CORA Cork Open Research Archive
Cartlann Taighde Oscailte Chorcaí

Title	Digitally transforming organisational cultures: Ensuring enhanced innovation in a remote working world
Authors	Treacy, Stephen
Publication date	2022-09-07
Original Citation	Treacy, S. (2022) 'Digitally transforming organisational cultures: Ensuring enhanced innovation in a remote working world', Proceedings of the 17th European Conference on Innovation and Entrepreneurship (ECIE 2022), 17(1), pp. 548-556. doi: 10.34190/ecie.17.1.370
Type of publication	Conference item
Link to publisher's version	10.34190/ecie.17.1.370
Rights	© 2022, the Author. All rights reserved. - https://creativecommons.org/licenses/by/4.0/
Download date	2026-11-01 04:06:31
Item downloaded from	https://hdl.handle.net/10468/14401



UCC
University College Cork, Ireland
Coláiste na hOllscoile Corcaigh

Digitally Transforming Organisational Cultures: Ensuring Enhanced Innovation in a Remote Working World

Stephen Treacy
University College, Cork, Ireland
stephen.treacy@ucc.ie

Abstract: The Covid-19 pandemic has brought with it dramatic environmental changes, forcing organisations to adopt digital technologies on a wider scale, under significant time pressure. While the pandemic tested the agility and resilience of organisations, team dynamics and the implications of virtualisation on collaboration and creativity have become increasingly important for research (George et al., 2020) as the daily working routines in which employees have been embedded in for decades have become disrupted. The abrupt move to "working from home" that the pandemic created is arguably the most significant organisational design change in our lifetimes. Organisations are now asking how the virtualisation of work has impacted on the collaboration and communication necessary for driving innovation behaviour, and what strategies are available to develop remote innovation solutions. In this study, we explore organisational culture theory against the backdrop of digitally transforming innovation development as a result of the Covid-19 pandemic. This multi-layered model offers a useful framework for thinking about processes that foster innovation. By doing so, we investigate how organisations have adapted their approach to remote, collaborative innovation from the perspective of nineteen industry experts. The purpose of this study is to present the determinants of organisational culture to develop digital innovation in a hybrid working environment. Our findings reveal twelve distinct variables across the artifacts, values, and assumptions required to ensure digital innovation. These findings have implications for theory and practice, as it provides organisational leaders with a strategic understanding as to how a remote innovative culture can be developed, and subsequently exploited.

Keywords: digital innovation, digital transformation, organisational culture theory, remote working, Covid-19

1. Introduction

Digitalisation has been shown to blur the boundaries between management and technology, providing new tools and concepts of the digital environment that are dramatically changing how organisations innovate (Bresciani et al., 2018). This evolving digital environment requires organisations to use technologies for data collection, integration, and utilisation, adapting a platform economy (Petrakaki et al., 2018), and to find growth opportunities to remain competitive. With this in mind, a diverse set of novel and influential digital technologies, platforms, and infrastructures has emerged over the past decade or so that have transformed both entrepreneurship and innovation significant ways, resulting in broad organisational and policy implications (Nambisan et al., 2019). However, the challenge for organisations in a post Covid-19 world is not only to explore and exploit new technologies to modify existing innovation practices, but also to make the necessary organisational changes required for their success (Steiber et al., 2020).

Unfortunately, despite a diffused awareness of the unintended rigidities, changes, and vulnerabilities that digital technologies bring to the innovation process (Lu and Ramamurthy, 2011, Reibenspiess et al., 2020), several theoretical and empirical gaps remain to hinder a more complete understanding of digital innovation strategies (Appio et al., 2021), including business and operating models (Berger et al., 2021), organisational forms (Nambisan, 2017), and entrepreneurial modes (Nambisan et al., 2019). More importantly, embracing digital innovation has implications at broader levels with the potential to inform policy making entities and other stakeholders. By focusing on the socio-cultural aspects of digital innovation, this study investigates how organisational culture theory can be developed to further our understanding toward the change and innovation adaptations that came with the mandatory switch to this remote working paradigm that Covid-19 necessitated for most organisations. The main benefit to this approach is to understand change as an outcome of structures, activities, and actions at multiple levels of analysis, societal, individual, and organisational (Scott, 2013). This approach can thus produce a richness and a complexity to understanding digital innovation at the level of new processes, services and products, but also, perhaps more vitally, an emphasis on issues of digital transformation, or radical change (Greenwood and Hinings, 1996). By doing so, this study seeks to explore the artifacts, values, and assumptions required to establish a digital culture of innovation.

