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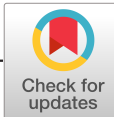
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## RESEARCH ARTICLE

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# Constructing continuity across the organisational culture boundary in a highly virtual work environment

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## Abstract

While remote work allows organisations to offer their employees flexibility and harness global talent and markets for business growth, inability to rely on physical interactions between employees imposes challenges specific to operations in highly virtual work environments. Among these characteristic issues are challenges associated with organisational socialisation and organisational culture. Accordingly, an action design research project was carried out for building a socialisation substitute (an information artefact in the form of a digital organisational culture handbook) to support synthesis of symbolic and pragmatic components of organisational culture at case company Smartly.io, a highly virtual organisation experiencing rapid growth. The paper contributes to the literature on socialisation and organisational culture by demonstrating one approach to designing a surrogate for socialisation that acts as a conduit between the symbolic aspects of organisational culture (such as values) and the pragmatic ones (such as toolkits). The work contributes to organisational discontinuity theory also, via theory-generating descriptive analysis of the

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process of building continuity across the organisational culture boundary through creation of an information artefact. The resulting artefact was found to deliver practical utility to the case company and encapsulate generalisable design principles for this building process.

#### KEYWORDS

action design research, boundaries, organisational culture, organisational discontinuity theory (ODT), socialisation, virtual work environment (VWE)

## 1 | INTRODUCTION

Organisations are increasingly embracing the idea of virtual work environments (VWEs) in their pursuit of benefits that range from cost savings to improved productivity and employee morale (Mims, 2017). According to recent reports, 43% of employees in the US worked remotely from the other members of their team at least some of the time in 2016 (Gallup, 2017). The drive toward VWEs is especially noticeable in knowledge-intensive occupations (Chudoba, Wynn, Lu, & Watson-Manheim, 2005; Johns & Gratton, 2013), wherein both the raw material and the products of labour are information-based rather than physical artefacts. Ubiquitous Internet access and low-cost computing through cloud-based services have made information exchange easier and more efficient, thereby freeing knowledge workers to perform their tasks independently of location. This, in turn, has facilitated the emergence of so-called virtual organisations - organisational entities that rely on a network of geographically dispersed teams and/or individuals (Moller, 1997; Riemer & Vehring, 2012), sometimes operating completely without physical premises (Asatiani & Penttinen, 2019).

Because organisations employing more extreme forms of VWE cannot rely on physical interactions between employees, one of the key challenges of co-ordinating work in virtual organisations rears its head: navigating organisational culture (Chudoba et al., 2005). Prior work identifies two components of organisational culture: symbolic and pragmatic (Giorgi, Lockwood, & Glynn, 2015; Patterson, 2014), where the former consists of explicitly declared values and practices and the latter, which emerges from day-to-day work of individuals within an organisation, brings in practices, patterns of behaviour and pragmatic adaptation of declared values. Another complication is that elements of organisational culture among employees may be formed explicitly or implicitly (naturally, the two can be found in parallel). While explicit articulation of organisational culture may take the form of an organisational culture handbook or other physical materials (Tallon, Ramirez, & Short, 2013), the implicit forming emerges through processes of socialisation among employees. The frequent absence of face-to-face socialisation in virtual organisations could undermine some of these processes and weaken the connection between the symbolic and pragmatic side of organisational culture.

Misalignment between the symbolic and pragmatic component of organisational culture may lead to culture boundaries becoming more perceptible among geographically distributed individuals and teams. Challenges emerge when expectations enshrined in the symbolic side of organisational culture do not materialise in the actions performed by members of the organisation. Traversing boundaries in such contexts may involve a "bumpy ride," with negative effects arising, termed discontinuities in the literature (Watson-Manheim, Chudoba, & Crowston, 2012). For example, many organisations emphasise continuous learning as an important strategic goal, yet cultural misalignment can lead to this goal being interpreted differently by individual employees, and individual-level learning might end up at odds with collective learning. To cope with such discontinuities, organisations implement continuities designed to rectify the negative

effects of traversing a boundary (Asatiani & Penttinen, 2019; Crowston, Specht, Hoover, Chudoba, & Watson-Manheim, 2015; Watson-Manheim et al., 2012). While considerable attention has been devoted to identifying and analysing discontinuities and continuities across various boundaries in VWEs, we still lack understanding of how continuities are constructed in practice (Asatiani & Penttinen, 2019; Dixon & Panteli, 2010; Watson-Manheim, 2019). To shed light on continuity construction at the symbolic/pragmatic culture boundary, we embarked on research to address the following question: *how can an information artefact be constructed to support synthesis of symbolic and pragmatic organisational culture and thereby serve as a continuity in virtual work environments?* To this end, we utilised purposive sampling to select a relatively young organisation that was growing rapidly and embracing VWEs in all aspects of its operations. The principles of action design research (ADR) were integral to our research with the case organisation, the highly virtual growth company Smartly.io. Smartly.io is a Helsinki-based global provider of Facebook and Instagram marketing automation tools. The company has experienced rapid growth in employee count, while becoming more and more distributed across the globe. In this study, we describe Smartly.io's journey to construct a continuity to mitigate risks of cultural barriers emerging from virtual work practices.

The contributions of this study are 3-fold. First, we propose a set of design principles for constructing information artefacts aimed at supporting synthesis of symbolic and pragmatic organisational culture. Second, we promote a better understanding of organisational discontinuity theory (Watson-Manheim et al., 2012) by analysing the process of continuity construction. Finally, we present recommendations for practitioners looking for ways of tackling the risks associated with managing VWEs.

To present our study, we begin with a review of the literature on VWEs, outlining the boundaries associated with them. Special focus is given to the bounds of organisational culture. With this backdrop, we then report on our study of the case of Smartly.io, following the principles of ADR. We conclude the paper by discussing the three-pronged contribution typical of an ADR study: derived design principles, theoretical implications and utility for users.

## 2 | LITERATURE REVIEW

### 2.1 | Organisational culture

Much has been written about organisational culture. Notoriously complex to define, it has been subject to a myriad of competing definitions, with numerous approaches having been used to describe it (Giorgi et al., 2015). To characterise the conceptual divisions in research into organisational culture, Patterson (2014) used the parable of blind people examining an elephant, in which they all claim to understand the entirety of the elephant from the particular part of the animal they are touching. Furthermore, Iviri and Huisman (2007) argue that "organisational culture can be construed to cover almost everything in an organisation." However, for the consistent usage that rigorous research demands, organisational culture must be clearly defined (Leidner & Kayworth, 2006). We consider it in terms of the interaction between its symbolic and pragmatic component. This approach refers to synthesis of the symbolic component of organisational culture, represented by the **value** conceptualisation, and the pragmatic component of organisational culture, represented by the **toolkit** conceptualisation (Giorgi et al., 2015; Patterson, 2014).

In organisation studies, the value-based approach to organisational culture has predominated (Giorgi et al., 2015; Leidner & Kayworth, 2006). In this approach, values that are shared by a specific group are drawn together in organisational culture, helping the members of that group to form a better collective understanding of the environment that surrounds them (Adler & Gundersen, 2007). Proceeding from the value conceptualisation, Schein (1990, 2010) offers a three-level model of organisational culture, involving artefacts, values and underlying assumptions. Schein's model encompasses both tacit factors (in underlying assumptions) and layers at which organisational culture is explicit (in artefacts and values). **Artefacts** are the most visible and tangible part of organisational culture (Leidner & Kayworth, 2006; Schein, 1990), enshrined in a company's dress code, language, symbols, rituals and myths. **Values** are a set of declared norms and beliefs explaining why people behave the way

they do (Schein, 1990). Values, according to Schein, are visible in that they are often formalised within an organisation and members of the organisation are keenly aware of them. Also, values tend to be relatively easy to understand, since they are articulated for explicitly communicating the core features of the relevant organisational culture. This has opened values to extensive study by organisational culture scholars (Leidner & Kayworth, 2006). Finally, the level of **underlying assumptions** is populated by unconscious, tacit elements of organisational culture that guide individuals' behaviour in organisations (Schein, 1990). Schein posits that these assumptions fill a gap in our understanding of organisational culture that cannot be filled by artefacts and declared values. At the same time, underlying assumptions are the hardest to study, in that they require deep, prolonged immersion in an organisation.

While the value-based conceptualisation dominates in work on organisational culture, it is not without its critics. Some researchers have questioned whether the employees truly share the declared values of an organisation (Martin, 2001) and whether a genuine monoculture is achievable or even desirable in an organisation (Ogbonna & Lloyd, 1998). The value-based approach to organisational culture appears to often ignore the potential conflict between organisational and personal values (Giorgi et al., 2015), and the relevance of declared values as a good predictor of individual-level behaviour has been called into question (Swidler, 1986). While Schein relies on underlying assumptions to explain the gap between declared values and actual behaviour, the elusive nature of those assumptions undermines their explanatory power.

In response to the criticisms of the value-oriented conceptualisation, the toolkit conceptualisation (Swidler, 2001) offers an alternative approach, wherein organisational culture is viewed as a cache of ideas that enable one to solve everyday problems within a given context (Giorgi et al., 2015). The toolkit conceptualisation thus connects organisational culture to action (Giorgi et al., 2015), suggesting that values and assumptions are irrelevant if they are not translated into practice (Swidler, 1986). Accordingly, organisational values are considered to be a rough guide for pragmatic action, enabling the members of an organisation to operate within the cultural frame of that organisation. The toolkit conceptualisation does not presuppose members of an organisation aligning their personal values with the declared organisational ones.

In our study, we applied a more dynamic view of organisational culture. We follow the lines of the frameworks of Patterson (2014) and Giorgi et al. (2015) in considering organisational culture to incorporate both a symbolic component (declared values) and a pragmatic one (a cultural toolkit). Let us elaborate. We employed an approach in which values represent "what we prefer, hold dear, or desire" (Giorgi et al., 2015). In other words, values are the ideal toward which the organisation strives; however, this ideal is not necessarily actionable. An example referring to the symbolic component of organisational culture is Microsoft's declared commitment to integrity - "We are honest, ethical, and trustworthy" (Microsoft, 2020). This open declaration originates from the top management and presents a company desire to be honest, ethical and trustworthy. From the declaration alone, it is unclear, though, who "we" represents, how integrity carries over to day-to-day actions, or how it is measured. Therefore, this symbolic component of Microsoft's organisational culture represents an ideal, rather than a pragmatic description of company employees' actions. The toolkit model, complementary to the value model, centres on a set of cultural ideas that actors can use to construct their actions (Giorgi et al., 2015). These actions are not blind reproduction of cultural ideals. Instead they are a pragmatic adaptation of cultural values to a specific context. A value can manifest itself differently in different contexts. In the case of the integrity discussed above, different degrees of honesty may be exhibited in dealings with colleagues and with clients. It is likely that concealing the status of an unreleased product from internal teams working on it would be considered dishonest, while doing so would be permissible in relations with clients. In summary, while the symbolic component establishes a frame of reference for a pragmatic action, the action itself is highly context-specific.

