PANEL: Digital Transformation: Environmental friend or foe?

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Abstract

The advent of social media, mobile, analytics, cloud and internet-of-things has provided unique opportunities for organisations to engage in innovations that are affordable, easy-to-use, easy-to-learn and easy-to-implement (Nylén and Holmström 2015). Transformations through such technologies often have positive impacts on business processes, products and services (Majchrzak et al. 2016). Organisations and nations have managed to increase productivity, efficiency, reduce cycle time and make general productivity gains through digital transformation. Such technologies were also positively associated with reducing the impact on the environment, providing alternatives to printed material. However, in recent times, especially with the abundant availability of technologies at near-zero costs, questions arise on the potential negative impacts of digital transformation on the environment (Bieser and Hilty 2018). The morass of the ubiquitous technologies around us necessitate the creation of large data centres, that are increasing in capacity and their negative impact on the environment. Considering this dialectical contradiction of technology's impact on the environment, this panel raises a dialogue of the impact of digital transformation on environmental sustainability. In addition to the views of the academia, the panel includes a practitioner executive, who will outline practical considerations of the environmental effect of digital transformation.

Keywords: digital transformation, sustainability, decision making, IT business alignment.

1 INTRODUCTION

2 TARGET AUDIENCE

We anticipate that the panel will attract four types of participants: (i) academics who research on sustainability, (ii) general participants, wanting to understand the future of an important phenomenon to the region, (iii) practitioners and (iv) subject area teaching staff who currently teach and expect to teach sustainability related topics. Our panel on "Digital Transformation: Environmental friend or foe?" will be of interest to all participants in general. Sustainability is one of the most important phenomena for almost all nations (organisations and governments). Thus, both academics and practitioners, in general, will benefit by attending the panel. Further, there is a large group of academics, who are currently researching on sustainability and green practices. Similarly, our panel will be of interest to doctoral students to understand the changing nature of a global phenomenon. Panellist will also demonstrate different aspects of digital transformation and sustainability which would be appealing to ACIS participants of all interests. Particularly, the industry thought-leader will be attractive to practitioner attendees. The presence of the industry thought-leader will make this panel more balanced, where the academic rigor is enhanced by the relevance sought in the practice.

3 BACKGROUND

New technologies affect the earth in its entirety. The more useful a technology is, the more unstablizing its effects can also be. - John von Neumann

Over the past three decades, there is a growing awareness of environmental sustainability (Hanelt et al. 2016). According to World Economic Forum's annual Global Shapers survey, for repeatedly two years, millennials ranked climate change as the most concerned issue in the globe (http://shaperssurvey.org). Further, according to the Global Risk Report, climate change featured prominently for the past five years, highlighting the risk that it has on individuals on the planet (http://reports.weforum.org/global-risks-2016). As such, governments worldwide have introduced policies and regulations to minimise pollution and encourage environmental sustainability (Kauffmann et al. 2012). In Australia, climate change modelling estimates that the adverse effects of climate change will cost the Australian economy (Bartel et al. 2014). The proponents of climate change seek stronger legislations and governmental interventions to detest the pollutant organisations. As such, organisations today are under pressure to adhere to sustainability policies (Anderson and Bateman 2000; Shu et al. 2016). Moreover, the societal pressures have encouraged organisations to introduce corporate social responsibility strategies that facilitates environmental sustainability (Rush et al. 2015). However, it has been widely acknowledged that most organisations engage in green initiatives simply to fulfil the minimum legislative or social requirements, known as 'greenwashing.' The opponents of climate change argue that pursuing green initiatives are costly and will compromise profitability (Sui and Rejeski 2002). They argue that organisations adhering to environment protection policies is costly and do not deliver immediate benefits to the organisation (Nidumolu et al. 2009; Palmer et al. 1995). In addition to not having a clear economic rationale, green initiatives often fail due to lack of stakeholder awareness, lack of participation, lack of accountability, not integrating to performance outcomes, and the longer duration it takes to initiate and manage a green initiative (Sedera et al. 2017). However, in recent times, the advancements in digital technologies such as social media, analytics, mobile, cloud, and internet-of-things seem to have softened the burden of balancing economic gains and environmental sustainability (Sui and Rejeski 2002). Especially, digital transformation through digital technologies seems to provide organisations with information and knowledge capabilities that would allow them to incorporate environmental sustainability, while striving for economic sustainability. Moreover, such technologies purport to be less expensive, easy to learn and easy to manage, making it easy for organisations to develop and adopt new IT solutions that simultaneously add value to the organisation (Nylén and Holmström 2015). However, on the contrary, the availability and accessibility of digital technologies allow organisations to use more resources, and thereby increasing their carbon footprint, while acting as an enemy to environmental sustainability. Further, the high energy use, electronic waste and landfills are also negative impacts of digital transformation. On the contrary, some argue that technologies like social media are proven to encourage individual participation, communication and awareness of green initiatives. Further, route optimisation and green supply chain solutions have reduced the carbon footprint.

