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Resistant and remediating design

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ABSTRACT
Little is known about designers’ experience in fast-paced sprint work. This article draws on case work research within consulting and in-house design teams that sheds light on this important topic. The findings indicated differences in digital designers’ practices and occupational experiences. Designers reported stress in working in extreme agile delivery teams and struggles in maintaining design integrity in scrum development. Resilience strategies that habituate designers in work contexts were also identified from the research. These stratagems combined remediating methods together with principled practitioner resistance. In the final inquiry, fifty-seven participants from in-house and consulting design teams were surveyed. The results indicated significant differences between the cohorts including higher levels of job satisfaction for consultants. This group also applied the remediating practices and positive resistance strategies to a greater extent than their in-house peers. These differences suggest that the occupational context of design is a fundamental influence on real world practice.

KEYWORDS
Digital design, design economy, agile, service design, design methods, occupation, agency

Introduction

Studies of consulting and in-house design teams are rare. Björklund and van der Marel (2019) concluded that, to understand the digital design sector, ‘research [needs] to take an organizationally situated perspective to design’ (Björklund and van der Marel 2019, 754). Notable examples of an occupational stance include those presented by Mayer-Ahuja and Wolf (2007) and by McKinlay and Smith (2010). These early explorations examined design embedded in digital product and service production. In the past decade, this domain has undergone exponential growth, driven by agile development.

Agile development (Beck et al. 2001), augmented by design operations, enables organizations to digitally transform their operations. Agile development
applies sprint working to continuously deliver incremental software releases of backlog requirements.

Agile development is mature, widely adopted and delivers many benefits (Senapathi and Srinivasan 2012). Increased quality and efficiency, as well as reduced production costs and code errors, are some credible gains reported in the related literature (see Kakhonen 2004; McInerney and Maurer 2005; Rodríguez et al. 2012). Impressive increased team performance, productivity and output have been reported (Federoff and Courage 2009).

The agile advantage comes at a cost. Methodological issues identified in early research (e.g. Nerur, Mahapatra, and Mangalaraj 2005) have persisted through to recent studies (Dingsøyr et al. 2023). Well-documented challenges include accumulating technical debt (Lindskog and Magnusson 2021), sprint-task sequencing difficulties (Persson et al. 2018) and ineffective decision-making stalling team productivity (McAvoy and Butler 2009).

In good conditions, high-performing teams deliver at velocity. However, many factors dissipate the positive potential of agile delivery. The reality can often be chaotic (Rigby, Elk, and Berez 2020) rather than high-performance collaboration.

Problems proliferate with the scale needed to deliver transformational projects (Gulliksen Stray, Moe, and Dingsøyr 2011) that require many (>10) sprint teams. Decision-making in agile work is highly distributed, often impeding strategic value realization (Moe et al. 2021) in critical areas such as time to market and product differentiation.

Dependencies grow exponentially with each additional sprint team in scaled agile. This pervasive problem is exacerbated as ‘there is no leader who can deal with conflicts’ (Lindsjørn et al. 2016, 281). Lack of leadership results in ambiguity that aggravates interpersonal conflicts (Sekitoleko et al. 2014) and detriments well-being (Conboy et al. 2011). Lastly, agile’s foundational practice of autonomous working can similarly inflame cross-team tensions, increasing individuals’ self-regulation efforts, causing fatigue and stress (Mueller and Benlian 2022).

Designers’ role in agile production is varied, often challenging and highly contingent on the host organization’s production methods (as can be seen in participant verbatims below). Agile design ranges from working in small teams using shared-task ticketing through to extreme, scaled agile involving tens of sprint teams.

On the positive side, sprint-based working can give designers increased individual agency (Knight 2022). Seeing work ‘go live’ quickly, ‘just doing the work’ and the camaraderie of close collaboration teams are some of the positive aspects.

Björklund and van der Marel reported on designers’ positive job satisfaction (Björklund and van der Marel, 2019, 765), even in these often intense working conditions. They also noted differences between consultants’ and in-house practitioners’ experiences (Björklund and van der Marel 2019, 763
and 759). Variations in designers’ occupational experiences are common,² arguably due to factors that go beyond differences in modes of employment.

Designers face many difficulties in agile. They are often assigned to multiple scrum teams (Jurca, Hellmann, and Maurer 2018, 28), and they can experience marginalization (Cajander, Larusdottir, and Geiser 2022, 2), disempowerment (Schell and O’Brien 2015, 225 and xi) and identity issues (Rosenberg 2014, 75).

Digital designers deal with endemic agile issues and other issues specific to their practice. Many factors reduce designers’ ability to maintain professional integrity and derive personal meaningfulness in intense production work. Time pressure is a critical factor that leads teams to cut down design activities (Dayton and Barnum 2009) to meet sprint goals. Higher-value creative work is often deprioritized in favour of piecemeal (Ferreira 2012) quick wins that ‘feed the agile beast’.³

Senior designers’ authority and ability to craft their practice can be thwarted in these kinds of ‘dev-led’ cultures.⁴ Tasked with delivering ‘slice-of-value’ increments, they are often diverted from positioning their practice at a more strategic level.

