Keystones to foster inclusive Knowledge Societies”. In the twenty-first century, the concept of a knowledge society comprises inter-connecting technology and culture. According to Klaus Schwab, Founder and Executive Chairman of the World Economic Forum in Davos, the fourth industrial revolution will “change not only what we do but also who we are. It will affect our identity and all the issues associated with it: our sense of privacy, our notion of ownership, our consumption patterns, the time we devote to work and leisure, and how we develop our careers, cultivate our skills, meet people, and nurture relationships. It is already changing our health and leading to a ‘quantified’ self, and sooner than we think it may lead to human augmentation. The list is endless because it is bound only by our imagination”. This societal transformation changes not only all parts of the economic value chain—design, production, distribution, division, and consumption—but also communication and inter-human relationships. Thus, UNESCO advocates a humanistic vision of universal Knowledge Societies. In other words, we acknowledge cultural variations in knowledge societies embedded in universal and shared values of human rights. To indeed foster inclusive Knowledge Societies, the UNESCO Secretariat framed the concept of Internet universality, which is built on four pillars, namely human rights based, open, accessible, and multi-stakeholder driven. With Resolution 53, the concept has been adopted at the 38th General Conference. With this, each country and member state has the opportunity to use the concept as a template for a holistic and complex process of transforming and developing their societies for the twenty-first century. It also means considering the gamut of interdependencies and inter-relationships between different human rights and the Internet—such as freedom of expression, privacy, cultural participation, gender equality, association freedom, security, education.

In line with UNESCO’s initiatives of fostering inclusive Knowledge Societies, this book contributes to Namibian and international perspectives, mostly based on presentations I attended at the International Conference on Culture and Computer Science in October 2016 in Windhoek, Namibia. I appreciate the efforts of the

researchers and, particularly, indigenous communities who have put forward digitisation of cultures. With this said, UNESCO will continue to play a vital role in promoting an inclusive and holistic approach to a digital societal transformation following a humanistic vision.

Verena Metze-Mangold  
President of the German Commission  
for UNESCO

# Preface

The present book comprises invited chapters as well as extended and revised versions of selected papers, which were presented at the International Conference on Culture and Computer Science, ICCCS 16, that took place at Safari Court Hotel, Windhoek, Namibia, from 25 to 28 October 2016. The conference was hosted by Namibia University of Science and Technology and HTW Berlin. Each manuscript was reviewed by at least two reviewers and was substantially revised according to reviewers' critiques before acceptance into the supplement. Our thanks go to the reviewers for their assistance in reviewing the numerous submissions.

This book provides various views and perspectives on the digitisation of culture. The contributions collected in this book represent multifaceted approaches towards modern information and communication strategies in a cultural context. They analyse, demonstrate, and, in particular, discuss current research and developments around "Digitalisation of Culture". The authors of this volume are from different countries and hence give an extensive international overview of fundamental theories as well as best practice applications of information management, communication, interaction, visualisation, mixed, augmented and virtual reality, audio technology, multimedia, data processing, and design within a specific cultural context. Based on the best practice examples, recent developments and requirements are presented in different areas of cultural aspects, the use of data sources for augmentation as well as their visualisation and interaction.

We acknowledge the authors' efforts, and without their creativity, ideas, and hard work, it would not have been possible to compile such a diverse and inspiring publication. We promise the readers of this book new insights, the inspirations for new research and projects, fruitful discussions on the presented questions and achieved results, and much pleasure in "rummaging" through the different chapters.

The editors ensured that the book presents a variety of original developments, technologies, and conceptualisations in the digitisation of culture. The materials in this edited book provide important information and tools for cultural policy-makers, cultural and creative industries, communication scientists, artists as well as computer scientists and engineers conducting research on cultural topics.

Windhoek, Namibia

Berlin, Germany/Windhoek, Namibia

Windhoek, Namibia

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# About the Editors

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**Jürgen Sieck** received his degree in Mathematics and a Ph.D. in Computer Science from the Humboldt University, Germany. Now he is the Head of the Research Group “Informations- und Kommunikationsanwendungen” and Professor of Computer Science in Berlin. His research interests are in AR, multimedia, and mobile application. In 2013, he was awarded an honorary doctorate from ONPU, Ukraine. Since 2013, he has been a Principal Investigator of the cluster of excellence “Bild Wissen Gestaltung” at Humboldt University. Since 2015, he is also a Professor at NUST, Windhoek.

**Hippolyte N'Sung-Nza Muyingi** is the Associate Dean: Research, Faculty of Computing and Informatics, Namibia University of Science and Technology (NUST). He acted as Dean (2014–2015) and held the Mobile Telecommunication Company (MTC) Endowed Chair in ICT (2009–2011). He led the Department of Computer Science, University of Fort Hare (UFH), and the NRF- and multi-industry-sponsored Telkom Centre of Excellence (2001–2008) and was awarded the Telkom Research Chair in ICT where an overall 100 postgraduates had competed. He is the co-founder of the South African Siyakhula Living Lab.

**Heike Winschiers-Theophilus** is a Professor in Computer Science and has lectured in Namibia since 1994. Her research and community development activities centre on co-designing technologies with indigenous and marginalised communities in Namibia and Malaysia. She promotes dialogical and community-based co-design following principles of action research with a transcultural approach. She has

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**Anicia Peters** is Executive Dean of the Faculty of Computing and Informatics at the Namibia University of Science and Technology. She completed her Ph.D. in Human Computer Interaction from Iowa State University. Her research focuses on HCI, social networks, and e-participation. She has a mixture of academic and industry experience having worked in Silicon Valley and Namibia. Her research work is published, for example, in the IEEE Transactions for Visualisation and Computer Graphics, Computers in Human Behaviour, Interacting with Computers and the ACM CHI Conference. In 2016, she chaired the International Culture and Computer Science Conference as well as the Africa Human Computer Interaction Conference (AfriCHI) both organised incooperation with ACM SIGCHI.

**Shawulu Nggada** is an Associate Professor of Computer Information Science at Higher Colleges of Technology, UAE. He worked as Deputy Director/Associate Professor of Software Engineering at Namibia University of Science and Technology. His research interests include dependability analysis, software failure analysis, evolutionary algorithms, and optimisation. He completed his Ph.D. in Computer Science (Hull, UK), MSc in Software Engineering (Bradford, UK), and B. Tech. (Hons) in Computer Science (Nigeria).