The objective of this panel therefore, is to initiate a discussion on the positive and negative impact of digital transformation on sustainability. The panel attempt to provide future directions in managing and achieving sustainability goals in digital transformation. This panel brings four academics and two

members from industry to a single platform to discuss the implications of the aforementioned background.

4 THE PANEL STRUCTURE

The panel is structured around six key areas.

4.1 Why sustainability is important in digital transformation? An overview

The panel chair, Professor Sedera from Swinburne Business School will open the panel by providing an overview to digital transformation. He will provide some exemplar organisations where digital transformation has supported in attaining sustainability goals. Research suggests that sustainable initiatives will allow organisations to: (i) think outside the box and differentiate their product and service offerings, (ii) look for niche markets, (iii) gain government support through application of funds or incentives and (iv) reduce long-term cost and gain cost efficiencies (Ambec and Lanoie 2008). Further, as Suchman (1995) highlighted, organisations that are desirable and conduct rightful business certainly receive the support from the external entities and have better access to resources. As such, organisations that proactively follow sustainable practices are more likely to gain external support from governments, non-government organisations and general public as they prioritize the environmental concerns (Luo and Du 2012). To provide a broad view, Prof Sedera will also discuss about how factors such as cost and competitive business environment have hindered contemplating about sustainability in digital transformation initiatives.

Professor Sedera in his discussion will outline how digital transformation is prominent in the contemporary business landscape, the need to rethink of sustainability in digital transformation and the impacts of such initiatives to sustainability.

4.2 Capabilities for Environmentally Sustainable Digital Transformation

Professor Cooper will lead the discussion on the importance of organisations developing their capabilities to ensure that digital transformation has a positive impact on the environment.

Much of the seminal research in IT capability was undertaken prior to the Internet era and information systems (IS) researchers' interest in "Green IT" and "Green IS." Developing environmentally sustainable IS capability is a specific and complex organisational competence that is different from the development of IS capability for conventional business outcomes. That being the case, organisations should not assume that the traditional knowledge and skills of IS professionals are sufficient to address environmental sustainability challenges, as these are a relatively new concern for IS professionals. This notion is evidenced by the introduction of sustainability skills in the "Skills Framework for the Information Age" (c.f. "SFIA4G" and the revision in SFIA7). While there is overlap in the processes required to develop capability in environmentally sustainable IS capability and IS capability in other contexts, IS practitioners should pay careful attention to the differences. For example, to determine if a digital transformation is an 'environmental friend or foe' more accurate measures of the environmental impact of information technology are required and this requires IT professionals to address issues that have not traditionally been one of their primary concerns (e.g., water and electricity consumption, CO_2 emissions).

In this panel, Professor Cooper will provide an overview to the capabilities required by individual IS professionals and organisations to address environmentally driven, information system (IS)-enabled change. IS is known to play a significant role in helping organisations to resolve issues of environmental sustainability but a deeper dialogue about the individual and organisational capabilities required to enhance this role is required.