2. Literature review

2.1 Digital innovation

Digital innovation can be viewed as the use of digital technology during the process of innovating, and can be used to describe, fully or partly, the outcome of innovation. This perspective has fundamentally changed the nature and structure of new services and products, spawned novel value creation and value appropriation pathways, enabled innovation collectives involving various actors with distinct goals and competencies, developing a new breed of innovation processes and, more broadly, has transformed entire industries (Boudreau and Lakhani, 2013). This phrase has also pervaded contemporary business to signify the transformational, or disruptive implications of digital technologies for organisations adapting their business models, innovative products, and unique customer experiences (Rogers, 2016) in light of the Covid-19 pandemic. Within these areas, extant literature has sought to explore how digital innovation can fuel new initiatives that cross traditional industry and sectoral boundaries, integrating digital and non-digital assets, embracing networks, ecosystems and communities, while also accelerating the inception, scaling, and development of new ventures (von Briel et al., 2018).

The importance of digital innovation has led scholars to question the value of traditional innovation theory and related organisational scholarship (Barrett et al., 2015). Benner and Tushman (2015) recently observed that "*because of the shift in the locus of innovation and because some of our core organizing axioms may be challenged or fundamentally changed by the digital revolution, the nature of innovation and organisational scholarship may be at a transition point*" (p. 2). We conceptualise digital innovation therefore as per Nambisan et al. (2017), who describe it as "*the creation (and consequent change in) market offerings, business processes, or models that result from the use of digital technology*" (p. 224). Digital innovation management therefore refers to the practices, processes, and principles that underlie the effective orchestration of digital innovation. This definition captures three important phenomena. Firstly, it captures a range of innovation outcomes such as new products, services, customer experiences etc., provided these outcomes are made possible through digital technologies and digitized processes. Secondly, this definition includes a broad array of digital tools and infrastructure for making innovation possible. Thirdly, it allows the possibility that outcomes may be diffused, assimilated, or adapted to specific use contexts. This broad definition bridges a research focus on intra-organisational innovation management with research on the organisational culture required to deliver it successfully.

2.2 Organisational culture

Organisational culture can be manifested in the typical characteristics of the organisation that encompass a basic set of suppositions which have worked so well in the past that they become accepted within the organisation. These are maintained through continuous process of human interaction, and become manifested through attitudes and behaviour, (Martins and Terblanche, 2003). These attitudes and behaviours, along with values, philosophies, and feelings all form part of the organisational culture (Hellriegel et al., 1998). Several models of organisational culture have been developed including the model of organisational reality developed by Sathe (1985), which focuses on the influence of personnel, organisation systems, and leadership on the expected and actual behavioural patterns, the effectiveness therein, and the level of satisfaction brought about. Other researchers view organisational culture against the backdrop of systems theory developed by (Von Bertalanffy, 1950) and was subsequently adapted by several authors who applied the systems theory to organisations (Kast and Rosenzweig, 1985). Elsewhere, Schein's (2010) model depicts the levels of organisational culture, namely artifacts (visible organisational structures and processes), values (goals and philosophies), and assumptions (deepest underlying beliefs and perceptions) and their interactions. Artifacts can be described as the characteristics that are experienced by employees in the workplace. Although artifacts are easily recognised, they are difficult to decipher, and rely on gaining internal opinions and perspectives to achieve a greater understanding of their impacts. Literature has indicated that these artifacts enhance innovative behaviour within the organisation (Hogan and Coote, 2014). Values however can be seen as deep-rooted aspects of culture, and have been argued to be more difficult to influence (O'Donnell and Boyle, 2008). Espoused values look at goals, ideas, norms, standards, and moral principles present in the organisational setting, and can play a large role in forming a successful culture as they are flexible, internal, and controlled (Bradley and Parker, 2006). The third component, assumptions, are important boundary conditions that

surround common team effectiveness assumptions when culture is considered to be an aspect (Feitosa et al., 2018).

