Design Thinking in Post-Pandemic Times: Methodologies to Understand Trustworthiness

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Abstract

This chapter presents a case for updating design thinking (DT) methodologies to respond to the conditions of the pandemic. DT is a process for developing innovation that gained prominence in the 1990s and has the potential to provide useful insights because it entails collaboration between stakeholders and empathy for those who will use the end solution. Prior to the pandemic, virtual collaboration between DT practitioners was relatively uncommon. However, since the outbreak, many businesses have shifted to working remotely, including DT practitioners. The pandemic has also amplified the issue of trust in society, and methodologies are required to understand what individuals and communities need to be able to trust. This chapter describes how DT can be adapted to bring a consideration of trust into the foreground of DT methodologies.

Introduction

Design thinking (DT) gained prominence in the 1990s as a methodology for researching and developing innovative products and is framed upon responding to the needs of users (Chouyluam et al., 2021). A core part of this methodology is collaboration between stakeholders (Gebbing, 2022). Traditionally, the process is understood to consist of steps such as empathy, definition, ideation, prototype and testing. Although some DT practitioners collaborated virtually before the pandemic, implementation of remote practices was rare (Bader et al., 2020). Due to the pandemic, design practitioners, along with much of the workplace, migrated their work online. This chapter reviews the methodologies of virtual DT, considering the advantages and disadvantages when the process is virtual.

Currently there is only limited research into the use of virtual DT methodologies (Hemstock et al., 2022). We argue that the DT cycle needs updating to include a consideration of trust, and in particular, trustworthiness. Trust, the confidence of others, will work in our favour (Cofta, 2007; Lewis & Marsh, 2022), and is a concept that requires more attention, data and research in today's emerging social landscapes. The aim of trust-enablement (Marsh, 1994), and how a design can help a user to decide whether they should trust or not, are examined. The insights developed by the explainable artificial intelligence field (XAI) (Miller, 2019) to inform our suggestions about trust and DT are also incorporated in this chapter.

There are several societal forces, including the global pandemic, pushing trust into the foreground. This chapter first describes the background to clarify the motivation and research perspective of these authors. Examples of social scientists using DT methodology to explore the problems they encounter are provided. DT, as it was originally conceived as a process between individuals in a room, is explained. This is followed by considerations pertaining to the advantages and disadvantages of DT when the process moves to the virtual environment. Finally, there is exploration and clarification of how trust can be built into DT methodologies to improve the relevance of DT in solving problems in post-pandemic environments characterised by complexity and pressure. The chapter closes with an overview of future recommendations for practice and research.

Background

The starting point of our DT approach is government-funded research informing the design of career programmes at Victoria University (VU) in Australia. The research project explored the skills employers seek in graduates joining their organisation which has provided insights into the nature of the post-pandemic workplace. The participants described complex work environments. Employers seek work-ready graduates who can solve problems on the organisation's terms in resource-tight environments. As one employer said "I don't want them to scatter gun, I want them to come in and ask questions about what needs to happen." There are no guarantees when an employer chooses to hire a job applicant. Although an employer draws on their expertise, engaging a new employee is always based on trust; there is a leap of faith that there is a match with employer needs and the applicant's skillset. The pandemic and the need for virtual work has altered employer requirements. The emphasis on remote work made employers uncomfortable and has meant that workers that demonstrate high levels of motivation are valued, even as employees return to workplaces (Kaushik & Guleria, 2020).

Post-pandemic workplaces are under increasing pressure in uncertain financial times. We use DT to analyse and plan future steps for our research and programmes. Our aim is for VU career programmes to be regarded as trustworthy by potential employers of VU students. This chapter is a reflection on the processes, in particular how DT methodologies can be updated to bring the question of trustworthiness into the foreground in post-pandemic contexts. The discussion is focused on the trustworthiness of products produced using DT, as well as the relations between participants.