The symbolic and pragmatic sides of organisational culture are connected. Symbolic values provide a framework for pragmatic actions. Pragmatic actions, in turn, influence symbolic values in the long run, giving impetus to evolution of the declared values. Our study involved a real-world process of creating an artefact that serves as a bridge between symbolic values and pragmatic actions in a highly virtual organisation facing the cultural challenges discussed below as prevalent in VWEs.

## 2.2 | Virtual work environments and organisational culture

With the increase in the number and types of organisations allowing at least some degree of virtuality for their employees (Gallup, 2017), the challenge of drawing a clear line between virtual and “ordinary” organisations has emerged. Arguably, most organisations today are hybrid in that they combine collocated and remote work, with varying extents of each (Griffith, Sawyer, & Neale, 2003; Schweitzer & Duxbury, 2010). Hence, we are conceptually steered away from a dichotomous view of virtual organisations in which organisations are strictly divided between virtual and collocated entities (eg, Jarvenpaa & Leidner, 1999).

Nurturing organisational culture (ie, reinforcing accrual of symbolic values and enabling enactment of meaningful pragmatic actions) has proved particularly problematic in highly virtual organisations. Highly VWEs are likely to be more culturally diverse than work environments exhibiting a lower degree of virtuality (Duarte & Snyder, 2006). Whereas cultural diversity in collocated organisations has been found beneficial, cultural diversity in virtual ones has not always lived up to expectations (Hardin, Fuller, & Davison, 2007). Differences in culture within virtual organisations contribute to co-ordination difficulties and obstacles to effective communication. The issues emerge even in environments where differences in the organisational culture expressed are subtle - for example, in a highly virtual setting where team members belong to the same organisation but are located in separate regions of the country (Powell, Piccoli, & Ives, 2004). Synthesis between the symbolic and pragmatic components of organisational culture is often supported by a process of socialisation - involving interaction among the members of an organisation whereby individuals exchange the tacit knowledge required for becoming an effective member of the organisation (Ahuja & Galvin, 2003; Bauer & Erdogan, 2011; Klein & Weaver, 2000). Effective socialisation presupposes the sharing of one's own experience through mentorship, training, bonding exercises and general day-to-day interaction with colleagues (Bauer & Erdogan, 2011; Nonaka & Toyama, 2003; Oshri, Kotlarsky, & Willcocks, 2007). Moreover, Leidner, Gonzalez, and Koch (2018) suggest that the socialisation process not only helps individuals to acquire tacit knowledge related to organisational culture but also allows them to alter the existing organisational culture and contribute to its development. Lack of regular face-to-face interaction and visible material cues in highly virtual work settings make grasping the underlying assumptions and finer details of communication harder (Ahuja & Galvin, 2003), thereby undermining the process of socialisation. This could render it challenging to establish a shared knowledge base in highly remote VWEs (Powell et al., 2004; Townsend, DeMarie, & Hendrickson, 1998).

Deficiencies in socialisation could lead to issues when individuals operating in virtual organisations traverse various boundaries such as geographical, technological, inter-organisational and cultural in their work, as they often must (Dixon & Panteli, 2010; Orlikowski, 2002). These boundaries are sites of what Watson-Manheim, Chudoba, and Crowston (2002); Watson-Manheim et al. (2012) refer to as discontinuities in VWEs. Discontinuities, in organisational discontinuity theory (ODT), are negative effects of traversing boundaries at which an individual or a group of individuals would perceive “a change in information and communication flows that requires conscious effort and attention to handle” (Watson-Manheim et al., 2012).

Continuities are actions designed to mitigate or minimise discontinuities. Among these are adapting to the VWE and creating shared routines and mental models with other members of the organisation (Crowston et al., 2015; Watson-Manheim et al., 2012). Continuities may take the form of a top-down deliberate management action or be an employee-driven initiative (Crowston et al., 2015). Also, they may come about either in reaction to a perceived discontinuity currently experienced by the virtual organisation's employees or as pre-emptive actions to prevent a discontinuity from manifesting itself in the first place. When resulting from such pre-emptive efforts (rooted in prior experience, common-sense reasoning, or other sources), they are known as planned continuities (Watson-Manheim et al., 2012). While scholarship has conceptualised continuities well and considered such categories of them, the process of their **construction** remains largely uncharted territory (Watson-Manheim, 2019).

To facilitate consistency between the two components of organisational culture and minimise possibility for discontinuities, a virtual organisation may need to resort to substitutes for socialisation (Goodman & Wilson, 2000). In the language of ODT, substitutes for socialisation serve as continuities. Designed to minimise the need for traditional

socialisation at the level of the individual, these surrogate mechanisms may be structural in nature or learning-based. Structural solutions might involve the organisation attempting to reduce or eliminate interdependence among its members, allowing them to work seamlessly in the absence of a coherent organisational culture, whereas learning-based substitutes offer alternative means of employees obtaining the necessary information that would normally be gained through socialisation (Goodman & Wilson, 2000).

Continuities created for addressing culture-related discontinuities should compensate for reduced face-to-face socialisation and facilitate the synthesis. We see such a continuity as a conduit between the symbolic and the pragmatic components of organisational culture. Alignment of assumptions and of expectations nurtures feelings of inclusion, membership and identity that could serve as a foundation to continuities in VWEs (Lamont & Molnár, 2002). For example, people in separate locations might have little in common and may never have met in person. With a sufficient base of shared practices and mutual understanding of cultural values, however, they can perceive themselves as part of the same cultural space. Accordingly, the continuity constructed should serve as a foundation for organisational culture, allowing all members of the organisation, irrespective of their location, to work productively and feel included.

## 2.3 | Summary of the background

Proceeding from literature identifying organisational culture as composed of symbolic and pragmatic components (Giorgi et al., 2015; Patterson, 2014), we find the space between these to represent a gap between the declared values of the dominant organisational culture and concrete actions taken by the people within the organisation. In a collocated organisation, synthesis between the two components of organisational culture is supported via a socialisation process that features formal training, mentoring, and - most importantly - immersion in the work environment. Socialisation either facilitates closing the gap between the symbolic and pragmatic component or helps people learn how to work around the gap. Thus, socialisation creates continuity across the symbolic/pragmatic organisational culture boundary, helping employees traverse it with minimal negative effects. In highly virtual work settings, in contrast, this type of socialisation process is often unavailable, as it is precluded by the geographical dispersal of the employees and the resulting absence of extensive day-to-day interaction between them (Oshri et al., 2007; Powell et al., 2004; Townsend et al., 1998).

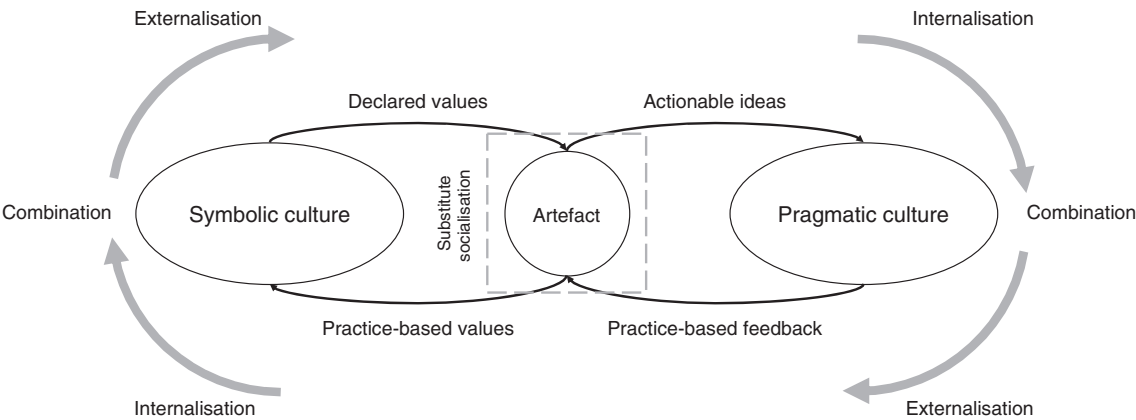
We argue that the problem of establishing a well-functioning connection between the symbolic and the pragmatic in a highly virtual work environment resembles issues addressed in knowledge management. To understand the phenomenon better, we set out to study the creation of a substitute for socialisation in the form of a digital artefact that supports the synthesis between the symbolic and the pragmatic component of organisational culture within a virtual organisation and thereby serves as a continuity in traversing the symbolic/pragmatic culture boundary.

We engaged in an artefact-creation process that drew on the SECI cycle of knowledge creation proposed by Nonaka (1994), who concluded that knowledge is created through conversions between tacit and explicit knowledge. This cycle involves four modes of knowledge conversion: socialisation (tacit knowledge is transformed into other tacit knowledge), externalisation (tacit is rendered explicit), combination (explicit is converted to explicit) and internalisation (explicit knowledge is converted into tacit). The SECI framework is presented as a spiral wherein knowledge is constantly undergoing conversion from one mode to another. Along the spiral, knowledge is extended from individuals to the organisation.

Figure 1 depicts our conceptualisation of a socialisation process in a highly virtual work setting. The artefact is at the centre of the figure, serving as a substitute for socialisation and as a bridge between the symbolic and the pragmatic component of organisational culture. Externalisation and internalisation of cultural knowledge occur through the interaction between the two components. The symbolic component feeds a set of explicit values into the artefact (tacit symbolic organisational culture → explicit values). The artefact then serves as a toolkit with actionable ideas based on the explicit values. After this, these actionable ideas are transferred to the pragmatic domain, where

employees adjust them to the context relevant for them (explicit values → tacit rules for action). Eventually, pragmatic actions are fed back to the artefact through practice-based feedback (tacit rules for action → explicit feedback). The practice-based feedback is then distilled into a set of values stemming from pragmatic action (explicit feedback → tacit symbolic organisational culture). The practice-based values ultimately trickle down to the symbolic organisational culture and get explicated in the declared values (tacit symbolic organisational culture → explicit values). In the final element, the combination process (explicit cultural knowledge → explicit cultural knowledge) takes place within the leadership team and the various employee groups.