2.3 Research gap

While prior research has focused on how digitization can translate into innovation productivity gains, broader economic and social gains, and increased regional entrepreneurial activity (Burtch et al., 2018), the radical shift presented by Covid-19 has demanded more from organisations, challenging them to digitally transform their traditional onsite culture of innovation. Importantly, digitization not only holds implications for different levels of analysis (individual, community, societal, organisational), but importantly, across levels as well, which has received limited attention (Nambisan et al., 2019). Digitization is not just a context for entrepreneurship and innovation, as these technologies can serve as the driving factor of innovative activities (Lusch and Nambisan, 2015). It is vital that studies incorporate characteristics natural to digital technologies as key explanatory factors in theorizing the nature of digital innovation (Kallinikos et al., 2013). Furthermore, scholars argue there is a need for new theories in this age of digital transformation and digital innovation because innovation processes themselves are subject to digitization, leaving accepted theories of innovation no longer applicable (Svahn et al., 2017). Nambisan et al. (2017) state that "*there is a critical need for novel theorizing on digital innovation management*" (p. 233) that deals more adequately with the rapidly changing nature of innovation processes in a digital world. This research therefore seeks to explore this cultural shift through the theoretical lens of Schein (2010), who argues that a culture must be crafted and cannot be successfully created in the short term. It must be formed over time, continually evolving to reach the goals of the organisation. With this in mind, we state our research questions as: (i) What artifacts are required for a digital culture of innovation?; (ii) What values are required for a digital culture of innovation?; and (iii) What assumptions can be made about this digital culture of innovation? To sum up, we present an investigation into digitally transforming an organisation's innovation culture through the lens organisational culture theory from the perspective of innovation leaders.

3. Research strategy

3.1 Expert judgement study

For the purposes of this study, experts can be defined as "*persons to whom society and/or peers attributes special knowledge about matters being elicited*" (Garthwaite et al., 2005). These studies can be used both informally when no data is available, and formally to bound problems and qualitatively structure models (Wilson, 2017), through the use of semi-structured interviews. This provides the researcher with a naturalistic method to validate theoretical artifacts in real environments, or organisational contexts (Venable et al., 2016). Through integrative assessment, selected experts can communicate and synthesise understanding for societally important questions which is fundamental in achieving a detailed understanding of the topic (Knox and Burkard, 2009). This approach reinforces understanding, and aids in extracting the underlying intentions of interactions which ultimately complements the process of deriving precise findings and addressing the scope of the research problem area. Following case selection methodologies described by Yin (2008), the selection of experts ensured multiple objectives: (1) experts occupied roles that made them knowledgeable about the issues being researched; (2) a representative sample of experts were obtained; (3) useful variations of theoretical interest were achieved; and (4) experts have several years of experience working in innovation intensive organisations, offering a deeper understanding of the phenomenon of interest. Based on this selection, nineteen experts were selected across several organisations outlined below in Table 1. These experts represent several industries that are heavily engaged in continuous innovation, with the shift to remote working necessitating sweeping changes to existing practices.

Following Vaismoradi et al. (2016), data analysis consisted of four distinct stages: initialisation, construction, rectification, and finalisation. Firstly, the researcher focused on the transcripts, highlighted meaningful abstractions using thematic codes, for example, the occurrence of a potential theme, conflicting views, and wrote reflective notes. Secondly, the researcher classified, compared, and labelled the themes identified against the research instrument, while applying open, axial, and selective coding (Wolfswinkel et al., 2013). This coding process inductively established a set of main categories and sub-categories that visualised how the collected data portrays the identified research questions (Oates, 2005). Drawing explanations, re-checking data and reviewing findings amongst third parties was also performed during this stage to ensure validity. Thirdly, the researcher concentrated on streamlining themes by excluding any redundancies and relating any

potential themes to established knowledge, facilitating a matrix of categories. This allowed the researcher to reflect on the data in new ways, as well as to eliminate irrelevant, overlapping, or repetitive data. As a result, the findings from the expert studies initially consisted of eleven themes across the three research questions which was subsequently reduced to nine. Finally, the focus was to analyse the areas of commonality among the respondents and to tell the story as it was presented.

Table 1: Expert details for judgment studies

#	*Expert Role*	*Industry*
E-1	Head of Innovation	Agricultural Technology
E-2	Frontline Manager	Agricultural Technology
E-3	Financial Analyst	Agricultural Technology
E-4	Material Planning Analyst	Consulting
E-5	Senior Director	Consulting
E-6	Accountant	Consulting
E-7	Senior Manager	Consulting
E-8	Financial Controller	Manufacturing
E-9	Chief Technologist	Manufacturing
E-10	Senior Manager	Manufacturing
E-11	Global Support Manager	Manufacturing
E-12	Project Business Lead	Pharmaceutical
E-13	Associate Director	Pharmaceutical
E-14	Senior Manager	Pharmaceutical
E-15	Customer Relations	Pharmaceutical
E-16	Director of Global Support	Software-as-a-Service
E-17	Senior Operations Manager	Software-as-a-Service
E-18	Chief Architect	Software-as-a-Service
E-19	Strategy Manager	Software-as-a-Service