The post-pandemic environment: A crisis of trust

Typically, the term trust is framed within public commentaries such as mainstream news and social media connected to authority figures such as politicians. Trust, and a concept close to it, legitimacy, have become more important in the current emerging social landscape. Trust, the confidence someone can have that another will work in their interests (Cofta, 2007), has

always been important because it 'greases the wheel' of society (Fukuyama, 1995). When people trust, they do not need to keep considering their circumstances and can spend their energy attending to activities such as work and leisure. Trust is in the background, not the foreground. In design, trust allows individuals to improvise because they feel comfortable (Pink, 2021). Trust during a DT workshop is influenced by a range of factors that impact perception, including the technology used in a workshop, the interactions between the participants of different backgrounds, and even the way the workshop roles are described (Steedman et al., 2020).

In some areas of the world, public trust, the confidence individuals and communities have in the ability of governments to manage current challenges, has been damaged by global leaders' unsatisfactory responses to the pandemic (Nielsen & Lindvall, 2021). For instance, Trump continues to cause disharmony and confusion, 'erosion of truth goes hand in hand with erosion of trust' (Bourguignon & Sprenger, 2021, p. 3). Low trust in a community usually translates to low social capital for the individuals in that group (Nielsen & Lindvall, 2021). Digital disruption trends were accelerated by responses to the Covid-19 virus. Using social media, individuals turned to those in their personal networks for trusted information rather than the government (Bunker, 2020). The pandemic will continue to have a lasting impact on individuals, meaning the issue of trust and also distrust will continue to be in the foreground (Fancourt et al., 2020).

In interactions with others, there are three important aspects that should be acknowledged, which builds on work by the XAI community (Miller 2019). The first of these is transparency: it is vital that what is thought and done is seen as such. What this might mean in practice is a commitment to explaining one's reasoning process in a safe environment regardless of perceived status. Status features in the second part of the model, which involves inclusion. DT is the process of building understanding and sharing thoughts. It is one in which human beings, potentially from different parts of the world and almost certainly with different status, both socioeconomic and in terms of employment positions, necessitate, building on the objective of transparency so that they belong and more importantly see themselves as belonging. This is nothing less than the democratisation of shared thought.

Sharing thought involves dialogue, which is the third of the model's pillars. A more dangerous aspect of working at a distance is the potential for misunderstanding which is exacerbated by asynchronous communication – something that the authors have suffered from in its creation. The perception that one is in a dialogue in asynchronous communication is quite simply false. The potential for misunderstanding is high and there is very little recourse to fix misunderstandings when they happen other than a good old telephone call which is not always possible. Ironically as well as happily, this emphasises the need for transparency since if the shared thought processes that DT necessitates are democratised, both understanding and explanation are key, and transparency is the fuel that feeds them.

Transparency, inclusion and dialogue are the three pillars that underpin the essential addition of trust into the DT process, particularly when one considers the addition of the virtual. Questions remain around when different aspects of the three pillars should be emphasised during different DT stages, and these are examined in the following sections.

Design research and DT

DT is a form of design research, a field in the social sciences that explores the production of products and experiences and considers the function of a design from a range of stakeholder perspectives (Cross, 2011). Design as a term can be defined broadly, it could serve to define a new product developed by a company or it could be a process, for instance, a new way a hospital could reduce waiting times for people receiving their health results. There is often a practice-led motivation to the work of design researchers (Rust & Wilson, 2001). Researchers employ and develop new methodologies to understand the design context and to relate to those who have a stake in the work they do. Although sometimes quantitative data is used to help to determine the direction of a design, there is an emphasis on the production and application of qualitative data.

Design research is highly context-specific and aims to explore several elements of a design problem. Stolterman (2008) gives an example: To design an mp3 player interface, one needs to consider a wide range of elements including when someone uses the player, the outside casing of the player and the size of the users' fingers. Time and resource limitations always influence a design situation. In contrast, an engineering researcher may focus on the battery in the mp3 player, developing findings that can be easily applied to improve all batteries. Design research usually does not seek to uncover universal truths. In the sciences, variables that may influence an outcome can be isolated. Design research seeks to study the variables in a design to make it the best it can be for the stakeholders a designer serves.