For the artefact to be an effective substitute for socialisation, it needs to overcome the challenges associated with supporting the synthesis of the two components of organisational culture in a VWE. Table 1 summarises three distinct challenges identified in earlier research on organisational culture. In our empirical study, we took these challenges as a guide for conceptualising and operationalising discontinuities that arise from traversing the symbolic/pragmatic culture boundary. Firstly, cultural values must enable employees to act effectively in day-to-day work situations. Without actionable insight, the values remain irrelevant (and hence ineffective), or they may even be seen as a tool for top-down enforcement of particular behaviour. Secondly, organisational culture is constantly evolving through the interaction between its symbolic and pragmatic component. Therefore, any artefact designed to bridge the gap between the two has to evolve in tandem with the organisational culture. Finally, the artefact needs to fulfil the main purpose of a substitute for socialisation, creating means of compensating for the absence of regular face-to-face contact among distributed workers.



**FIGURE 1** Conceptualisation of a highly virtual work environment's socialisation process

**TABLE 1** The challenges of organisational culture in a VWE

Challenges	References
Challenge 1: To be relevant, cultural values need to provide actionable guidance to the members of the organisation.	Schein (1990, 2010); Swidler (1986, 2001)
Challenge 2: The evolving nature of organisational culture requires a dynamic solution to organisational-culture-related discontinuities.	Watson-Manheim et al. (2012)
Challenge 3: The lack of regular face-to-face interaction in virtual organisations undermines the socialisation process, thus hindering formation of a true organisational culture.	Ahuja and Galvin (2003); Goodman and Wilson (2000); Oshri et al. (2007)

### 3 | ACTION DESIGN RESEARCH WITH SMARTLY.IO

The findings presented in this paper are fruit of a 7-month research project, carried out in March to September 2017, along with a round of follow-up interviews conducted in November 2019 to shed light on the project's consequences. In response to the "learning by doing" target of building an information artefact to forestall and overcome discontinuities related to organisational culture in a highly virtual work environment (Chudoba et al., 2005), we selected the ADR technique (Sein, Henfridsson, Purao, Rossi, & Lindgren, 2011). This approach to creating the artefact appeared particularly suitable because we wanted to work in close co-operation with the company, conducting activities in which the research and practitioner community contributed to each other's understanding.

We found it justified to examine a single company in depth because of the dearth of studies addressing construction of continuities in virtual organisations (Watson-Manheim, 2019). Also, the approach meshes well with information systems research, in which single-case studies have been consistently well represented (Dubé & Paré, 2003; Leidner et al., 2018), for their value in helping develop insight from unique cases. Yin (2018) suggests that opting for a single-case study is justified where researchers have found a case that is critical, unusual, revelatory or longitudinal. Indeed, we had access to a unique case of a rapidly growing virtual organisation tackling emerging discontinuities related to organisational culture. Moreover, to the best of our knowledge, the process of constructing a digital artefact to serve as a continuity had not been studied before.

#### 3.1 | The research setting

The setting for the ADR project, the above-mentioned Smartly.io, is a Helsinki-based global provider of "software as a service," or SaaS, tools for automation of Facebook and Instagram marketing. The company has grown rapidly ever since it was established, in 2013, and in 2017 it served more than 500 customers, globally. Development in this regard was highly evident during the research too: Smartly.io employed 110 people at the start of the ADR process and about 150 by the end of it. At the time of the follow-up interviews, the company had approximately 350 employees.

The case company can be characterised as a hybrid organisation with a high degree of virtuality. At the time of the research project, the company had eight offices, on four continents, in addition to which there were several employees in remote locations who were unable to rely on physical Smartly.io offices. To accommodate this geographical dispersion of its employees, the company had embraced extensive flexibility in the opportunities it offered for remote work. Smartly.io adopted a team-based structure, with at least some members of a typical team working from geographically remote locations. In consequence, a significant amount of the communication has been carried out through computer-mediated channels.

None of the various offices are fully independent of Smartly.io's Helsinki headquarters. In addition, these offices, around the world, must constantly communicate and collaborate with each other. To handle the necessary virtual communication, the company utilises several channels. One of these involves weekly meetings conducted via a videoconferencing system: people in different locations take part in real time. In addition, there is the internal chat tool Flowdock. This serves as the main channel for communication among the company's employees - most of the internal communication takes place on this platform. For collaboration on digital documents, meanwhile, Smartly.io uses the enterprise version of Google Drive.

Even employees based at physical office locations may be somewhat dispersed: many of them travel all over the world to meet with partners and customers and also to attend various events, such as conferences. Thus, one might work in several distinct locations in the course of a month though living in a city where the company has a dedicated office. Accordingly, even communication and collaboration within a single team based at the same office often takes place by means of digital communication channels, rather than face-to-face meetings.

With Smartly.io's rapid head-count growth and geographical expansion came a need to approach organisational culture in a structured manner. Specifically, the company sought ways to minimise negative effects associated with a VWE and nurture a unifying organisational culture.

### 3.2 | Collection of the data

The research team had four members, one of whom (the second author of this paper) acted as our main interface for communication with the company. For the duration of the project, she was a member of the Smartly.io talent team, in which capacity she was responsible for practical implementation of the artefact. The other three members were full-time researchers responsible for project design, co-ordination and the project's systematic adherence to sound methodology. This arrangement gave us extensive access to the company at all levels. Hence, we were able to collect a rich corpus of empirical data, both through formal data-collection exercises (eg, interviews, open-ended written feedback and workshops) and by informal means (eg, less formal conversations, researcher observations and regular company/team meetings). The researchers, the company's leadership team and the talent team formed the ADR team for this project, in line with the recommendations of Sein et al. (2011). All company employees provided feedback of some kind in the course of the ADR process; however, 12 workers, representing the organisation's various locations, roles and teams (apart from the leadership and talent teams, already accounted for), served as key informants in certain stages of the process. Efforts were made to involve both long-time employees and newcomers.

The process began with gathering general information about "pain points" and issues caused for the company by its rapid growth and sprawling teams. The researcher working within the company gathered observations related to the challenges faced by the talent team, and a series of "development workshops" with the leadership and talent teams followed, centred on identifying the problems arising from the effects of the culture boundary in VWEs and on ascertaining the extent of those problems. After this groundwork, came two rounds of semi-structured interviews (20 in total) with employees. While these interviews were not audio-recorded, researchers took thorough notes during each one. Throughout the alpha and beta cycles of the ADR process, the paper's second author collected data through a mix of regular workshops involving the leadership and the talent team, workshops with the company's graphic design team, face-to-face verbal feedback and online written feedback solicited company-wide and brief supplemental interviews with individual workers and the leadership team. Jointly with a Smartly.io colleague, the second author was responsible for arranging the above-mentioned events, which were held in Helsinki.

During the workshops and interviews, she took extensive notes on the content of the discussion. Also, the personal observations of the researcher working at Smartly.io were recorded. The online feedback provided by the employees in the various stages in the process was recorded in a Google Forms database, and ancillary material was obtained from Flowdock chat logs and e-mail messages. In the follow-up interviews conducted 2 years after the end of the project to gather reflections of Smartly.io employees on organisational culture and the artefact, we spoke with seven employees, gathering opinions from both new hires and long-time employees, at several levels and in different teams. Table 2 summarises the key data-collection events. With the stage thus set, we next turn to the four phases in our ADR process (cf. Sein et al., 2011), delving more deeply into the process and presenting its outcomes.

### 3.3 | Formulation of the problem

The impetus for the ADR process came from real-world problems faced by Smartly.io. The company was seeking to mitigate negative effects of the VWE with regard to organisational culture. Mirroring the description by Sein et al. (2011), the input for the ADR process's first stage - problem formulation - came chiefly from practitioners (leadership and talent teams) and end users (employees). The project was started by the leadership team of the company. The second author of this research paper was a part of the talent team that led the project. She initiated the research

**TABLE 2** An overview of the data-collection process

Month	Events	Data sources
March 2017	Problem-formulation development workshops with company leaders and the talent team	Meeting minutes and the researchers' notes and observations
	Twenty semi-structured interviews, with 12 selected employees and the leadership team (CEO, CTO, COO, and Chief Product Officer) and talent team	Interview notes
April 2017	A series of workshops with the leadership team	Meeting minutes and the researchers' notes and observations
	A company-wide event devoted to discussion of the company's culture code	Notes and observations from the discussion generated at the event
	Distribution of a form to all employees for open-ended feedback	Thirty completed feedback forms
May 2017	A series of workshops with the leadership team	Meeting minutes and the researchers' notes and observations
June 2017	Interviews with selected employees to collect narratives for the information artefact	Interview notes
	Open-ended collection of feedback from the leaders, selected employees, and talent team	Written feedback delivered via Flowdock and e-mail
July 2017	A series of workshops with the leadership team	Meeting minutes and the researchers' notes and observations
August 2017	Open feedback collection covering the entire company	Sixty written comments
	A workshop with the leadership team	Meeting minutes and the researchers' notes and observations
September 2017	A series of workshops with graphic designers	Meeting minutes and the researchers' notes and observations
November 2019	Interviews with employees to assess the impact of the organisational culture handbook	Audio-recorded interviews
	Seven semi-structured interviews, of the COO, the organisational culture handbook lead, and five others (e.g., customer success managers)	

part of the project, engaging the rest of the research team to it. Jointly with the leadership team, the talent team and selected group of employees, the researchers identified, demarcated and conceptualised a research opportunity in accordance with existing theories (Hevner, March, Park, Ram, & Ram, 2004).

To facilitate and manage the rapid growth in both personnel numbers and geographical coverage, the management felt that they needed to minimise the likelihood of discontinuities arising from the highly virtual work setting. Support for drawing together the symbolic and pragmatic sides of organisational culture throughout the company was perceived as a key route to this. A major threat of discontinuities emerged from the fact that the Smartly.io organisational culture had thus far developed through shared personal stories and experiences of employees working side by side in the same location (for at least a little while). Transforming these stories and experiences into explicit knowledge that could be effectively shared on a much larger scale was seen as daunting. Early on, when Smartly.io

was small and largely collocated, the symbolic and pragmatic components of its organisational culture were closely connected. The declared values of the organisation emerged from pragmatic actions by the first employees and the founding managers. For example, the paradoxical-seeming Smartly.io practice of **engineers selling and salespeople coding** was rooted in the context of a small start-up in which all employees participated in pretty much all the tasks. This practice later translated into symbolic values such as full-stack people, entrepreneurial attitude and maximised learning. To the earliest employees at the Helsinki office, who experienced that stage of Smartly.io's development to at least some extent, these symbolic values corresponded to specific pragmatic actions. For newer employees in remote locations, however, the connection between the symbolic values and pragmatic actions was significantly weaker. Smartly.io could not take for granted that the "entrepreneurial attitude" declared value (under which engineers participate in the sales process) would make sense to new employees.

Yet the company wanted to retain a bottom-up approach to the development of its organisational culture, wherein that culture is rooted in the pragmatic reality experienced by all employees, in all locations, rather than rely on a grand vision of the leadership team alone. As extensive face-to-face contact became less and less feasible within this growing, globally distributed virtual organisation, Smartly.io started seeking ways to create an information artefact capable of capturing the actionable essence of its organisational culture and sharing this with all employees, irrespective of location.