4. Findings

4.1 Artifacts

Three themes emerged from the collected data: time, incentives, and engagement. Firstly, interviewees agreed that "*the main thing would be time saving, or how to make the most of our time*" (E-18), but there is often a discrepancy across departments in the workplace, with some having more flexible time than others: "*The only constraint is time in certain departments*" (E-6). Interviewees highlighted the importance of allocating time for the purpose of innovation, with some stating that they have evolved their internal structures to accommodate this requirement: "*We see what we can do to make processes better, to free time for people and put a lot of the offline processes into the enterprise resource planning*" (E-15). Interviewees stressed that there is valuable innovation to be offered across each department, and the organisation should focus on freeing up resources to deliver on this promise: "*For other areas of the business, like the back office, or whether they are caught up with the service or customers, typically they may not get the time to innovate, but they are equally, if not more important in innovation*" (E-15). Allocating time away from daily roles and responsibilities to pursue innovation proved difficult for most interviewees, as several outlined that they find themselves staying beyond normal working hours already as it stands: "*A lot of our workers don't even take their 30-minute break, and still find themselves working past 5pm*" (E-17). Other interviewees agreed with this sentiment, arguing that "*there is no such thing as a 9am-5pm, or any specific working hours*" (E-15). Interviewees were unanimous however in arguing that being allocated time to tend to their own ideas or projects would increase their levels of innovation: *"If we had a scenario where we asked everyone to spend one hour a week doing nothing but creative thinking, either alone or in groups, I am sure you would get lots of ideas*" (E-1).

Secondly, incentives emerged as an important artifact, with several variations being outlined by interviewees. Most interviewees agreed that establishing innovative culture firstly relies on incentivising the levels of

engagement towards the initiative: "*It starts with engagement. Once that is embedded in the infrastructure around how you create ideas that drive the innovation is, the individuals get the reward and recognition*" (E-1). Incentives could range from a purely monetary incentive to a sense of pride for the ownership of the idea, and the resulting recognition they would achieve from it: "*When people join projects, at the end of the day they either want to get recognition, or they want to get paid. People are satisfied by different things*" (E-16). Establishing "*bonus incentives*" (E-3) was outlined as an important incentive for driving engagement when it comes to yielding higher levels of innovative activity: "*I worked in field sales for the last five years, so my approach to everything tends to be money related*" (E-16). Several experts also described how they used gamification for delivering innovation, by creating structured contests among their employees throughout the year. The winners of these contests would then be given significant funding to develop their ideas further: "*We pick monthly winners, and the monthly winners go onto quarterly competitions. The quarterly winners eventually go into an annual competition where the winner gets funded €25,000 to develop their product*" (E-15).

Thirdly, engagement was highlighted as a key objective for the success of any innovation culture. Interviewees were unanimous that natural human interaction through the "*inclusiveness of ideas and bringing everyone's ideas together*" (E-12) was vital for the level of creative and diverse thinking being sought. This was echoed through interviewees stressing the importance of establishing "*brainstorming sessions and getting everyone together*" (E-13) to promote high engagement levels, which allows "*for everyone to share their ideas, no matter whether they are good, bad, or indifferent*" (E-14). This necessitates being able to create a culture where everyone is comfortable in engaging. The interviewees stressed it is ultimately down to the employees as to whether they want to engage in the initiative: "*There is definitely a culture of if you want to get involved, you can, but you have to say I want to get involved*!" (E-16). It is up to the organisations to establish mechanisms to "*encourage people to continue to think creatively, to continue to think innovatively, to think of ways they can contribute*" (E-18). This emerged as a challenge for some organisations, whereby they admitted to "*not getting enough people involved, that's the problem. We need to invest more at the individual employee level*" (E-9).