Design was traditionally an activity undertaken by a trained professional. The introduction of DT fundamentally changed design culture. DT has become a widespread practice because it takes the techniques professional designers have traditionally used and adapted them for use by all. Even though DT started in the 1960s, it gained prominence when it was practised by Stanford University and private corporate organisations such as the international design consultancy, Ideo (Knemeyer, 2015). Arguably, DT has its origins in user experience or UX practice, which is a design movement aimed at making technology useful to humans, and to make engineers, who were originally those most involved in the development of digital technology, understand that a range of people needed to use their products. Engineering research has received considerable critique regarding the exclusion of views that were not Anglo-centric and from a male perspective (Eichhorn, 2020; Riley, 2013).

The DT process has become a renowned tool to bring innovation into an organisation and generate new ways to meet business agendas. DT is also popular with government agencies; for example, one application is to enable public consultation about reform development (Orliv et al., 2021). DT is also used by not-for-profit organisations for social innovation purposes. A refugee rights group might use DT to determine refugee needs for resettlement (Streuli & Lewis, 2022). DT can be utilised to ensure an innovation is helpful for a range of stakeholders in their current context. Mason (2022) reports on the use of DT by museums to translate their materials to digital experiences to allow visitors who cannot visit them in person to interact online. DT is used as a tool to understand the needs of visitors to design better communication of museum collections and provides the example of the Georgia O'Keeffe Museum in the U.S. Using DT, the museum staff found their constituents were feeling disconnected from their communities. As a response, they built a storytelling channel, called Stories of the O'Keefe.

In South Africa where land tenure security is a barrier for more than half of the population who are not part of the official government land title system, Hull and Whitall (2021) propose DT as a methodology. They wish to use DT to challenge assumptions and prejudice and help

all stakeholders to engage with empathy. DT is a form of design facilitation, mediating participants' world views, ideas and agendas. Mosely et al. (2021) add that design facilitation is an emerging field, and even though DT is now very popular there is not enough work being done on exploring its intricacies. The role of the facilitator is to guide workshop participants through the stages of DT as defined by the field: empathy, define, ideate, prototype and test. For the workshop facilitators, the management of ambiguity underlies all stages of the workshop. The facilitators need to keep the workshops open, without preconceived notions about the ideas, directions and outcomes generated. However, the ambiguity might be uncomfortable for the participants who might interpret the workshop execution as uncertain or confused (Hemstock et al., 2022). A role for facilitators is to sense the comfort level of the participants and alter the workshop design accordingly.

Of particular interest here is that the DT process involves the direct application of and acknowledgement of empathy. Distinct from sympathy, (feeling for someone's plight), empathy allows the practitioner to actively perceive themselves as part of the situation of the 'client.' This is of great power in the situations where the ultimate client(s) for whom design solutions are being created are marginalised stakeholders. DT inherently acknowledges the voices of all stakeholders to understand problems from a wide range of perspectives and possibilities (Steen, 2013). Ironically, it is also here that trust is something which is often sorely lacking as well as data about the problems faced by the stakeholders.

The first stages of the DT process are called empathy and define (defining the problem). The idea of these stages is for participants to develop empathy with the people who will use the system or innovation to understand their needs and the constraints they encounter in their everyday lives. Ultimately, participants in the workshop should have a sense of the problem to be solved from the perspective of those who will be using the end product (Vesikivi et al., 2021). Techniques used in this part of the process include personas – fictitious profiles of people for whom the design is being developed. A persona develops a narrative around a particular person to convey the needs and pressures encountered by individuals from the target audience group (Shé et al., 2022).

Another example of a technique is the development of user journeys. User journeys depict ways a typical user of a design, usually the fictional user featured in the persona, might take those that are relevant to the problem space being considered. For instance, if we were to create a map relevant to the design of an online class a student might take while travelling on public transport, then we might sketch a user walking to the railway station, buying a ticket, finding a place to sit and waiting for the train. The aim of a user journey is for participants in a DT workshop to identify what is referred to as pain points. These are places in a person's everyday activity that may contain inherent blockages or difficulties and might be improved through design. User journeys are ways where a DT workshop might find an opportunity to make a worthwhile contribution to improve an individual's everyday life (Victorino et al., 2022).