Our ADR project was an outgrowth of these efforts. Accordingly, the leadership team members were determined to be highly involved in the project to maximise the support to the researchers.

### 3.3.1 | Origins of the problem

From the very start, the Smartly.io leadership focused on creating an organisational culture that reflects the values of those working at the company and provides guidance in ways of working at Smartly.io. Moreover, the managers perceived organisational culture as a cornerstone of success that helps a company to attract and retain both talent and customers. In Smartly.io's early days, the vision of the founders and the first employees served as the foundation for the organisational culture. However, it has been evolving in new directions ever since, as new people join the company and other changes occur. Hence, the organisational culture of Smartly.io is seen as a reflection of the current state of the company.

One of the staples of Smartly.io's organisational culture is the flexibility with which employees may choose their work times and location. They value this flexibility greatly for the extensive freedom it permits and for an enhanced sense of ownership over their work. With the growth in remote work and extensive travelling between the company's offices, work processes and communication are moving online. This transition has led to a reduction in face-to-face socialisation.

While increasing virtuality is seen as a core aspect of the organisational culture, it does not suffice. Among the instruments utilised to maintain a high level of engagement between Smartly.io employees are weekly company-wide meetings, for all the offices. These were implemented via videoconferencing, to allow real-time participation from multiple locations. As the number of employees and the range of time zones soared, however, it grew impossible for all the employees to be present at any single weekly meeting. Some of them had to start watching a recording of the weekly meeting after the fact. With fewer and fewer meetings being conducted exclusively face-to-face within Smartly.io, the company started to see boundaries emerging between people working at separate locations. While there has not been a "burning platform" moment related to organisational culture discontinuities, the leadership team did observe some early warning signs. For example, some employees in particularly remote locations felt isolated, and misunderstandings and conflicts sprouted from deficiencies in online communication. Also, some remote teams had been misinterpreting the declared values of Smartly.io, which evidences a widening gap between the symbolic and the pragmatic component. For example, these teams implemented principles of task ownership, customer-orientation and proactivity by establishing strict vertical hierarchies and reporting structures, which went

against the unspoken principle of Smartly.io having a flat organisational structure. This is why it was seen as crucial to initiate the creation of an organisational culture handbook as a planned continuity (Watson-Manheim et al., 2012) for supporting organisational culture synthesis and ensuring that all employees can communicate across culture boundaries without significant negative effects compromising their work.

### 3.3.2 | The organisational culture documentation before the project commenced

Not long after the company was established, its leadership team undertook to document the Smartly.io organisational culture, to enable explicating it for employees (new and old) and external stakeholders alike. It is important to note that among the personnel in the early days of Smartly.io were the company's current leadership team. Hence, while the initiative to document the organisational culture originated within a "leadership" body, this was not a top-down process, particularly as the organisational structure was rather flat. As is demonstrated by the example of engineers selling and salespeople coding, there was overlap between the symbolic and pragmatic sides of organisational culture - employees had a tacit understanding of the declared values' implications for pragmatic action. For the company's successful expansion, however, it saw explicitly communicated organisational culture as vital. At the same time, Smartly.io recognised that organisational culture does not stay constant; continuous development is required as a company grows.

To tackle this challenge, Smartly.io developed a **culture code** in its early days, expressed through taglines, a sort of shorthand representation of the main principles of the organisational culture. Each tagline was accompanied by an explanatory sentence or two. This was an attempt to explicate the symbolic side of the organisational culture to audiences beyond veteran employees and the management. The culture code's version 1.0 featured six taglines, slogans intended to summarise the key elements of the Smartly.io organisational culture (see Figure 2). These taglines were designed to represent an explicit summary of the company's symbolic organisational culture.

Notwithstanding its reasoned approach, the company faced challenges with the code. Operating on the assumption that employees would be disinclined to read extensive documentation on organisational culture, the leadership

<b>Humble Hungry Hunters</b> <p>We are both super ambitious and super humble. Our team is building a world-class product, and we know the only way to do this is by truly helping our customers. We are great to work with because everyone is kind, hardworking and trustworthy.</p>	<b>Entrepreneurial Attitude</b> <p>Everyone is an owner and can make decisions. We foster insane transparency by sharing information openly so that we all get a broader understanding of what we're working on and why it's important. We're a growth company with a startup spirit.</p>	<b>Fullstack People</b> <p>Every Smartlie understands and knows the product. We are all "T-shaped" with deep skills in one area combined with a drive to collaborate across disciplines.</p>
<b>Close to Customers</b> <p>Our company was born and inspired by the needs of customers. We believe our continued success will depend on understanding customers' needs and making sure we add value. This is why all Smartlies do customer support regularly.</p>	<b>Maximize Learning</b> <p>Our business environment moves fast. We see this as huge opportunity to learn and develop quickly - as a team and as individuals. For us, it's not only how fast you learn, but how fast you can teach others. We seek feedback from colleagues, customers, partners, everyone.</p>	<b>Get Stuff Done Smartly - GSDS</b> <p>All of us are doers and ready to get our hands dirty. If we see something is broken, we fix it. We believe in working smarter, not harder - if you want to get 10x better in what you do, simply working more hours is not the way.</p>

**FIGURE 2** The Smartly.io culture code, version 1.0

### Humble Hungry Hunters

We want to be the best in the world in what we do — building a world-class product and service for our customers. The only way to succeed is to be very humble towards our customers and teammates in asking for and listening to feedback. We're hungry to maximise learning and teach others around us.

### Everyone is an Owner

We foster transparency and trust all Smartlies to make smart decisions that benefit the company in the long run. Smartly.io is run by strong teams with the autonomy and responsibility to define how we reach our shared goals. At Smartly.io, nothing is someone else's problem — we're all doers with an entrepreneurial attitude.

### We're All Full Stack

We're all T-shaped with unique deep skills in one area combined with a drive to collaborate across disciplines. Every Smartly deeply understands our product and the customers' pain points — allowing us to truly help our customers and stay ahead of the curve. At Smartly.io, everyone does customer support regularly to keep up with the evolving tool and customer needs.

### #WorkSmartly

We believe that if we want to be 10x better in what we do, simply working more hours is not the way — we must focus on impact. We automate the repetitive manual work for both our customers and ourselves to maximise the output. Working smarter, not harder, allows us to nurture a healthy work-life balance and support well-being within the team.

**FIGURE 3** The culture code in its second major version

team had deemed a **brief** culture code necessary. That was the rationale behind the decision to settle for taglines with short descriptions. Despite this, feedback on culture code v. 1.0 overwhelmingly indicated that the six taglines were hard to remember and apply in everyday work. Employees could not link the symbolic component of organisational culture (the taglines and descriptions) to the pragmatic one (actions related to day-to-day work tasks). In other words, the values communicated in the document lacked actionability. This disconnect led to problems such as the abovementioned tendency toward strict vertical hierarchies in the remote teams and lack of clarity as to the boundaries of one's work tasks.

In response to this feedback, the next release of the code, version 2.0, used only four taglines. Additionally, the descriptions were rewritten in an attempt to render them easier to remember and act upon. Figure 3 shows v. 2.0 of the culture code.

After the new code's introduction and dissemination, both the leadership team and rank-and-file employees realised that the issue, in fact, lay not in the number of taglines but in how to understand and interpret the meaning behind the taglines. The leadership team concluded that organisational culture includes a layer of tacit assumptions, as identified by Schein (2010) and others that are hard to communicate explicitly in a tagline coupled with a short written description. If anything, the reductionist approach to organisational culture opened a door to misunderstandings, various unintended interpretations and neglecting of the code altogether. Clearly, the mere simplified explication of the symbolic component did not give remote employees improved tools for pragmatic action. This realisation is consistent with Swidler's (1986) argument that declared cultural values matter only to the extent that they can be applied in practice. Awareness of these factors led the leadership team to acknowledge a need to develop the company's culture code further. With the objective of accommodating the expanding geographical presence and increasing presence of virtuality, a decision was taken to design a scalable artefact to afford continuity across the culture boundary. With the aim of bridging the gap between the existing symbolic values and the actions chosen among the ever-expanding set of workers, Smartly.io thereby sought to document rapid developments in its organisational culture and to provide a substitute for socialisation: a scalable solution to support synthesis of the symbolic and pragmatic among new hires and existing employees alike.

**TABLE 3** The initial and practical view of a VWE's organisational-culture-related challenges

Initially identified challenges	The practical view of the challenges
Challenge 1: To be relevant, cultural values need to provide actionable guidance to the members of the organisation.	Challenge 1: How to externalise the existing organisational culture's inherent tacit assumptions as actionable behavioural guidance?
Challenge 2: The evolving nature of organisational culture requires dynamic resolution of organisational-culture-related discontinuities.	Challenge 2: How to ensure that the cultural artefact represents current pragmatic beliefs of all employees, throughout the growing virtual organisation?
Challenge 3: The lack of regular face-to-face interaction in virtual organisations undermines the socialisation process, thus hindering formation of a true organisational culture.	Challenge 3: How to create a scalable and shareable artefact to support the socialisation process across different employee contexts?

### 3.3.3 | Conceptualisation of the problem

The first step in defining and externalising organisational culture is to describe the key concepts explicitly. This process of explicating organisational culture is challenging even in fully collocated organisations (Willcoxson & Millett, 2000), where negative effects of virtuality are absent. Therefore, it was especially important for Smartly.io to clarify and render explicit its organisational culture in a manner that could support both the rapid growth and increasing virtuality. It was evident that the artefact created through the ADR project must be clear, coherent and actionable.