4.2 Values

Three values were identified through this investigation: diversity, creativity, and communication. Firstly, interviewees were unanimous towards the benefits that diversity offers an innovation culture: "*diversity brings new thoughts, new experiences, new ideas into the whole company*" (E-14). Creating this level of diversity is a challenge for some organisations, with interviewees stressing that innovation comes from everywhere, across all business areas, highlighting the importance of inclusion and representation "*it's so important to have people with different backgrounds and strengths that work together*" (E-12) and how leaders can't "*discriminate based on rank or background of the employee that presents the idea*" (E-16). Interviewees agreed that the main strength of diversity came from the belief that *"people have different ways of contributing to making something move forward, and one person can't do that*." (E-18). Diversity demands a mixture of different people, across varying backgrounds, with unique approaches to any projects: "*the more variety there is, that's better*" (E-16) and to embrace innovation across the organisation, rather than focusing on distinct groups or team's individual business units: "*I see innovation coming from all over the place, not from any particular group of people*" (E-18). Employees should be encouraged to work alongside colleagues who are not part of their own business units or teams, and managers should break up structured organisational silos to promote cross pollination of ideas: "*Ideally we break those silos up completely*" (E-17). To keep this level of diversity fresh, experts recommended rotating employee responsibilities, suggested that *"people shouldn't be stuck in one role for too long. You need to rotate your roles as much as possible, it gives you a different perspective*" (E-15).

Secondly, creativity was described by interviewees as: "*The ability to look at a problem and to come up with different solutions and solve it in an efficient manner*" (E-16). Interviewees outlined that the existing culture in an organisation reflects how expressive employees are when it comes to creative thinking, with some exhibiting reservations due to: "*Fear of failure, lack of confidence, self-doubt and lack of self-belief"* (E-9). Minimizing these interferences would allow employees' natural potential to manifest in creativity: "*creative thinking for me is like confidence to have inspiration and say there's no bad idea!*" (E-15). It was argued that employees can't be just in agreement with people if they wish to be creative: "*Creative thinking for me means taking advantage of what you know, using every advantage you have, and then not be afraid to listen to others*

and make yourself think that way" (E-4). Employees often don't see themselves as being creative, and refrain from engaging due to the mindset of believing they have nothing to offer to the process: "*A lot of people just assume it's not for them*." (E-16) However, creativity can range from developing high levels of innovation aimed at tapping into new markets: "*How to reach your target demographic, or target market in a fun, creative and innovative way*" (E-12), to smaller recommendations that simply make the execution of tasks more efficient: "*Some people see creativity as being artistic, even suggesting a new tool to help an Excel sheet, that's creative thinking.*" (E-16). Indeed, many interviewees believed "*what sparks creative thinking is finding an interesting problem*" (E-17), forcing employees to "*challenge the status quo, and think outside the box*" (E-12).

Thirdly, communication was the third value revealed in the findings, not just across employees, but also employees and management, and management amongst themselves: "*You definitely need strong and timely communications regarding innovation*" (E-9). Cultivating an environment that builds relationships through effective communication is an important step to being able to offer constructive criticism towards peoples work: "*Critical thinking does prevail in an environment of mutual stimulation and feedback. What's important is constructive criticism*" (E-9). Receiving this criticism though was where effective communication was considered vital, as interviewees stressed you shouldn't discourage ideas from being offered by poorly receiving them: "*everyone should feel comfortable that they can share their ideas, and that they can share their thoughts and they won't be laughed at*" (E-14). Several interviewees highlighted that sometimes a discrepancy exists between what management believe the culture to be, rather than what it is in reality: "*People say "*all ideas are welcome*", but sometimes they are not, they get some scoffed at. It's about creating a culture where people genuinely feel they are able to challenge, come forward, and present their ideas*" (E-10). Employees must feel safe when communicating their ideas: "*What's needed is a safe space where people can suggest ideas, where people feel they aren't going to get criticized, ridiculed or mocked for some of the ideas that they do have*" (E-11). Creating this supportive environment for open channels of communication is especially important, as "*innovation doesn't just happen, you have to have the conversations, you have to spark it*" (E-4). Several mechanisms used to encourage this level of transparent communication were highlighted, ranging from "*shooting the breeze around the coffee station*" (E-12), to setting up virtual teams aimed towards creative thinking innovations where "*anyone can join and give ideas*" (E-17). Daily meetings were also identified as an important mechanism to promote high levels of communication, where employees "*meet up and discuss at high level where they are and focus on distinct innovation sections that come up*" (E-4).