The next stage is ideation. The aim of this stage is for designers as a group to develop a range of ideas without concern for the judgement of others and also to challenge preconceived ideas and assumptions (Kosalge et al., 2022). The traditional brainstorm rule of 'no idea is a bad idea' is adopted. The group decides which ideas are taken on for further development, often over an extended period of time in which ideas and thoughts can be both added and considered whilst the members of the group carry on with other tasks in their work and lives.

Prototyping comes next. A small subset of ideas from the previous step are sketched to the point where further insights about the suitability of the idea can be gained. The DT field suggests the development of a minimal viable product (known as an MPV), which is a prototype that contains just enough detail to demonstrate the core aim and function of the idea. To provide any further detail at this stage may be a waste, as the idea may prove to be misplaced. Prototyping can be in any medium. The prototype is tested on clients and ultimate stakeholders. An objective is to make these people feel comfortable enough to be able to provide rich feedback on the prototype.

Once an iteration of the stages is complete, DT writers advise repeating the process to keep re-drafting the work. In reality, the stages are not as neat, and practitioners fail, go back or jump forward (e.g., to make a quick and dirty prototype in ideation to show an idea). The importance of prototyping is emphasised in post-pandemic times as social norms have shifted. Baharom et al. (2020) argue that society and the economy have shifted permanently to a low touch economy, where goods and services are exchanged with a minimum of human contact. More prototyping is required to understand the needs and anxieties that arise.

DT as a virtual process

The DT methodology was originally conceived as an in-person process (Gebbing, 2022). When the pandemic first started, necessitating things like working from home at a distance, the practice of engaging in DT processes virtually became the dominant and often only possible form of practice. Examples of research projects include the development of a communication hub to allow senior citizens to have their health monitored (Kolnick et al., 2021) and the delivery of entrepreneurial education (Chouyluam et al., 2021). Hemstock et al. (2022) argue that more research is required into virtual DT as work to date has focused on the methods and tools at the expense of considerations of the underlying structure.

Although the pandemic is ostensibly over and a considerable number of professionals have returned to the office, many workers prefer to continue working from home and collaborate with others who are not geographically close to them (Johnson, 2022). It is worth stressing that, as a result of the forced virtual activity, we have discovered and possibly confirmed that there are some tasks that we can indeed carry out virtually with great success. DT as a remote practice will continue. As a result, it is necessary to outline some of the changes to DT methodologies when conducted virtually. The infrastructure supporting a DT workshop, such as the space where the workshop is held, can have a significant impact on participants' comfort levels which in turn shape their feelings of confidence and trust. Infrastructure concerns have not been explored fully by the research field (Mosely et al., 2021).

When DT is undertaken in-person, the workshop room contains 'props' that allow participants to communicate and express their ideas, for instance, whiteboards, large size paper, markers, adhesive tape, and post-it notes (Bader et al., 2020). How can this be done in a virtual setting? Virtual DT tools fall into three categories. Firstly, there is the use of video conferencing software to hold the workshops and let people communicate, for instance, Zoom and Google Meet. Secondly, there are virtual whiteboards that allow participants to share ideas written with virtual markers and post-it notes. Images can be easily added to the whiteboard. Several of the virtual whiteboard solutions, such as Mural and Miro, include helpful add-ons and have commenting and voting functions. As virtual DT practice continues to improve, the developers of these tools will add more functionality to generate data. Finally,

the third category is tools that allow team members to contribute ideas asynchronously outside of the workshop time. Email and discussion boards can play this role. More innovative tools such as Gathertown allow for proximity-based interactions in an online space that simulates the physical prototyping space, as well as the more natural interactions people may have in physical spaces. Visualisation of the material produced by the workshop participants is key to the progression of the DT process as it is a means to orientate, participate, identify potential problems and reflect on the work produced (Mosely et al., 2021).