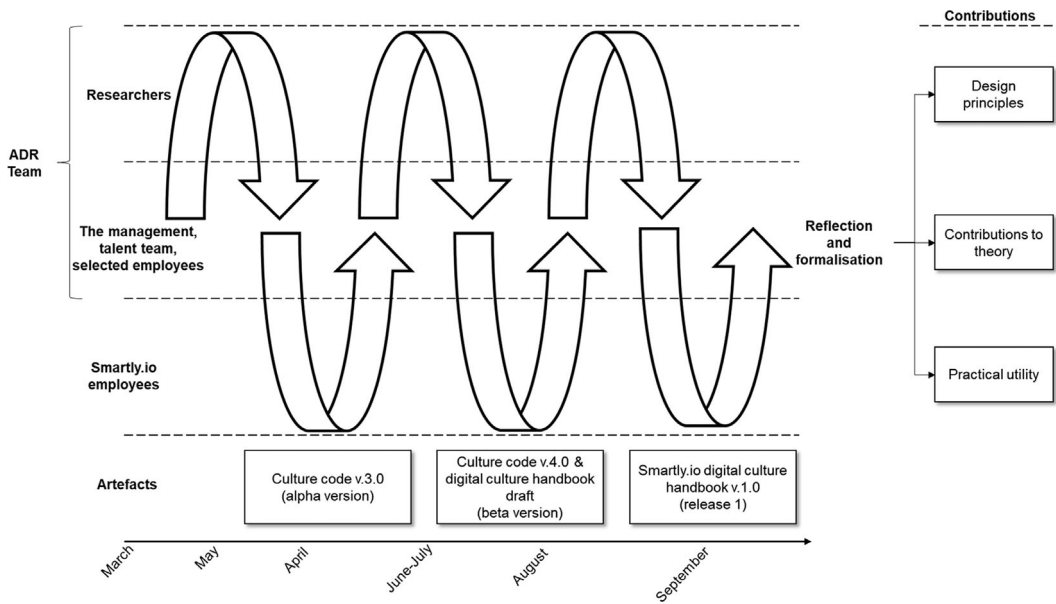
The second aspect of the problem was identified as that of making sure that the organisational culture articulated reflects all employees of the company. With the increase in geographical spread and the great diversity in employees' cultural background arose a danger of the company's declared organisational culture lagging behind developments within the company. A representation tightly bound to the company founders' desires and the context of its Helsinki headquarters may not be relevant for the reality of remote employees embedded in other environments.

The third hurdle found involved ensuring that the information artefact is scalable and shareable. After all, Smartly.io had grown to such a point that thorough face-to-face socialisation supported by simple documentation (ie, by the culture code) was no longer viable. The company was looking to create a substitute for socialisation, so as to replace or supplement the more traditional face-to-face socialisation process.

Together, these three challenges formed a mighty obstacle to Smartly.io's minimisation of the negative effects of traversing the organisational culture boundary that are encountered by dispersed individuals. The company was already examining possible ways to eliminate conflicts resulting from misinterpretation or misunderstanding of company values and ways of working at Smartly.io. We carried this work further after having conceptualised the abovementioned central problem facing the company: armed with information specific to the case company, we updated the framework of organisational-culture-related challenges informed by our literature review outlined in Section 2.3. We present both views below, in Table 3, which summarises both the challenges as initially identified and the updated practical conceptualisation of them. In the following section, we describe the intervention cycles of the artefact's development, the next phase in the ADR process.

## 4 | THE INTERVENTION CYCLES

After problem formulation, we proceeded to the second phase, the Building-Intervention-Evaluation (BIE) process (Sein et al., 2011). In light of the nature of the problem, we opted for what is known as organisation-dominant BIE. This approach suited our project well because the primary source of innovation here was to be found in



**FIGURE 4** The Building-Intervention-Evaluation process

organisational intervention rather than a new technological design (Sein et al., 2011). The interventions carried out in the project provide insight into how the artefact was constructed.

The BIE process was divided into an alpha and beta cycle (see the Figure 4). The knowledge-creation target for the project was defined, with the ADR team agreeing that the end goal of the project was to be a coherent and comprehensive digital organisational culture handbook to explicitly document the Smartly.io organisational culture and support the synthesis of its symbolic and pragmatic sides. The rationale behind choosing this form for the artefact was that a digital organisational culture handbook can be used via the company intranet and in other virtual communications. The objective with this was for the information and its documentation to exist in a format amenable to virtual utilisation on all devices.

## 4.1 | The alpha cycle

The alpha cycle focused on redefining the culture code (the taglines with associated descriptors) to serve as a more effective substitute for socialisation, for narrowing the gap between the symbolic aspect of organisational culture expressed in existing documentation and the pragmatic component represented in action by the company's current employees. This cycle was aimed also at developing the culture code in line with the notions of symbolic-pragmatic organisational culture (Giorgi et al., 2015; Patterson, 2014) and the SECI cycle (Nonaka, 1994), presented earlier (see Figure 1 ). The alpha cycle was composed of three main stages: (a) redeveloping the culture code to address the problems identified, (b) gathering feedback on the new culture code from employees across the organisation and (c) evaluating the results and updating the code.

### 4.1.1 | Redeveloping the code

After the problem-formulation stage, it was evident that the core of the culture code needed to be redefined before we could proceed to the release version of the artefact. Outputs from that stage (findings from interviews and notes



**FIGURE 5** The culture code, v. 3.0

from the workshops with the ADR team) were taken as input for the updated code, version 3.0. The most interesting finding from the interviews was that no interviewees outside the leadership or talent team were able to remember all of the taglines from the current culture code (v. 2.0), even though there were only four of them. When asked to describe the Smartly.io organisational culture in their own words, however, the interviewees mentioned all of the main points from the culture code, just in a different order and with different terminology.

We found also that interviewees encountered difficulties in explaining what particular taglines mean in practice. For instance, when considering tagline 1, “Humble Hungry Hunters,” many struggled to identify a substantive difference between being hunters and being hungry. In addition, there were subtle differences in perceptions of the words. For example, to employees in the US, “humble” implied being non-assertive, while workers in Finland found it to mean being respectful and conscientious. Similarly, it was unclear to some employees whether the third tagline, “Everyone is an Owner,” refers to ownership of one’s work or, rather, the fact that all employees, by having stock options, were literally owners of the company. Furthermore, interviewees were unsure of whether the culture code’s taglines were presented in order of priority. Employees felt that there was a clear need to make the code relatable to practice.

From this input, the ADR team determined that the key challenge was to facilitate easy understanding of the meaning behind the taglines and improve the presentation of the culture code. The focus here was on the process of externalisation (Nonaka, 1994; Nonaka & Toyama, 2003) - in other words, converting tacit symbolic organisational culture into explicit values that then represent actionable ideas. The objective for the first draft of v. 3.0 was to generate short but still self-explanatory taglines articulating the desired organisational culture rooted in the current company environment. Figure 5 and 6 shows the results. The draft was developed over several iterations within the ADR team. One of the important changes made in presentation involves replacing the boxes originally used, whereby all parts were illustrated as equal. In the new approach, “Humble & Hungry” was made central. This presentation identifies it as a statement of identity for the employees of Smartly.io.

#### 4.1.2 | Gathering feedback

The next stage in the alpha cycle was to obtain input from a wider range of employees. Guided by a symbolic-pragmatic view of culture (Patterson, 2014) under which we wanted to facilitate interaction between the symbolic and pragmatic component, a decision was implemented to present the new culture code at a dedicated company-wide event: Cultur.io. At the event, employees would be exposed to v. 3.0, internalising it to some extent and providing experience-based feedback externalising their vision of the Smartly.io organisational culture informed by day-to-

**FIGURE 6** The release version of the Smartly.io culture code, v. 4.0



day experiences. The aim was to reveal possible mismatches between symbolic and pragmatic organisational culture and use the feedback to improve and update the artefact.

The first event of its kind arranged by Smartly.io, Cultur.io had the explicit purpose of soliciting feedback on the new version of the culture code and helping to set the direction for the development of the new artefact. Cultur.io was arranged as a full-day event with the talent and leadership teams in charge of the content. One part of the programme was a presentation on the redefined culture code, which included explaining the story behind each of its components. An event of this nature was seen as the best setting for introducing, discussing and getting feedback on the culture code, since most end users would be present.

Upon completion of the draft version of the culture code, the document containing the code was uploaded to the Google Drive service. At this point, it was a simple black-and-white image accompanied by unadorned textual explanation of the code (in response to input from Smartly.io employees, a decision was later taken to update the code's visual language). One week in advance of the Cultur.io event, the link to the document was shared with all employees of the company through Flowdock. They were asked to peruse the document before Cultur.io and prepare for providing feedback at the event. Also, the employees were informed that the culture code would be presented in greater detail there.

Accordingly, the leadership team presented the culture code's v. 3.0 to an audience composed of nearly everyone employed by the company at the time. Time was allocated for discussion and feedback, during which the ADR researcher from the talent team took notes on both the discussion and all comments put forward by the audience. After group discussion of the code, employees were given time to submit anonymous feedback and suggestions by means of an online form. In all, 30 response forms were completed.

#### 4.1.3 | Evaluating the results

After the event, the ADR team went through the anonymous comments, the researcher's hand-written notes and the discussion generated by the event in the Flowdock system. There was a large amount of feedback, both positive and negative. Several suggestions were put forth for consideration. On the positive side, the code's new layout, with "Humble & Hungry" at the centre of the graphic, was received well. There was consensus that this clarified the relationships between the various taglines. On the other hand, employees suggested that the taglines themselves still needed changes. First, many felt that the code did not encompass learning, which they considered essential to the organisational culture. The following anonymous employee comment is illustrative:

It would be valuable to raise (briefly) how we learn - e.g., have open all-hands discussion [or] retro [spective]s in teams with openly shared notes. People proactively bring the bad news and share it with others - "bad news is good news."

Secondly, employees noted that, while shorter, the new taglines were also harder to remember, on account of being overly generic and not communicating the specifics of the Smartly.io organisational culture well. For example, switching from "#WorkSmartly" to "Drive for an impact" was criticised. Several employees indicated the latter to be vague and stated that it is hard to understand the meaning of the word "impact" in this context. The overall impression was that such terms left even more room for misunderstanding than the previous iteration had.

The ADR team organised a series of workshops to integrate the feedback for an updated version of the culture code and iterate to a finished product. This served as a process of internalisation of explicit feedback to the symbolic organisational culture. The team had attempted to fill the gaps between culture code v. 3.0 and employees' experience of organisational culture. In all, there were five iterations before the release version of the culture code, v. 4.0, was ready. This version presented in Figure 5 and 6. The release version of the Smartly.io culture code v.4.0., features six taglines, among them "Maximize Learning" - brought back from the code's first major version. Others were rephrased yet again, on the basis of the feedback received from the employees.

It was also suggested that the taglines should be accompanied by memorable visualisations. For example, one piece of anonymous feedback was "Can we somehow visualise our values and not just have 'taglines' that are easy to forget?"

Working from the feedback, the team elected to apply visual styling to the code for greater readability and memorability. While the company does not have designer resources available for internal communication, this artefact was seen as so critical for the whole company that the visual aspect of the handbook was prioritised. It was deemed an important part of adding relevance for the end users. In addition, the descriptors were rewritten (as shown in Figure 7), with visualisations added to create a visual reference for each descriptor. The culture code's latest version was uploaded to the company intranet and shared with all employees.

Creation of v. 4.0 concluded the BIE alpha cycle. The ADR team learned three key lessons. Firstly, visualisation of the culture code can have a positive impact on how people perceive and understand organisational culture. The second lesson came from employees finding that broader contextual explanations would do more for understandable and memorable expression of the organisational culture than taglines and descriptions can, irrespective of the length of the explanations. Third, employees felt that learning is integral to the Smartly.io organisational culture and the company's day-to-day operations.

