

Preface

This book *Handbook of Research on Using Global Collective Intelligence and Creativity to Solve Wicked Problems* aimed to discuss the importance of collective intelligence and collective creativity to address the challenges we are facing in a volatile, uncertain, complex and ambiguous (VUCA) world ‘on steroids’.

Globally we are experiencing unprecedented times. COVID-19, for example, affected the world uniformly as a pandemic and is seen as one of the biggest global psychological experiments involving lockdown, isolation, social distancing, and the wearing of masks. The Fourth Industrial Revolution is also affecting the world uniformly, but it is much slower than COVID-19 and was pushed forward due to COVID-19. 4IR has the power to reshape government, education, healthcare, and commerce—almost every aspect of life—especially how we live, work and communicate. As we are waiting in anticipation for the new normal that everyone is talking about, we are also faced by other challenges involving the global commons (e.g. global warming, biodiversity and ecosystem losses, deforestation); issues based on the urgency of obtaining a global commitment (e.g. water scarcity, a massive step-up in the fight against poverty, education for all, the digital divide, natural disaster prevention and mitigation); and issues needing a global regulatory approach (e.g. biotechnology rules, global financial architecture, illegal drugs, trade, intellectual property rights, to name a few). These global challenges and issues are often referred to as wicked problems because they are complex and almost impossible to solve due to the interconnectedness of the world. The following words of Laurence J. Peter cited in Schulte (2016, p.1) ring true: “Some problems are so complex that you have to be highly intelligent and well informed just to be undecided about them.”

The topic and book chapters are timely and important as we enter an unknown future, also called the new normal and great reset. We are looking at our ability to collaborate, our intelligence and our creativity as ways to deal with the challenges, wicked problems and unknown future. This is because the standardized and tested strategies, assumptions, belief systems and models that existed for many years seem to be outdated and no longer suitable to deal with the new world we live in. New mindsets, new thinking, collaboration and breaking away from the status quo seem to be the way forward. According to the World Economic Forum (Jezard, 2018) and McKinsey Global Institute (Bughin, Hazan, Lund, Dahlström, Wiesinger, & Subramaniam, 2018) our automated future demands social, emotional, and higher cognitive skills, such as creativity, critical thinking, and complex information processing. Collaboration is especially important as one nation or one continent alone cannot deal with all the challenges, because collaboration leads to new forms of innovation produced collectively by individuals who are connected by a common goal. We need to therefore abandon conventional thinking, conduct experiments, launch innovative pilot programs, test prototypes and always consider multiple stakeholders in everything we do.

Global collective intelligence and collective creativity involve collective creative diversity, collective vision, collective creative thinking skills, collective creative exchange, multidisciplinary knowledge and collaborative technology/tools (4IR). This sounds easy, but unfortunately, the human race falls short in working together, especially in a domain of emergence and complexity. It is important that in collaborative activities we need to realize that solutions need to be discovered through the collaboration of different experts and practitioners (e.g. interdisciplinary or transdisciplinary research), outcomes may be unforeseen, and working closely with key stakeholders is critical. There are collective movements that are focused on solving complex issues that have done well.

The Copenhagen Consensus started as an untested idea of prioritizing global opportunities by taking stock of the world's biggest problems and their possible solutions. The Copenhagen Consensus developed a platform for putting together the world's smartest minds to analyze the costs and benefits of different approaches to tackle the world's biggest problems. The aim is to provide an answer to the specific question: "If you had \$75 billion for worthwhile causes, where should you start?" Ten challenges were identified during the 2008 Copenhagen Consensus, which include air pollution, conflicts, diseases, education, global warming, malnutrition and hunger, sanitation and access to clean water, subsidies and trade barriers, terrorism, women and development. The process of exploring solutions involves research papers being written for each topic to provide a range of innovative solutions, which are then evaluated by an expert panel. Each solution is ranked according to its potential for solving the world's greatest challenges in a cost-effective way. The Expert Panel evaluates all the innovative solutions in terms of the most cost-effective ways of achieving good in the world. The outcome is a list of priorities with all the solutions identified by the expert panel according to the potential of each solution for solving the global challenges most cost-effectively. The South Centre is an Intergovernmental Policy Think Tank of Developing Countries focusing on the consciousness, mutual knowledge and understanding among countries and peoples; networking and information exchange; promoting common interests and coordinated participation; fostering convergent views and approaches among countries concerning global economic, political and strategic issues related to evolving concepts of development, sovereignty and security; striving towards equity and justice for all and, to this end, to the democratization and strengthening of the United Nations and its family of organizations. The Centre works to generate ideas and action-oriented proposals. There should be more initiatives like this to encourage global collective intelligence and global collective creativity.