It is important that the tools used in DT can be relied upon by participants, that everyone is able to successfully access the internet and use the digital tools. In a room environment, this issue is not even considered. If the tools do work, then according to Bader et al. (2020), they offer a lot of flexibility. Some authors argue that aspects of the DT methodology such as brainstorming are improved if undertaken online (Gebbing, 2022). Digital tools can make it possible to quickly visualise and prototype an idea. These tools allow all participants to have an overview of the ideas being generated in the workshop, which helps to reduce repetition in the work they produce There is also the opportunity for participants to work on concepts privately then collaborate with the group. The virtual professional distance can give workshop participants the opportunity to think over the data produced by the group. Virtual tools allow participants to interact with a higher level of anonymity than that afforded by participation in a room (Conrad & Farao, 2020). Some tools allow participants to place post-it notes and comments anonymously, thus they can contribute with less concern about judgement. According to Conrad and Farao (2020), virtual DT misses the energy of a group of people working in a room together. However, research indicates that individuals joining a workshop through video conferencing tools also bond (Quade, 2022).

Virtual DT is more inclusive as the technology enables a wider range of interactions, which means a broader collection of voices are heard and incorporated (Kaur & Kaur, 2022). Higher quality data is collected and fed into the decision-making process. Any individual with an internet connection and a device can attend, so a wider range of individuals can be involved. Participation is not restricted by the requirement to physically attend, overcoming geographical or travel cost barriers. Closed captioning can be turned on in a meeting, assisting those who have difficulty hearing. For individuals who struggle with the language in which the workshop is held, closed captions can be used to review the points afterwards. Nevertheless, there will still be some that will be precluded owing to the digital divide.

Virtual DT can enable the voices of quieter individuals who might be overlooked in a face-to-face workshop. There is a chat function with most video conferencing software solutions. Contribution does not rely on the ability to speak to make a point. There are also functions within video software solutions that allow workshop facilitators to ask for interactions such as the raise hand function and the thumbs up button. If participants are given the option to turn their cameras on and off as they prefer, then this allows individuals to take part on their own terms. Perhaps they have difficulty sitting for long periods and feel awkward about this. Virtual DT gives individuals the option to participate with a level of anonymity. For instance, some virtual whiteboards allow participants to present ideas without them logging into the system. When participants can provide input without the contribution being attributed to them, it gives them the freedom to be less concerned about judgments others might make (Wut & Xu, 2021).

DT with trust in the foreground

As mentioned earlier, since everyone now lives and works in an environment shaped by a global crisis of trust, it is natural that trust and trustworthiness be considered in design methodologies in general and DT in particular. Trust should be considered on two inseparable levels: the trust relations between the DT workshop participants and the product that is the result of the workshop. In this section, it is explained how trust can be woven into the DT methodology, bringing trust into the foreground to take participants from engagement with empathy to trust. Hemstock et al. (2022) have paved a path for this purpose. They suggest research that explores DT from a practice-orientation, away from a consideration of tools and roles, and instead focusing attention on what is happening in the collaboration.

When a group of individuals is brought together to participate in a workshop, assumptions are made about trust. Trust is often assumed by the workshop organisers, and participants are supposed to take it for granted that they are working in a safe space. So, for instance, a participant can offer an idea without a personal judgement being made. While there are often power differences between groups of people in a DT workshop between funders of a project and those for whom the end result is intended, relations between participants are overlooked. Meyerson et al. (2006) refer to this as swift trust, and that this dynamic is not actually trust as participants are required by their employers to engage with certain predefined assumptions. Trust cannot be forced; individuals need to have certain conditions met before they feel that they can make themselves comfortable with interacting in a particular context. The importance of trust is heightened during a design workshop. Trust and ambiguity are closely linked. Ambiguous situations occur when there is a lack of clarity and information, and individuals feel that it is not possible to decide whether to trust or not. As workshop facilitators negotiate ambiguity and keep the lines of enquiry open for all stakeholders to contribute, participants might wonder whether the facilitators have the level of competence required for the workshop and indeed whether the workshop processes should be trusted.

This requires nothing less than making trust an explicit partner brought to the foreground in the DT process, since it has to be considered in all of the DT phases. Moreover, trust has to be made explicit simply because the assumption of trust has been heretofore made in the power dynamic, as mentioned above. It is vital that all members of the group understand their commitment to trust (worthiness) in the behaviours and considerations of all of the DT phases.