With the alpha cycle having laid the foundation for creating a full-fledged digital artefact communicating the Smartly.io organisational culture, it was decided that the beta cycle would focus on developing a digital handbook designed to expand the code beyond taglines and descriptors.

## 4.2 | The beta cycle

The beta cycle focused on creating the first draft of a digital organisational culture handbook, which would complement the culture code developed in the alpha cycle with stories, descriptive examples and guiding principles to clarify the meanings behind that code. In addition, there was a decision to extend the handbook to cover topics such as recruitment, compensation and product-development philosophy. This extension was aimed at presenting the culture code in the wider context of day-to-day activities. While the beta cycle too was informed by a symbolic-pragmatic view of organisational culture, this cycle brought in attempts to address issues and recommendations emerging from practice. The beta cycle had the following stages: (a) identifying topics for the organisational culture handbook, for giving context for the culture code; (b) collecting experience-based narratives from employees throughout the company; (c) distributing the handbook to all employees for their feedback and (d) evaluating the results and delivering v. 1.0 of the handbook.



**FIGURE 7** The final descriptors for version 4 of the culture code

#### 4.2.1 | Identifying topics for the organisational culture handbook

A dedicated workshop was held with the leadership team to identify areas for focus and the topics to be addressed by the handbook. The feedback gathered from the employees during and after the Cultur.io event served as the main foundation for the discussion. On the basis of this discussion, a tentative list of topics was generated. This is presented in Table 4.

The topics in this table cover a wide range of issues, extending far beyond the immediate domain of organisational culture. The goal was to address the broader context in which organisational culture carries over to practice throughout various processes in the organisation, thus connecting the declared values from the culture code to the behavioural toolkit. The extensive range of issues to be covered in the organisational culture handbook also responded to the feedback from the alpha cycle about the difficulty of understanding and applying the culture code

No.	Topic
1	The Smartly.io culture code
2	What Smartly.io does
3	The Smartly.io team
4	How Smartly.io builds the product
5	How Smartly.io works with the customer
6	How Smartly.io hires and rewards employees
7	Smartly.io transparency in practice
8	Smartly.io leadership philosophy
9	Smartly.io's history and roadmap
10	The future of the industry and Smartly.io

**TABLE 4** The tentative list of topics for the organisational culture handbook

in day-to-day activities. At the same time, the ADR team wanted to prevent the handbook from becoming a set of guidelines for specific routine behaviour, as that was not their objective. For example, it was decided to exclude practicalities related to remote-work tools or acceptable conduct in a highly virtual work setting. The rationale here was that such a level of detail would distract the reader from the main focus, the Smartly.io organisational culture, while adding little value. In addition, materials covering such practicalities were already available to employees.

4.2.2 | Collecting experience-based narratives for the handbook

To complete the handbook, the researcher on the ADR team interviewed employees selected to represent those whose views are most relevant with regard to particular topics. One or two people were interviewed for each topic. The interviewees were picked from across the company on the basis of expertise and experience related to the given topic. The interviews yielded input on what to address in the respective sections of the handbook. In addition, content was collected from sources accessible on the company's intranet and via the embedded ADR team member's observations and knowledge about the topic at hand. The talent team created a draft for the handbook, combining the culture code and the new content. Then, this was distributed to the leadership team and the people interviewed, with all recipients being asked to provide comments and feedback.

The most significant suggestion emerging from this feedback round was to include quotations not just from employees and collaboration partners but also from customers, to elaborate on and contextualise the handbook's content. The statements would provide multiple perspectives on each aspect of the Smartly.io organisational culture and attach a name and a face to every viewpoint, thereby engaging the reader further. Most of the quotations were obtained from the interviews conducted during the beta cycle. In addition, customer and partner quotes and stories were gleaned from data that the company had already collected, mainly for marketing purposes. After the stories and quotations were collected, the content for the handbook was shared with the leadership team once more. Two iterations of comments and editing followed, to form the first complete draft of the handbook.

4.2.3 | Distributing the draft and collecting feedback

After completing the first full draft of the handbook, the ADR team uploaded it to Google Drive and, via Flowdock, invited all employees to offer edits for the document and make comments. The goal was to expose employees to the artefact and allow them to interpret and internalise its content. In total, 60 written comments were submitted at this stage. The following anonymous comment represents this mix of suggestions as to wording or style and general notes on the handbook's content and structure:

The titles are in different moods ([https://en.wikipedia.org/wiki/Grammatical\\_mood](https://en.wikipedia.org/wiki/Grammatical_mood)): some are imperative (Maximize learning, Work Smartly), some indicative (We're Close to Customers, We're All Full Stack, Everyone takes ownership). Using only one [mood] might add cohesion and make them more punchy!

There were still comments on aspects of the company's organisational culture that were not represented. For example, comments such as this one noted that the approach taken in various sorts of contexts, while an important part of organisational culture, was not really communicated in the handbook:

The people-first approach that we have in the company initiatives does not really show here in the text yet. Maybe we need some other sections to explain our approaches for different topics?

Moreover, some noted that the stories highlighted in the handbook were too polished and too perfect. Such stories disregard the difficult parts of the job, which are an equally important part of the Smartly.io organisational culture.

Also, there are many buzzwords, which need explanation outside the company. Not sure if this part is clear to a reader outside Smartly.io. Could examples be formulated in a more realistic way? It sounds too perfect and exhaustive; for example, giving feedback is always hard in reality.

In parallel with collection and analysis of that feedback, the ADR team held a set of workshops with graphic designers to finalise the layout of the handbook and convert the conceptual-level visual elements into professionally designed charts and infographics. The employee feedback on the handbook's content and structure was fed in to the designers' work, for iterative development of the design.

#### 4.2.4 | Evaluating the results

The beta cycle highlighted the importance of the engagement between employees and the leadership team in articulating the Smartly.io organisational culture. The cycle also demonstrated the utility of building an artefact that represents synthesis of the symbolic and pragmatic components of organisational culture. Earlier versions of the culture code were created by only Helsinki-based Smartly.io employees. Therefore, involving personnel who work across geographical locations proved useful for capturing features of the organisational culture that were perceived as important by a larger pool of employees. Also, the ADR team learned that such an organisational culture artefact as the one developed in the project should present not just the context for an action but also a realistic image of what it is like to act within the relevant organisational culture.

With all comments having been processed, the content was edited into its final form and once again the handbook was cross-checked with the leadership team. Once the content had thus gained its final form, it was shared with the designers and work on the finished design commenced. There were three workshops with the designers for commenting on the visual elements, checking their status and setting the content in its finished form for the final formatting. When editing was complete and the graphics were ready, the handbook was shared throughout the company via Flowdock and added to the company intranet so as to be accessed readily.<sup>3</sup> It was also released internally through a presentation at the next weekly meeting.

### 4.3 | Follow-through from the ADR project

To evaluate and reflect on the impact of the handbook on Smartly.io's organisational culture, we conducted the series of follow-up interviews in November 2019. At the time of these follow-up interviews, approximately 2 years

after the initial release of the handbook, the company had grown to approximately 350 employees. The interviews revealed four main uses for the digital organisational culture handbook. (a) It was available to employment candidates before and during the recruitment process, thereby alleviating some uncertainties and concerns that a job-seeker might have with regard to the company and its ways of working. (b) Recent hires at Smartly.io were using the handbook to facilitate their integration into the company early on. (c) The handbook was being updated frequently, with these updates prompting fruitful discussion among employees. This led, in turn, to feedback informing the update process. (d) The handbook appeared to have found use in employee-management interactions to facilitate discussion.

Therefore, we can state that the handbook is actively used in the various stages of recruitment to educate potential recruits on the organisational culture and inform expectations. At the same time, the handbook appears to serve as a filter, deterring candidates with radically different values from pursuing opportunities with the probably incompatible Smartly.io. Hence, while the handbook is designed to reflect the current organisational culture of the company, it also serves as a means to reinforce the current set of values. This could be considered contrary to the original goal of organic development of the organisational culture, but at the same time it can be seen as working in pursuit of the goals set at the start of the handbook project.

When prompting interviewees to reflect on their perceptions and attitudes related to the handbook, we learned that, among Smartly.io employees, it was something to “internalise and act upon, rather than something to bring up in conversations with your team,” in the words of one customer success manager interviewed. New hires and veteran employees alike found the handbook to be a fairly accurate reflection of the organisational culture, although some aspects of that culture, such as trust and ownership of the work, did appear more fully embedded than others in daily operations (ie, the pragmatic side of organisational culture).

It appears that employees with a longer tenure who participated in the original creation of the handbook differed from newcomers in their attitude to the handbook. Older staff appeared to feel ownership of the organisational culture outlined in the handbook, while newcomers felt that they were adopting an existing organisational culture, even if able to contribute to the handbook's further development. For instance, one of the customer success managers was not sure whether particular values and ways of working emerge naturally from practice at the company or are just “made up” to facilitate a specific behaviour. The influx of new employees has slightly changed the underlying meaning of particular values through reinterpretation of taglines and descriptions. Simultaneously, at least some of the older employees expressed a “things aren't what they used to be” sentiment. Therefore, while the objective is still for the handbook to be a **living** artefact that augments the pragmatic and symbolic components of organisational culture and supports paths between the two, we detected the emergence of old-timers vs newcomers dynamics (Moreland & Levine, 1989) and a set of reified patterns with regard to the organisational culture.

In some cases, subcultures emerged organically in smaller national units. Among the features of these were particular remote work practices (eg, certain typical working hours) and social activities. These appear to be an outcome of open interpretation of the symbolic components of organisational culture, wherein employees were adjusting the Smartly.io culture to pragmatic reality. The subcultural elements do not always bubble upstream to the organisational culture handbook, since local contexts are perceived as context specific.

We concluded that the handbook succeeds in serving as a bridge between the symbolic and pragmatic component of organisational culture and that the constant process of updating the handbook seems integral to this bridging. Yet the handbook also seems to carry an aspect of reinforcing the *status quo*, on account of Smartly.io veterans having a stronger sense of owning the handbook than newer ones do. In consequence, the handbook might not serve as a “melting pot” of organisational culture so much as a factor that tends to enforce the existing organisational culture notwithstanding the intrinsic feature of the capability to give feedback on it.