4.3 Assumptions

Three assumptions were evidenced to shape digital culture: the levels of openness, leadership, and teamwork present within the environment. Firstly, interviewees highlighted the importance of establishing an open environment for employees to collaborate, encouraging employees to "*be open to ideas, and open to people having a passion that might not be in their particular area*" (E-4) by having a "*genuine open-door policy*" (E-9). This allows employees to share ideas freely among each other and save time by having multiple stakeholders tackle existing problems collaboratively earlier in the problem-solving process: "*if we shared with each other the mistakes that we had made in the previous week, it would benefit everyone. Not only that, but it would reduce the stigma of making mistakes, encouraging innovation*" (E-18). Interviewees described how some organisations cultivated an environment where employees wouldn't feel apprehensive about approaching senior management to voice their opinions: "*There is a flat hierarchy, it doesn't matter if you're a vice president or an intern, there is none of this closed-door nonsense… there's a platform for people to share their ideas and it's open*" (E-16). Interviewees acknowledged their own limitations in developing solutions individually: "*I don't have all the solutions; I like bouncing ideas off people*" (E-15). Sharing problems with peers was highlighted as a key mechanism for developing an open environment: "*from understanding a situation or problem, we can go in and decompose things, and then recompose them in a new way which helps to address the problem or the situation that we saw together.*" (E-17).

Secondly, effective leadership emerged as an assumption in a successful culture of innovation, as for any initiative to be successful, "*There has to be buy-in from the top levels*" (E-9). These leaders need to have the right balance of vision and skills to bring people out of their comfort zones and partake in innovation: "*It's more orchestrating the environment that facilitates people to have a continuous innovation process by themselves… Rather than pushing people, give them their space, give them their time, and give them the resources*" (E-17). Different leadership styles were also highlighted as being able to "*help address an employees' internal blocks that prevent potential being manifested*" (E-9) in terms of being too shy or

introverted to make their voice heard. Similarly, by leaders creating an environment where employees were confident to express their opinions in a "*a no blame culture*" (E-9), it would also encourage "*reducing the stigma of making mistakes, that would improve innovation*" (E-18). Interviewees agreed that it is the leaders who are ultimately responsible for "*creating an effective way to make operations run more efficient and precise*" (E-16). Leaders must develop necessary strategies to complete those goals, surpassing the demands of customer expectations by innovating to "*…break the mould. Once we have the physical footprint in place, we look at our strategy around innovation. What kind of workflows can we interject into this*? *Let's think how we do our everyday stuff in ways we can do better"* (E-4). It was also suggested for leaders to establish measurable goals that tie into employees' roles when it comes to incentivizing innovation: "*Are you being recognised for your idea? Is it going past a stage? Is it down on paper somewhere? Is there an idea that is boosting how quickly work is being done? That's an exact measurement, you know work is being done faster, it's saving us actual money*" (E-16).

Thirdly, teamwork was the final assumption to materialise from the findings, with interviewees describing the importance of creating "*a community where employees are all pulling together in an innovative environment*" (E-9). Interviewees agreed that innovation has a lot to do with teamwork because "*anybody can have an idea… But the only way you can do something with an idea is if you work with somebody else*" (E-18). Several benefits were described to developing a community approach to innovation, chiefly among them being a higher standard of innovative output: "*if we both let them, and allow them to collaborate, we will have a much better innovation*" (E-17). The logic here being that when engaging in a communal effort towards innovation, it instils more responsibility on employees, providing them with a greater choice and autonomy to "*inspire innovative behaviour*" (E-9). It also allows more expertise to be drawn on the problem area as opposed to approaching it from an isolated perspective: "*Innovation is a communal thing. I can be innovative on my own, but it's better when you get the feedback in a community. You get that confidence and inspiration to create a culture of innovation*" (E-15). Interviewees were adamant that establishing teams should span multiple business units, and push people out of their comfort zones to work with new people, for if organisations start saying "*there is a single main contributor, or a single group being a main contributor, or a single part of the organisation being the main contributor, we take away from all the other innovations being created*" (E-17). The purpose of establishing teams across these various positions is to "*gather all of that experience they have and pull it all together to come up with the best solutions*" (E-14).