This section explores what it would mean to bring trust into the foreground of DT processes. Our model reviews trust and DT at a general level, rather than a prescriptive one. DT is never a one-size-fits all arrangement. Workshops need to be custom designed. Even with careful planning, unforeseen interactions will unfold, requiring a level of adaptability and flexibility from all involved (Mosely et al., 2021). We are not necessarily seeking to produce great design outcomes which might not be possible or appropriate. Our foremost interest is in the perspectives of the participants and end users. Sometimes 'just enough design' (Hall & Stark, 2013) serves the purpose. We are interested in learning the understandings of trust from the participants in order to create systems and products that enable trust for individuals. Has this been enabled?

It is then explained how the insights from the process could be applied to the product itself. As individuals often consider trust through the lens of risk, the perception of risks can be influenced by a number of factors, some unknown (Lacohée et al., 2006). Reducing the number of unknowns through transparency, and explanation about a process or product, can

act as a mechanism for improving how trustworthy that entity is perceived to be in context, by empowering people to assess the risk inherent in their unique context (Liberali et al., 2013). Relevant data is essential for individuals to be able to make better trust decisions, and a commitment to transparency would involve giving the intended audience access to all the data about a process or product. As Liberali et al. (2013) point out, assuming trustworthiness needs to be warranted if transparency is going to work. However, explanation involves supporting the audience in selecting the information that is relevant to them. Those intending to centre explanation as a mechanism for building trust must consider how detailed the data available to the audience is and how a design can help individuals to customise the amount of data they are presented with. DT practitioners, as part of DT processes, need to work with participants to find out what data and what type of data presentations a particular group might wish to use in their decision-making processes. Such insights are difficult to obtain, as individuals may not immediately know the answer to questions about how they prefer their decision-making data. This is a point for further investigation.

The field of XAI has insights that are applicable to a range of systems including Miller (2019, p.3), who equates explanation with trust; "While there are many ways to increase the trust and transparency of intelligent agents, two complementary approaches will form part of many trusted autonomous systems:

1. Generating decisions in which one of the criteria taken into account during the computation is how well a human could understand the decisions in the given context, which is often called interpretability or explainability.

2. Explicitly explaining decisions to people, which we call explanation. Although the field of XAI has been critiqued as limited because participants are not given the opportunity to impact at the central design of the system, elements of the XAI approach can be applied to the products of a DT process. Throughout the development, participants should continually evaluate how easily the intended audience can understand the purpose and actions of a product, with a view to facilitating trust through explanation."

To illustrate, there is the example of workshops as a DT tool, and what a non-exhaustive range of appropriate trust mechanisms might be considered by those delivering a workshop:

1. Clear communication before the session: Why has a workshop been convened, why has the participant been invited, who else will be invited, what are some ways to contribute? How would participants like to be communicated with? Include an option to provide free text feedback; are there themes participants are keen to explore? Do they have any specific concerns? Are there any accessibility issues which need to be taken into account?

2. Appropriate resource development: Are there pre-read materials or resources participants may want to have during the session? Are these clearly signposted and available without access issues?

3. Network: Do the participants know each other? If not, is there an opportunity to build opportunities for participants to interact through quick exercises and discussions before or within the session?

4. Engagement: Does the workshop include different opportunities and mechanisms for engagement? Some participants may be more comfortable with virtual whiteboards, chat functions or surveys, than with live speaker contributions.

5. Feedback: Is there a mechanism for feeding back after the session? How can the workshop owner demonstrate that the feedback will be treated meaningfully, and will, if necessary, be incorporated into the outcomes and future sessions?