#### 4.4 | Research team reflections on the ADR project

The overarching practical objective of the case company was to support synthesis between the symbolic and pragmatic components of organisational culture as the company expanded in personnel numbers and virtuality. In its early stages, the organisational culture at Smartly.io emerged from the practices of a small, tightly knit group of employees. At that stage, the symbolic and pragmatic components of the organisational culture were closely aligned. With growth, the company's management saw the gap between the symbolic and pragmatic sides of organisational culture grow, as newcomers introduced new practices and new ways to interpret the declared values of the organisation (as with the emergence of vertical hierarchies to enforce certain behaviour). The management wanted to ensure close alignment between the symbolic and pragmatic components of the organisational culture, and they understood from the outset that realignment was required on both ends. The managers appeared unwilling to enforce a common organisational culture top-down, so the core goal was to create a continuous process to negotiate the new common ground among all employees, distributed all around the world.

To support the desired synthesis, so that the Smartly.io organisational culture reflects the views of all employees, the company decided to create a living artefact to act as a conduit for realignment between the symbolic and pragmatic components. The idea was to create a widely applicable artefact to communicate the company's declared values yet at the same time give actionable ideas to employees that correspond with the pragmatic reality in which those employees are situated. The artefact was intended to serve both as a source of information and as a means for all employees to participate in shaping the organisational culture in accordance with their real-world experience at the company.

In an approach consistent with the principles of ADR, the authors of this paper were involved in the development of the artefact. In particular, through the deep involvement of the second author, who was part of the talent team of Smartly.io, in the artefact's creation and the interventions reported upon, the researchers were able to provide methodological guidance throughout the process and analyse the results of the interventions. The theoretical underpinnings in organisational culture and virtual work discontinuities enabled the authors to make sense of the objectives for the project and, as it unfolded, the process of artefact development. Finally, a well-grounded framework dealing with the symbolic and pragmatic aspects of culture helped us to interpret the process of artefact design as a dialogue between the two components of organisational culture, with the goal of bridging the gap between the two.

## 5 | DISCUSSION

In this study, we sought to answer the question of how to construct an information artefact to support synthesis of the symbolic and pragmatic components of organisational culture and thus provide a continuity in VWEs. This artefact should function as a substitute for socialisation, designed to help the company prevent and overcome discontinuities of traversing the boundary between the two sides of organisational culture and thereby enable employees to take appropriate measures in situations wherein challenges associated with organisational culture might arise. Thus, the artefact was to serve as a planned continuity.

In our ADR study involving Smartly.io, we followed the guidance of Sein et al. (2011), with the process of producing the artefact (the digital organisational culture handbook) being realised through alpha and beta cycles in close collaboration between researchers and practitioners. Via our case study with a highly virtual organisation, we made three types of contributions as envisioned by ADR scholars (Baskerville et al., 2018; Sein et al., 2011): design principles, contributions to theory and practical enhancements in the form of user utility. Next, we discuss these contributions in detail.

## 5.1 | Design principles

From our synthesis of theory and practical problem analysis, we identified three distinct challenges arising from this project aimed at creating an information artefact to serve as a planned continuity on the culture boundary in a highly virtual work environment. These can be summarised as (a) how to externalise inherent tacit assumptions of existing organisational culture into actionable behaviour guidance; (b) how to ensure that the cultural artefact represents the current pragmatic beliefs of all employees, throughout a growing virtual organisation and (c) how to create a scalable, shareable artefact to support the socialisation process across diverse employee contexts. Following in the steps of Gregor and Hevner (2013), we offer a nascent design theory for supporting socialisation in VWEs, in the form of design principles. We identified three design principles, or DPs, as fundamental to designing an artefact that addresses these challenges.

**DP1** *Create an artefact in a format that is transferable, editable and findable.*

The design process at Smartly.io organically revealed that the outcome of the organisational culture handbook project needed to comprise a digital artefact. Digital artefacts differ from physical artefacts in that they possess certain unique properties associated with malleability of digital objects, among them transferability, findability, openness, editability and generativity (Faulkner & Runde, 2019; Kallinikos, Aaltonen, & Marton, 2013; Salovaara, Lyytinen, & Penttinen, 2019; Yoo, Henfridsson, & Lyytinen, 2010).

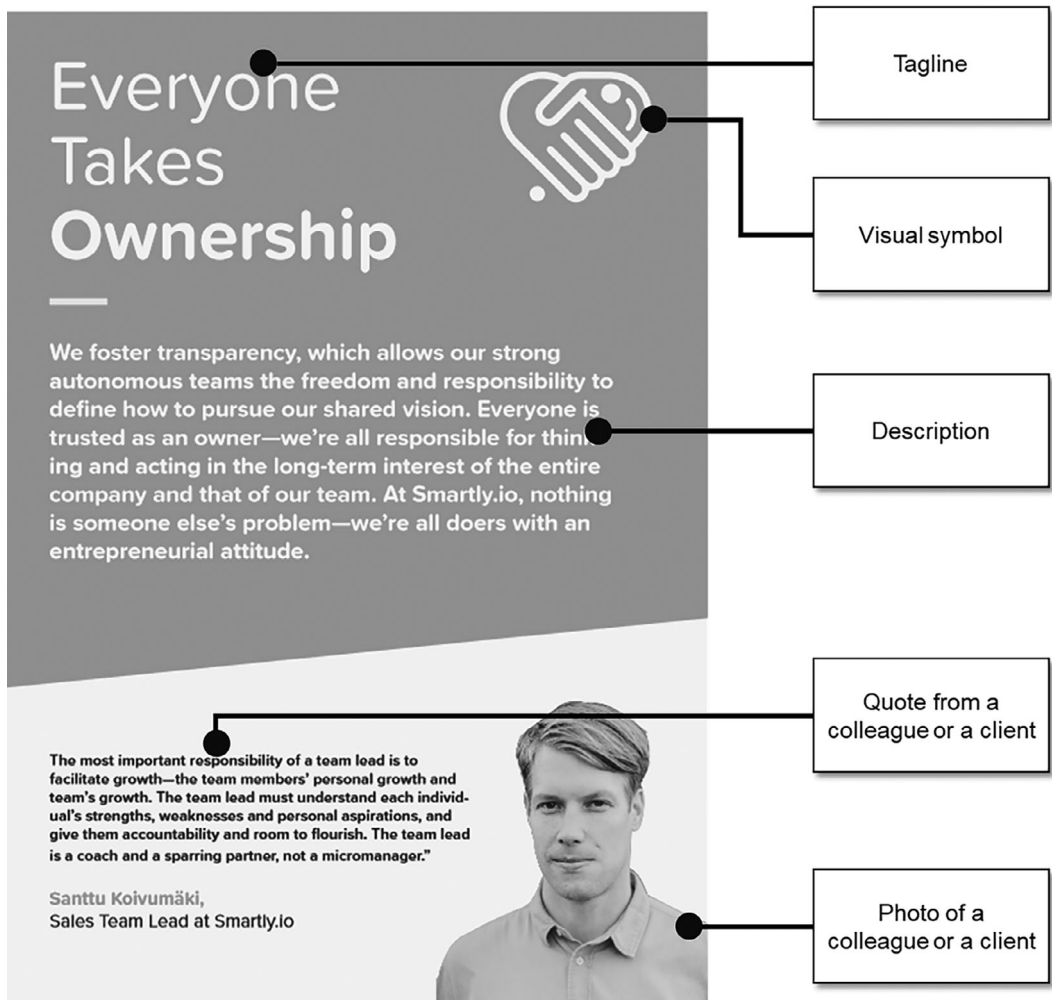
The main rationale for choosing a digital object as the form for the handbook was that the handbook needed to be used via the company intranet and other virtual communication channels (this justifies requiring transferability, findability and openness). The handbook also had to reflect the temporal changes in the Smartly.io organisational culture that arise from that organisational culture being an embodiment of the set of employees, a group that is undergoing rapid growth and, in tandem with that, change (this justifies demanding editability and generativity). In this context, it is important, in addition, to create a **living document**, which not only provides guidance with regard to expected behaviour but also offers the user an opportunity to contribute to its development (through due process) if the content of the artefact no longer is aligned with pragmatic reality.

The principle above (DP1) addresses the third challenge listed in Table 3. Through a digital artefact that is easy to transfer, edit and find, the company alleviated many risks pertaining to symbolic-pragmatic synthesis that emerge from the relative lack of possibilities for face-to-face socialisation and the inherent associated issues with scalability.

**DP2** *Utilise knowledge visualisation techniques and real-life stories to anchor the artefact to the wider organisational context and thereby support understanding of tacit aspects of organisational culture.*

The design process at Smartly.io points to the value of using intuitive, professional graphic design to assist with employee learning, remembering and understanding of the content represented by the artefact produced. With the organisational culture handbook, the principles of knowledge visualisation were implemented to this end. Unlike information visualisation, which is designed for effective representation of numerical and other factual data, knowledge visualisation is aimed at communicating experiences, instructions and underlying assumptions (Burkhard, 2005; Eppler, 2013). With the objective of augmenting the creation and transfer of knowledge in a collaborative setting, knowledge visualisation draws on visual symbolism (eg, photos, maps and drawings) to support rapid recollection, reasoning and communication of knowledge (Burkhard, 2005; Nonaka, 2008).

In addition to visualisation, the artefact was anchored in the context by means of stories and concrete examples of behaviour. The initial assumption that employees would prefer short, memorable taglines over lengthier narratives proved incorrect: throughout the design process, they emphasised the importance of context for enhancing their understanding of the pillars of the Smartly.io organisational culture and their ability to remember and act in line with the values embedded in the artefact. Moreover, stories and examples help to reinforce a perception that the values articulated by the artefact are presented through the prism of employees' lived experience, rather than a top-down



**FIGURE 8** An extract from the Smartly.io digital organisational culture handbook's v. 1.0

vision emanating from the management. This resonates well with the notion of organisational culture as a toolkit (Giorgi et al., 2015; Swidler, 2001).

The Smartly.io organisational culture handbook connects a vivid, easy-to-remember symbol to each of the key pillars of the organisational culture in order to capture the reader's attention. The symbols are positioned on a "map" that supplies an overview of the cultural landscape of the company. After this, the handbook provides a detailed explanation of each principle (Figure 8 gives an example). These explanations include further visualisations, such as photos of colleagues and clients, with featured quotations that anchor the pillar in practical terms. Making the photos and quotes visually distinct from the rest of the content offers the reader a visual shortcut (as the figure demonstrates). This calls to mind the knowledge-visualisation model proposed by Burkhard (2005), especially if one takes into consideration the iterative, participatory approach to the design process.

The second DP addresses the first challenge listed in Table 3. Utilising knowledge visualisation facilitates clear description of underlying tacit assumptions, improves learning and understanding of the relevant principles of the organisational culture, and thereby enables employees to apply them in practice.

### DP3 *Make the organisational-culture-explaining artefact's development process participatory.*

The last design principle addresses employee involvement in the artefact design. Smartly.io applied principles of co-design throughout the development process. This approach has its roots in participatory design techniques developed in Scandinavia, nurtured by the idea of workplace democracy (Björgvinsson, Ehn, & Hillgren, 2012).