5. Discussion, conclusions, and implications

This paper examines a well-established theoretical lens on developing an organisational culture of remote innovation against the backdrop of abrupt technological infrastructure changes due to the Covid-19 pandemic. The identification of nine themes across three organisational culture components represent the main contributions of this paper. By implementing a priori theory to a practical perspective, these findings now offer a strategic blueprint for decision makers to develop a digital culture of innovation with a hybrid work force. These findings make several contributions to innovation, digital transformation, and organisational culture research streams, while also offering distinct managerial implications. Firstly, we expand Schein's (2010) organisational culture theory framework by outlining the key roles of these themes through the lens of focused innovation and remote working. These results reveal the importance of a digital culture of innovation and considering the lack of empirical studies that seek to explore how these environments are shaped in a post Covid-19 world, these findings make a novel contribution to the organisational culture and innovation literature. Secondly, we contribute to existing literature by providing a clearer understanding between the distinct layers of an organisations culture and innovative behaviours in a remote working environment, revealing key insights to developing new methods of digital innovation. These findings reveal the crucial role organisations have in encouraging behaviours that are appropriate, valuable, and desirable when establishing a culture of innovation their remote work force. Building on our findings, future research could more fully explore organisational behaviours and management practices that influence the development and adoption of values and norms that support innovation. Given the approach of this research, a relatively small population size of qualitative interviewees was pursued which might present generalizability limitations. While this study offers an initial exploration, future studies are now advised to track the implementation progress and measure the impact of incorporating this framework. This can be achieved through large scale quantitative investigations aimed at larger population sizes. We would also encourage future studies to empirically explore these findings further through various lines of enquiry including, but not limited to intervention functions for adapting existing strategies and behaviour change techniques. In conclusion, this research delivers a strategic

framework for digital innovation to entrepreneurs and practitioners, making them capable of immediately constructing approaches to deliver on the inherent value that a successful culture for digital innovation possesses. As such, this is a subject area that represents a continually evolving landscape, and one that is rich for future investigations.

References

Appio, F. P., Frattini, F., Petruzzelli, A. M. & Neirotti, P. 2021. Digital Transformation And Innovation Management: A Synthesis Of Existing Research And An Agenda For Future Studies. *Journal Of Product Innovation Management,* 38**,** 4-20.

Barrett, M., Davidson, E., Prabhu, J. & Vargo, S. 2015. Service Innovation In The Digital Age: Key Contributions And Future Directions. *Mis Quarterly,* 39**,** 135-154.

Benner, M. J. & Tushman, M. L. 2015. Reflections On The 2013 Decade Award—"Exploitation, Exploration, And Process Management: The Productivity Dilemma Revisited" Ten Years Later. *Academy Of Management Review,* 40**,** 497-514.

Berger, E. S. C., Von Briel, F., Davidsson, P. & Kuckertz, A. 2021. Digital Or Not – The Future Of Entrepreneurship And Innovation: Introduction To The Special Issue. *Journal Of Business Research,* 125**,** 436-442.

Boudreau, K. J. & Lakhani, K. R. 2013. Using The Crowd As An Innovation Partner. *Harvard Business Review,* 91**,** 60-69.

Bradley, L. & Parker, R. 2006. Do Australian Public Sector Employees Have The Type Of Culture They Want In The Era Of New Public Management? *Australian Journal Of Public Administration,* 65**,** 89-99.

Bresciani, S., Ferraris, A. & Del Giudice, M. 2018. The Management Of Organizational Ambidexterity Through Alliances In A New Context Of Analysis: Internet Of Things (Iot) Smart City Projects. *Technological Forecasting And Social Change,* 136**,** 331-338.

Burtch, G., Carnahan, S. & Greenwood, B. N. 2018. Can You Gig It? An Empirical Examination Of The Gig Economy And Entrepreneurial Activity. *Management Science,* 64**,** 5497-5520.

Feitosa, J., Grossman, R. & Salazar, M. 2018. Debunking Key Assumptions About Teams: The Role Of Culture. *American Psychologist,* 73**,** 376.

Garthwaite, P. H., Kadane, J. B. & O'hagan, A. 2005. Statistical Methods For Eliciting Probability Distributions. *Journal Of The American Statistical Association,* 100**,** 680-701.

George, G., Lakhani, K. & Puranam, P. 2020. What Has Changed? The Impact Of Covid Pandemic On The Technology And Innovation Management Research Agenda. *Journal Of Management Studies*.

Greenwood, R. & Hinings, C. R. 1996. Understanding Radical Organizational Change: Bringing Together The Old And The New Institutionalism. *Academy Of Management Review,* 21**,** 1022-1054.

Hellriegel, D., Slocum, J. W. & Woodman, R. W. 1998. *Organizational Behavior*, South-Western College Pub.

Hogan, S. J. & Coote, L. V. 2014. Organizational Culture, Innovation, And Performance: A Test Of Schein's Model. *Journal Of Business Research,* 67**,** 1609-1621.