The comprehensive and timely publication aims to be an essential reference source. The primary intended audience is scholar-practitioners and researchers who need reference material regarding global collective intelligence, creative problem-solving and solving a wicked problem. The secondary intended audience is undergraduate and postgraduate business students who require the same reference material. At the same time, while having academic rigor, the book will be written in such a way that it can be understood by non-academics and non-specialists; it will be appealing to the general public.

This book consists of 16 chapters and four sections.

Section 1, "The Fourth Industrial Revolution as a Wicked Problem", consists of one chapter where Shaun Ruysenaar from the Da Vinci Institute: School of Business Leadership in South Africa contributed "Thinking Critically About the Fourth Industrial Revolution as a Wicked Problem". This chapter examines the Fourth Industrial Revolution as a wicked problem and promotes critical thinking as a key component required to manage the juggernaut that, in current discourses, has evaded such discussion and possible

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clarity on plans forward. Not only do the existing frameworks of managing wicked problems provide useful tools to engage with the disruptive technologies and other impacts of the so-called revolution, but specific tools relating to critical thinking are also explored as fundamental to a beneficial approach.

Section 2, “Collective and Creative Problem-Solving Approaches” consists of six chapters. Rasheed O. Azeez from Lagos State University, Nigeria, contributed Chapter 2, titled “Breaking the Walls: The Power of Employees’ Collaborative Creativity” where he interrogates the power that lies within employees’ collaborative creativity against individualism, to achieve stated organisational goals. He shows that the collaboration between man and machine in the workplace can help resolve problems confronting organizations and societies. In Chapter 3, titled “Evaluating Collective and Creative Problem-Solving Approaches and Tools for Wicked Problems”, Ziska Fields, University of Johannesburg, South Africa, explains that creativity is needed to solve problems as it allows people to create new ideas by using their mental toolkit, creative characteristics and behaviours. She identifies and evaluates various problem-solving approaches and tools to determine if these will be useful to solve wicked problems. In the chapter, she explains what wicked problems are and the role of the collective (groups, teams, working groups, the wisdom of crowds), what creativity is, identifies the characteristics and behaviours of creative individuals, and indicates the difference between team, organizational and collective creativity. Chunfang Zhou, Lars Bo Henriksen, and Søren Kerndrup from Aalborg University, Denmark contribute Chapter 4, titled “Problem-Oriented Technology Innovation and Participatory Technology Assessment in China”. They focus on China’s development into an “innovation-oriented nation”. This chapter contributes to the book by introducing a problem-oriented approach to develop innovative research to a Chinese context that responds to increasing challenges and deepens the understanding of a new conceptual framework of a problem-oriented approach to innovation research. Cookie Govender, University of Johannesburg, South Africa, contributes Chapter 5, titled “Creative Accelerated Problem-solving (CAPS) for Advancing Business Performance”. She explains that businesses are currently automated, complex, unpredictable, operating in a global marketplace with limited collective creative problem-solving intelligence for advancing performance. She proposes a CAPS model as a management cascaded solution for co-creating business intelligence by enhancing individual creativity using these 15 elements: consciousness; know yourself; brain knowledge; imagination; problem solving; creative thinking; speed reading; mind maps; mind management; memory skills; responsibility; goal setting; stress; success; and accelerated learning. Chapter 6, titled “Leading Creative Problem-Solving: A Mindfulness Intervention”, was contributed by Crystal Yolande Herborn, an independent South African, and Frances Scholtz, Monash, South Africa. In the chapter, the authors explore the potential of mindfulness as a tool to assist creative thinking when attempting to solve a problem. They conducted a study within an organisational setting to explore the impact of a mindfulness intervention on the creativity of leaders. The findings highlighted that exposure to a brief mindfulness intervention seems to have positively impacted the dispositional mindfulness of leaders, as well as appears to have positively impacted their ability to solve a problem creatively. Participants highlighted the notion of pausing, reflecting and resetting when dealing with daily challenges, which resulted in the PRR Model being constructed. Chapter 7, titled “Using Collective Creativity and Industry 4.0 Technology to Reduce the Negative Impact of a Pandemic on Entrepreneurs,” is based on an honors research project contributed by Ziska Fields, Zainab Abowath, Aidah Musisi, and Nadine Mitchley, University of Johannesburg, South Africa. The primary objective of this study was to explain how collective creativity and Industry 4.0 technology can be used to reduce the negative effects of COVID-19 on local entrepreneurial enterprises by developing a framework of preparedness. It was found that the entrepreneurs confirmed that creativity and collaboration are important when finding solutions