Such participatory design involves users and other stakeholders for the artefact in the creative process (Trischler, Pervan, Kelly, & Scott, 2018). The purpose is to empower participants in the process to become legitimate and acknowledged members of the design team (Visser, Stappers, van der Lugt, & Sanders, 2005). While the ADR process was guided by the researchers, talent team and leadership team, the process was transparent to the entire organisation, and all employees had an explicit opportunity for involvement in both face-to-face and digital activities related to the artefact design. Each employee had opportunities to give feedback, be part of the approval process and suggest content for the handbook. Moreover, we can conclude that the participatory design process in itself supports the synthesis of the two components of organisational culture, irrespective of the effectiveness of the resulting artefact.

The participatory design process employed by Smartly.io in the BIE cycle of ADR produced an artefact reflecting the organisational culture held by the majority of the organisation's members at the time of the initial release of the artefact. Thus, participatory design addressed the second challenge in the table at that point in time.

Through reflection on the follow-up interviews 2 years after the first release of the handbook, one can observe divergence in employees' perceptions of that artefact. As noted above, employees who took part in the original design of the handbook saw it as more reflective of their view of pragmatic organisational culture than did those employees joining the company after the first version's release, who perceived its content as an established *status quo* even though they are empowered and encouraged to participate in its development over time. From this outcome, it appears that participatory design has had somewhat limited impact in some respects. Once the foundations of the artefact are established, new participants in the design process feel, to a certain extent, bound to it. This may lead to weaker ability of the artefact to serve as a bridge between the symbolic and the pragmatic component of organisational culture for newer employees working in remote locations. Accordingly, further work should pay attention to this issue.

## 5.2 | The theoretical contribution

Our study's primary contribution to theory can be categorised as lying in the realm of improvement (Gregor & Hevner, 2013). Improvement-oriented contributions offer more efficient and effective solutions to known problems, drawing from a deep understanding of the problem environment (Gregor & Hevner, 2013). Our work generated theoretical contributions on two fronts. First, we anticipate that value may be found in the nascent design theory we offer by means of the design principles stated for developing a digital organisational culture handbook that aligns symbolic organisational culture with the pragmatic component in a VWE. This should enrich the literature on organisational culture and socialisation. Second, by theorising on the suitability of ADR for constructing continuity elements in highly VWEs, we contribute to organisational discontinuity theory.

### 5.2.1 | Bridging the gap between symbolic and pragmatic organisational culture

Earlier literature on organisational culture identified a gap between the declared idealised values of an organisation and the pragmatic cultural practices (Giorgi et al., 2015; Patterson, 2014; Swidler, 2001). This gap manifests itself in failure by members of an organisation to relate the symbolic values to their day-to-day actions within the

organisation. In a collocated organisation, synthesis that keeps the two components of organisational culture aligned is usually supported through continuous face-to-face socialisation practices. In a highly virtual work environment, however, where opportunities for learning through face-to-face socialisation are significantly diminished, achieving synthesis between the symbolic and pragmatic proves challenging. Our contribution lies in investigating a learning-based substitute for socialisation as a means to bridge the gap between the symbolic and the pragmatic component of organisational culture in highly VWEs.

We view the process of synthesising the symbolic component (often generated by the top management or human resource department) and the pragmatic component (typically rooted in employee practice), as a **dialogue**. This dialogue consists of continuous knowledge exchange through cycles of internalisation and externalisation (Nonaka, 1994). We claim that in highly virtual work settings such dialogue requires the incorporation of a substitute for socialisation that facilitates continuous conversion between tacit and explicit knowledge emerging from the two components of organisational culture. Our work suggests that, to serve its purpose, a substitute for socialisation should provide a way of translating symbolic values into actionable ideas (Swidler, 1986) and enabling employees to influence the symbolic component of organisational culture by interacting with that substitute for socialisation (Leidner et al., 2018).

In our study, the substitute for socialisation had the form of a digital artefact. However, as organisational culture is something that constantly evolves, we see greater value from our research in theorising on the process of developing that substitute for socialisation, rather than in the artefact per se. Our conceptual framework provides structure for the dialogue between the two components of organisational culture and paves the way for further development of theory based on a symbolic-pragmatic view of organisational culture. The design principles we derived can be used to develop similar digital artefacts in other highly virtual work settings, and, on account of the pervasiveness of such work arrangements in global organisations, we believe that the principles can be applied in a wide array of organisations facing rapid growth in a geographically dispersed setting.

### 5.2.2 | Using ADR to construct continuities in virtual work environments

Our contribution to ODT lies in demonstrating the value of applying the ADR method to structuring the process of continuity construction. Again, according to ODT, continuities emerge either as a reaction to a perceived disruption of work or as a preventive action stimulated by an earlier experience or common-sense reasoning. The process of continuity construction, however, has remained largely unexplored in the literature (Watson-Manheim, 2019). It is clear that continuities and discontinuities in such highly virtual settings evolve over time as work environments, employee perceptions and organisational structures change, with the evolution being especially notable at the organisational culture boundary - organisational culture being a social concept by nature (Chudoba et al., 2005; Watson-Manheim et al., 2012). Our work with Smartly.io gives us a basis for arguing that ADR's cyclical, evolving process is particularly fitting for creating an artefact intended to address challenges that arise in precisely this type of dynamically changing environment. The three design principles identified above offer suggestions of the methodological fit between ADR and continuity construction. First, a digital artefact that offers high levels of generativity, editability and malleability meshes well with the dynamically changing nature of discontinuities and continuities in a highly virtual work environment. Second, intuitive graphic design and contextual stories help employees digest the subtleties of tacit organisational culture with ease. Third, users' inclusion in the process of problem formulation and artefact design is entirely consistent with the notion of discontinuities, since these emerge from the personal experiences of people who work in highly virtual settings.

Therefore, we see the application of ADR principles in structuring of continuity construction as constituting a significant step toward understanding the continuity construction process in highly virtual contexts, both from a theoretical angle and from a practical perspective.

### 5.3 | Practical utility

The creation of the organisational culture handbook provided utility to multiple stakeholders within the case company. Smartly.io was able to specify the key principles of the organisational culture in a manner that rendered them clearly understandable to the whole company and that was not restricted by the vision and biases of the founders and/or the leadership team. The digital artefact thus created provided the company with a simple solution for communicating its organisational culture in a scalable manner to both internal and external stakeholders. Simultaneously, the design process aided the leadership team in reflecting on the development of organisational culture exhibited by the company. Also, by engaging the current employees in this project, the process-reinforced internalisation of the values among them.

One of the key practical benefits is that new employees benefit from the learning-based socialisation substitute. Such an artefact provides accurate, up-to-date information on the organisational culture, thereby guiding new hires through the adaptation period. Furthermore, it reduces the potential for discontinuities in traversing boundaries related to organisational culture within the company.

### 5.4 | Limitations and paths for further research

As all empirical studies are, ours is not without its limitations. The first issue is that we worked with a single case company, with its specific problems and corresponding solutions. To address this issue, we have offered description of the company context and have attempted to define the emerging design principles in a way that clarifies their possible scope and applicability. One context that warrants further investigation would consist of organisations that are born virtual, with no foundations of organisational culture emerging from an initial co-located team. For example, Asatiani and Penttinen (2019) compared the governance of a fully virtual SME to a hybrid SME operating in the same industry. They found that the former had a rather minimalistic organisational culture that was mainly focused on individual performance. This led to a feeling of detachment among some employees, as they found no pre-existing meaningful organisational culture to shape and integrate with. Further research could investigate whether the design principles presented in this study could help such organisations to synthesise organisational culture to overcome culture-related challenges.

The second issue is that we restricted our attention to the organisational culture boundary. As discussed in Section 2, discontinuities of highly VWEs can manifest themselves as one traverses any of numerous boundaries, with organisational culture, technology, geography and time zone being only a few examples. We recognise that each boundary has its own characteristics. For example, while geographical distance is physically delineated, organisational culture is purely social in nature. In consequence, the discontinuities that arise and the possible continuities responding to them may differ greatly between boundaries. Accordingly, one should exercise great care in any application of contributions from our study to construct continuities for other boundaries. Further research could investigate how the ADR approach could be employed to construct continuities across other boundaries.

Third, we focused on the process of creating a substitute for socialisation to serve as a planned continuity. We observed how the leadership team and other workers interacted with the digital artefact, alongside how the symbolic and pragmatic component of organisational culture interacted in the design process. We have not been able to systematically measure the long-term impacts of the organisational culture handbook on, for example, firm performance or organisational trust. Further research could investigate the impact of substitutes for socialisation in virtual organisations, drawing on the relevant literature (eg, Chang, Chuang, & Chao, 2011; Choi & Cho, 2019; Martinez, Beaulieu, Gibbons, Pronovost, & Wang, 2015; Ogbonna & Harris, 2000; Scheibe & Gupta, 2017).

Finally, while making great strides towards a structured approach to continuity construction, we have only scratched the surface of the issue. Successfully running a virtual organisation demands thorough understanding of the mechanisms behind alleviating or avoiding discontinuities that arise from highly virtual work settings. We conclude that the principles of structured continuity construction merit further investigation accordingly.

## 6 | CONCLUSION

In this paper, we have described the process of constructing an information artefact to serve as a substitute for socialisation in the context of a highly virtual work environment. Responding to calls for research into, on one hand, how virtual organisations respond to or prevent discontinuities (Asatiani & Penttinen, 2019; Dixon & Panteli, 2010; Watson-Manheim, 2019) and, on the other, the design and testing of digital artefacts (Yoo, 2010), we pursued the specific goal of building an artefact that could smooth out the cultural socialisation of new employees and reduce the negative effects of traversing the symbolic/pragmatic cultural boundary in the context of a highly virtual work environment. Our approach to the study demonstrates the potential of the ADR method, which enabled us to be highly involved in the design process and apply fruitful interventions in creation of the information artefact output. Our research has contributed to scholarship and practice by means of the design principles derived from the process, generalisable learning and practical utility for end users at the case company.

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## ENDNOTES

<sup>1</sup>With Smartly.io's explicit permission, we have not anonymised the company. However, to ensure candid and open comments, we chose to anonymise individual informants in the study

<sup>2</sup>Schein's definition of a cultural artefact diverges from the "information artefact" sense discussed in this article. The latter is intended to encompass the artefacts, values and assumptions held within the organisational culture of the case company.

<sup>3</sup>The release version of the handbook resulting from the BIE cycle can be found at [https://cdn2.hubspot.net/hubfs/1570479/Smartly\\_CultureBook\\_2017-9-2.pdf](https://cdn2.hubspot.net/hubfs/1570479/Smartly_CultureBook_2017-9-2.pdf)

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