Kallinikos, J., Aaltonen, A. & Marton, A. 2013. The Ambivalent Ontology Of Digital Artifacts. *Mis Quarterly,* 37**,** 357-370.

Kast, F. & Rosenzweig, J. 1985. Organization And Management: A Systems And Contingency Approach, 4 Th Edn, Mcgraw-Hill, New York.

Knox, S. & Burkard, A. W. 2009. Qualitative Research Interviews. *Psychotherapy Research,* 19**,** 566-575.

Lu, Y. & Ramamurthy, K. 2011. Understanding The Link Between Information Technology Capability And Organizational Agility: An Empirical Examination. *Mis Quarterly***,** 931-954.

Lusch, R. & Nambisan, S. 2015. Service Innovation: A Service-Dominant Logic Perspective. *Mis Quarterly,* 39**,** 155-175.

Martins, E. & Terblanche, F. 2003. Building Organisational Culture That Stimulates Creativity And Innovation. *European Journal Of Innovation Management,* 6**,** 64-74.

Nambisan, S. 2017. Digital Entrepreneurship: Toward A Digital Technology Perspective Of Entrepreneurship. *Entrepreneurship Theory And Practice,* 41**,** 1029-1055.

Nambisan, S., Lyytinen, K., Majchrzak, A. & Song, M. 2017. Digital Innovation Management: Reinventing Innovation Management Research In A Digital World. *Mis Quarterly,* 41.

Nambisan, S., Wright, M. & Feldman, M. 2019. The Digital Transformation Of Innovation And Entrepreneurship: Progress, Challenges And Key Themes. *Research Policy,* 48**,** 103773.

O'donnell, O. & Boyle, R. 2008. *Understanding And Managing Organisational Culture,* Dublin, Ireland, Institute Of Public Administration

Oates, B. 2005. *Researching Information Systems And Computing,* Great Britain, Sage Publications.

Petrakaki, D., Hilberg, E. & Waring, J. 2018. Between Empowerment And Self-Discipline: Governing Patients' Conduct Through Technological Self-Care. *Social Science & Medicine,* 213**,** 146-153.

Reibenspiess, V., Drechsler, K., Eckhardt, A. & Wagner, H.-T. 2020. Tapping Into The Wealth Of Employees' Ideas: Design Principles For A Digital Intrapreneurship Platform. *Information & Management***,** 103287.

Rogers, D. 2016. *The Digital Transformation Playbook*, Columbia University Press.

Sathe, V. 1985. *Culture And Related Corporate Realities: Text, Cases, And Readings On Organizational Entry, Establishment, And Change*, Richard D Irwin.

Schein, E. H. 2010. *Organizational Culture And Leadership*, John Wiley & Sons.

Scott, W. R. 2013. *Institutions And Organizations: Ideas, Interests, And Identities*, Sage Publications.

Steiber, A., Alänge, S., Ghosh, S. & Goncalves, D. 2020. Digital Transformation Of Industrial Firms: An Innovation Diffusion Perspective. *European Journal Of Innovation Management*.

Svahn, F., Mathiassen, L. & Lindgren, R. 2017. Embracing Digital Innovation In Incumbent Firms: How Volvo Cars Managed Competing Concerns. *Mis Quarterly,* 41.

Vaismoradi, M., Jones, J., Turunen, H. & Snelgrove, S. 2016. Theme Development In Qualitative Content Analysis And Thematic Analysis.

Venable, J., Pries-Heje, J. & Baskerville, R. 2016. Feds: A Framework For Evaluation In Design Science Research. *European Journal Of Information Systems,* 25**,** 77-89.

Von Bertalanffy, L. 1950. The Theory Of Open Systems In Physics And Biology. *Science,* 111**,** 23-29.

Von Briel, F., Recker, J. & Davidsson, P. 2018. Not All Digital Venture Ideas Are Created Equal: Implications For Venture Creation Processes. *The Journal Of Strategic Information Systems,* 27**,** 278-295.

Wilson, K. J. 2017. An Investigation Of Dependence In Expert Judgement Studies With Multiple Experts. *International Journal Of Forecasting,* 33**,** 325-336.

Wolfswinkel, J. F., Furtmueller, E. & Wilderom, C. P. 2013. Using Grounded Theory As A Method For Rigorously Reviewing Literature. *European Journal Of Information Systems,* 22**,** 45-55.

Yin, R. 2008. *Case Study Research: Design And Methods 4th Edition*, London: Sage Publisher.