to solve problems and that Industry 4.0 technology played a pivotal role in continued operations. The participants also confirmed that the five set of actions by Craven et al. (2020) could aid entrepreneurs to prepare and survive pandemics like COVID-19.

Section 3, “Wicked Problems in the Educational Sector and Initiatives to Solve These Problems,” consists of four chapters. Chapter 8, titled “Wicked Problem and Gender Inequality in the Educational Sector” was contributed by Idris Olayiwola Ganiyu and Adeshina Olushola Adeniyi, University of Kwazulu-Natal, South Africa. The authors identify various social ills such as inequality, political instability, terrorism, diseases, famine, poverty, and corruption, which are considered wicked problems. They identified a major wicked problem that is pervasive in many African countries, which is gender inequality in education, which is also one of the objectives of the Millennium Development Goals (MDGs). Furthermore, the Sustainable Development Goals (SDGs) have emphasized quality education and gender equality as two of the main agendas that should be achieved by developed and developing countries. Gender inequality in the educational sector in selected Sub-Saharan African countries are explored and discussed. Salako E. Adekunle, FCT College of Education, Zuba and Solomon Adelowo Adepoju, Federal University of Technology, Minna, Nigeria, contributed Chapter 9, titled “Collaborative Learning Strategy and Students’ Academic Performance in Mathematics and Computer Programming”. The authors focus on an impact assessment of collaborative learning strategy aimed at solving computational problems among students in Nigeria. The research used an experimental design and the entire population consisted of senior secondary school students. A sample of 240 SS III students was selected for the study. The Mathematics and Computer Programming Performance test instruments for data collection were validated by experts in Educational Measurement and Evaluation. Findings revealed that the use of collaborative learning strategy was effective for student’s academic performance and to solve mathematical and programmatically-based problems. This shows that even left brain activities need collaboration and creativity to reap benefits. Chapter 10, titled “Emerging Economy Institutions of Higher Education Sustainability Initiatives to Solve Wicked Environmental Problems,” was contributed by Comilla Laban and Nigel Chiweshe, University of KwaZulu-Natal, South Africa. The authors explain that the sustainability of higher education institutions provides a platform for mutual prosperity in the long run and therefore warrants the interrogation of sustainability at institutions of higher learning. A study was done that revealed that UKZN had implemented several sustainability initiatives to manage energy and water while facing numerous challenges in the management of sustainability initiatives, such as municipal services, staffing problems, poor communication, lack of knowledge and skills, poor infrastructure, no written policies and weak collaborations with businesses. Collaboration and creativity are therefore critical in higher education sustainable initiatives. Bibi Zaheenah Chummun and Wiseman Siboniso Ndlangamandla, University of KwaZulu-Natal, South Africa contributed Chapter 11, titled “Can Community Education Promote Community Participation in the Local Economic Development (LED) Activities as a Form of Support in this Era of 2019-nCoV?” The role of community education as a problem-solving measure in promoting community participation in Local Economic Development (LED) is explored as limited participation in those activities prevail, especially in the wake of the COVID-19 pandemic. The study provides the challenges posed by the limited participation in the communities and the economy and explains how local participation is important through community education (CE) programs in LED activities. A suggestion was made that the government officials, policymakers and others need to work closely with local people so that they can understand the essence of socio-economic issues that communities encounter daily in the wake of the pandemic. Collaboration and collective creativity are therefore critical in community education and problem solving.