4.3 How to incorporate sustainability to decision making process?

Professor Burstein will discuss the need of integrating sustainability into decision making process. Sustainability is one of the most difficult problems faced by organizations as organizations need to understand what components of the business operations are affecting sustainability without harming the profitability and efficiency of the organization. Finding answers to such problems require a rethink and integration of multiple point of views where integration of different ideas may provide a feasible solution. One of the solutions for introducing sustainable initiatives is the incorporation of sustainability component into all stages of decision-making process. By applying the advanced decision support methods as part of business intelligence approach, Prof Burstein will discuss how sustainability can be incorporated into the tools to assist in comprehensive decision-making process. For example, from the

exploration phase infusing the need and importance to consider sustainability will make the initiative a success.

In this panel, Professor Burstein will highlight the importance of incorporating sustainability in organisational decision making and the critical success factors for such incorporation, as well as the impact of it on digital transformation.

4.4 What is the path forward? Aligning IT business strategic initiatives to sustainability

Dr Lokuge will talk about the need to rethink sustainability component in strategic business alignment. Hong et al. (2009) discussed the importance of strategic-green orientation of organisations that ensures innovation as well as environmental sustainability. Strategic-green orientation can be explained as an organisation's long-term commitment for producing environmentally sound products and services and balancing the economic benefits (Hong et al. 2009, p. 514). Even though green orientation (Hong et al. 2009), implementation frameworks for green initiatives (Bose and Luo 2011) and environmental corporate social responsibility (Ambec and Lanoie 2008) have been studied strategic-sustainable alignment is studied at a shallow level, treating the mechanisms involved in this phenomenon as a black box. Although the role of IT is gaining prominence in explaining green practices (Krishnadas and Pillai 2013; Watson et al. 2011), prior studies have paid limited attention to how strategic-sustainable alignment can be occurred in a contemporary organisation and how do organisations balance their strategic-green alignment.

Dr Lokuge in her discussion will discuss about strategic-sustainable alignment, its importance, factors and the outcomes.

4.5 Are we leading or lagging? Practitioner point of view on digital transformation and sustainability

The industry representative will provide the audience with real world applications of sustainability. The representative will provide examples that highlights successful digital initiatives that helped attain sustainability in organisations and digital initiatives that harms the environment.

The industry representative will enlighten the audience with current information about Australia and how Australia as a country stands in the sustainability initiatives. Further, the industry representative will provide future directions as well.

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PRESENTERS

Darshana Sedera is a Professor at the Swinburne Business School and serves as the Research Director of the Business Technology and Entrepreneurship Department. His research interests include digital business transformation, innovation and entrepreneurship. He has published over 175 peer-reviewed publications. His research has appeared in top journals like Journal of Strategic Information Systems, Journal of the AIS, Information & Management, Communications of the AIS and JITTA. Prof Sedera will be the facilitator of this panel.

Frada Burstein is a Professor at the Faculty of Information Technology, Monash University. She is the Deputy Director of the Centre for Organisational and Social Informatics and lead the Community Health and Wellbeing Informatics theme for the research flagship "IT for Resilient Communities." Her professional academic career spans almost twenty years and includes extensive research in the areas of decision theory and decision support systems. In June 2013, Professor Frada Burstein was named as the 'ICT Educator of the Year' for her work in information and communications technology (ICT) education.

Vanessa Cooper is a Professor at RMIT University. Vanessa's research in information systems centres on the application of knowledge management and organisational learning theory in the environmental sustainability and emergency management contexts. As part of the Green IT research cluster within the Centre for People, Organisation and Work (CPOW) at RMIT, she partnered with industry to develop the first model to measure the "G-readiness" of organisations which has been adopted in global benchmarks

of sustainable ICT capabilities. Vanessa has also applied an analytical approach to connect information systems and knowledge management to a cross-disciplinary research program in disaster management within CPOW. Vanessa's research has won multiple awards including best paper awards at international conferences and from the Australian Computer Society for environmental sustainability in ICT.

Sachithra Lokuge is a Lecturer at RMIT University. She received her PhD from the Queensland University of Technology in Brisbane. Her research interests are digital innovation, digital technologies, digitization of the individual and sustainability. Her work has been published in Information & Management, Communications of the AIS, Journal of Information Technology Theory and Application (JITTA), The International Conference on Information Systems, The Americas Conference, European Conference and The Pacific Asia Conference on Information Systems.