Reviewing these tangible opportunities to create trustworthy interactions between those delivering workshops and the participants, 1, 2 and 3 each consider the thematic elements of transparency, inclusion and then dialogue. For example, 1 requires workshop facilitators to collate information about the workshop and find out perhaps by asking how to deliver it so that the participants agree on the parameters of the workshop, and to ensure opportunities for input from participants ahead of time. It is crucial that this is seen as a tiered process, i.e., that explanation builds upon transparency, and that dialogue mechanisms rely on appropriate and meaningful explanations. This three-stage trust model we developed acknowledges that explanation, as comprised of transparency of information and efforts to ensure inclusion through understanding, can act as a foundation for trust. But there may be circumstances where an explanation may not be a sufficient condition. In the case of a workshop, an explanation of the parameters of participation through a preferred channel could reduce the unknowns for an individual and empower them to make decisions about their engagement. If the individual has certain access needs, or questions in advance of the session, they may be quickly frustrated by the process if there was no defined dialogue mechanism enabling them to contact the organisers.

The application of our three stage model is reflected not just in DT tools but in the artefacts produced by the process. What is it that users of an artefact need to be able to trust that it will deliver on its promise? The working relations developed between workshop participants is considered 'chemistry,' what can we take from our knowledge of our context which the DT process has raised to inform the output of the DT workshop? Again, there is the need for explanation through transparency and inclusion, to ensure that the intended audience is able to use the product appropriately and to their benefit. Nevertheless, a product may have negative repercussions that were not anticipated by the designers, or alternatively ignored by designers with an overriding investment in their product. Therefore, any explanation that was provided in advance may not be appropriate for understanding the new set of conditions. In these instances, how can trust be preserved?

The DT process can address this through centring opportunities for dialogue with the intended audience of a DT output. Using customer journey mapping exercises, there should be clear guidelines for integrating mechanisms for feedback at key touch points, reassuring users that should something unexpected happen, there is a process for reporting the issues. The procedures that underpin this process must be perceived as robust in order for this to act as a trust cue. The audience needs to be justified in believing that, should they offer feedback or report an issue, this will be treated meaningfully and they will receive an appropriate response. Those leading a DT process could manage this by ensuring that there is a process and accountability mapping step for each project. Who will be responsible for this process and how are they empowered to support the audience? How can this process be made transparent to the audience?

Limitations and future research directions

The proposed trust emphasis in the DT cycle requires more exploration and research. There are many complex reasons why an individual chooses to trust or not. The field of technology acceptance explores the interplay of many factors including the user's perception of quality, the connections someone might make with other products, and the willingness of an individual to interact with a new system (Pinheiro et al., 2014). A further step is to evaluate the impact of workshop practices when trust is in the foreground for participants and also the products and services that are produced in the workshop. Measuring the level of trustworthiness and comfort of individuals in a fashion that is not taxing for participants, is difficuly (Dwyer et al., 2013). However, evaluation needs to occur for progress to take place.

Conclusion

The aim of this chapter was to explore a way in which the traditional method of DT can be updated to respond to the conditions of the pandemic. Not only has design work moved to the virtual and a significant proportion of DT workshops will continue to be held virtually, there is still a worldwide crisis of trust. The confidence that people and societies place in the capacity of governments to handle current crises has been compromised by the inadequate responses of global administrators to the pandemic and its ongoing impact (Nielsen & Lindvall, 2021).

In this chapter, the affordances that virtual design thinking enables and explains how trust can be brought into the foreground of the design processes were reviewed. DT has traditionally involved working with stakeholders, taking workshop participants through the stages of empathy, definition, ideation, prototyping and testing. We suggest that trust, what it means to participants, and how it is negotiated, is considered at every stage. In this chapter we proposed a 3-stage model, building on work undertaken by the XAI community

The first stage is transparency: a commitment to explaining one's reasoning process in a secure setting. In order to fully understand and exchange ideas, people from diverse backgrounds and with varying social and professional positions must be included. This builds a foundation of inclusion, the second stage. Dialogue, the model's third stage, underpins transparency and inclusion. Dialogue is essential when communicating remotely, as the risk of miscommunication is heightened due to asynchronous communication. Future steps to improve trust-enabled design thinking should include developing a means of evaluating whether a product or process supports the trust preferences of its participants and end users.

Acronyms

DT   Design Thinking
VU   Victoria University
XAI   Explainable Artificial Intelligence

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