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Section 4, titled “COVID-19 as the Wicked Problem”, consists of five chapters. Justine Walter, an Independent, Leipzig, Germany, and Alexander Hofmann, an Independent, Düsseldorf, Germany, contributed Chapter 12, titled “Using Creativity, Diversity, and Iterative Ways of Working to Send the Virus to Lockdown: How to Beat Wild-Card Events by Their Own Means”. The authors explain that the COVID-19 pandemic can be seen as a wild-card event that disrupts predictions of future developments and confronts researchers, policymakers, and decision-makers in organizations with a wicked problem. The authors propose that lateral collaboration, shorter iteration loops, and diversity will enable organizations to cope with future wild cards more effectively. Applying the same principles to research bears the potential to generate creative solutions to the wicked problem of pandemic disease control faster. Chapter 13, titled “Visual Stories of COVID-19 Social-Physical Distancing from Tagged Social Imagery” contributed by Shalin Hai-Jew, Kansas State University, United States of America, focuses specifically on “social distancing”, combined with self-quarantining and self-isolating, which are some of the few initial defensive stances for naïve humanity against a highly transmissible and contagious lethal pathogen until more high-powered medical science-based interventions (therapeutics, vaccines) are available. The author suggests that studying and focusing on social imagery labelled “social distancing” (by both folk tagging and automated machine tagging) can help to understand the surprise of transitioning from modern hypersociality (oversharing, high connectance, lessened senses of personal privacy) to sudden social-physical distancing with only the mitigations of electronic connectivity. This work takes a systematized manual analysis of social imagery to better understand social-physical distancing in a present-day pandemic. Chapter 14, titled “Visual Gists of Home-Quarantines and Self-Quarantines from COVID-19 Through Social Imagery: Four Months into the SARS-CoV-2 Disease Outbreak”, contributed by Shalin Hai-Jew, Kansas State University, United States of America, focuses on social media’s shared messaging and social imagery about people’s experiences, many under self-quarantine in their homes (“sheltering in place”). This work studies social image sharing on social media platforms as a digital service in a time of global emergency four months into the outbreak. Another chapter by Shalin Hai-Jew, Kansas State University, United States of America, Chapter 15, titled “Societal Shutdown and Reopening and Reclosing in the U.S. as Expressed in Social Imagery Narratives: COVID-19 Pandemic Seven/Eight Months In”, explores how political leaders have to navigate a difficult socio-political landscape balancing mass public health with socio-economic interests. This work explores visual senses of the societal shutdown, societal reopening, and societal (partial) reclosing in the U.S. in social imagery (all captured July 3, 2020, during the crisis) to better understand public responses to public health and other government interventions. Chapter 16, titled “COVID-19: New Order for Employment Relations and Human Resource Management” was contributed by Kabiru Ishola Genty, Foluso I. Jayeoba, Mike O. Aremo, Tinuke M. Fapohunda, and Rafiu A. Bankole, Lagos State University, Ojo, Lagos, Nigeria. This chapter, drawing from available COVID-19 literature, ILO and WHO protocols, examined various concerns and challenges posed by the ongoing COVID-19 pandemic and the regimes of measures which are modelled after developed economies of the world but are at best ad hoc, panicky, ill-digested and their operations’ execution not based on empirical/objective assessment. COVID-19 has brought job losses and unprecedented changes in work modes and some of the lessons and fallouts may live with us for a long time. Post-COVID-19 economic recovery, though expected to be slow, will leave the workplace and society with routines and rituals, lessons to learn and corrections to be made, not to avert future pandemics, but to manage it in a more precise manner with less panic and greater forthrightness.

In conclusion, the editor is satisfied that the book will add greater understanding of wicked problems and how global collective intelligence and collective creativity can be used to minimize the effects of

wicked problems and to consider the interconnected nature of everything in the world. Multidisciplinary views from South Africa, Nigeria, Germany, Denmark and the United States of America were obtained and shared in the 16 chapters. The novel ideas, concepts and approaches in the book will help in our search for better solutions and greater collaboration, using our collective intelligence and collective creativity on a global scale.

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