These factors affect job satisfaction. The ratio of satisfying flow-type work (Jonsson and Persson 2006) is low compared with mundane ‘small-change’ work (80%)⁵ that takes up the bulk of working time. Unlike other pod members, designers commonly work in multiple sprint teams, carrying out many small tasks; this causes constant context switching. Chaotic middling projects often lack organizational alignment and structure, which contributes to reworking taking up half of designers’ working time in these kinds of projects.⁶

Potential methods for improving integration are well researched (see, e.g. Jurca, Hellmann, and Maurer 2018). However, their effectiveness is less evident. Dybå and Dingsøyr (2008, 841) found that most (39%) were based on single cases. Najafi and Toyoshiba (2008) and Kuusinen et al. (2016) are notable exceptions in basing recommendations on longitudinal, multiple case studies. Similarly, Kollmann, Sharp, and Blandford (2009) combine interviews with some ‘shadowing’ to substantiate their recommendation of improving visioning and co-working. Hoda, Noble, and Marshall (2012) took these two approaches further and used grounded theory in their analysis. Dingsøyr et al. (2023) argued that there is an ‘urgent need for more studies involving mature agile development teams’ (Hoda, Noble, and Marshall 2012, 1219).

Generally, methodological solutions are proposed to remedy these issues. Many researchers (e.g. Peres et al. 2014) combine design and agile techniques into a single methods-based framework. The potential of such solutions is limited as they neglect practitioner agency in collaborative teamwork and
effective method use. A methodological approach that helps structure agile design work, augmented with the means to empower practitioners, ought to provide a more holistic solution.

To address this, a mixed-methods approach was adopted in this research. This included case work, diary studies, surveys and experiments that generated findings and habituating interventions including the Foundation practice framework.

Discovery research

A sizeable corpus was elicited through the research. This enabled thematic analysis and hypotheses building from utterances taken from studies across a variety of cohorts (as shown in Table 1).

An early-stage participant self-reported on her work:

The biggest stress in agile projects is [that] not everyone [is] marching to the same drum: the process is a mess … expectations are not aligned. (Remediation issue)

I work on multiple projects at one time. The pace of sprints means that I am unable to complete the research part of my job. I’m lucky to get design work done. And the developers always want to move faster than the stories [are] planned. (Remediation issue)

Since [there are] often changes to what will be worked on in the next sprint, it is easy to get behind. (Remediation issue)

<p>| Table 1. The research framework. |</p>
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<th>Phase</th>
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<tr>
<td>First phase</td>
<td>RQ1</td>
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*The asterisk signifies workshops.
Designers fell behind development as they weren’t included in the cross-functional scrum team but were brought in on demand. (Remediation issue)

Similarly, a designer noted that design can cause bottlenecks:

Yes, this [falling behind development work] happens sometimes when the requirements change in the middle of the sprint, which in turn lengthens the design time and [hinders] gets it signed off. (Remediation issue)

A senior designer reported on the dangers of an incremental focus including:

There is a lack of emphasis on research and design. It’s all about shipping products. Not products with great experiences. (Remediation issue)

Other comments allude to tensions and strategies to improve work, for example:

The incessant planning and tracking … combined with the short-sightedness of solving a problem now, not the right problem tomorrow. (Remediation issue)

Conversely, participants relished solving work problems and noted agile developments positive aspects:

Getting things done quickly, focus, team alignment and energy, test and learn culture.

Strong relationship with developers makes it easy to bring products to life.

Understanding challenges and wrestling with the complexity in order to get to a decent solution. (Resistant behaviour)

Leading with methods, process, and ideas’ (Resistant behaviour)

**Definition research**

Working as a practitioner, the author was embedded in six design teams during the research. This research approach was taken for several reasons. Foremost was the need to dialogically identify and understand success factors in digital design first-hand. This approach is also advantageous as it follows the occupational principle of gaining understanding in order to make valuable habilitation and rehabilitation interventions.

Firstly, an agency design team (Case A) was studied (Knight 2017) as they moved from waterfall to agile. Consulting work (Case B) was then undertaken in the enterprise sector. Case work at Camelot (Case C) enabled first-hand observation of a team deeply embedded in dev-led production. This allowed thorough exploration of different project types and design roles (see Knight 2019). Returning to consultancy (Case D) service design work helped with identifying and trialing remediation interventions (Knight, et al. 2020, Knight et al. 2019, 2020). Lastly, two in-house teams (Cases E and F) with
mature design operations capabilities but in different sectors were explored. Insights gained from hands-on case work included identifying rework, the role of design systems (Churchill 2019) and seniority differences in resistant behaviour. Interventions included end-to-end project work, such as work in planning, execution and supporting activities (such as training, daily practitioner engagement and team surveys).

The insider stance of this research aligns with classic work studies. These commonly involve observation (e.g. Trist and Bamforth 1951), narrative description (e.g. Burawoy 1979) and inquiry (Lawlor 2000), participant observation (e.g. Tang 1991) and formal methods of data collection and analysis (e.g. action research [Levin 1934, cited in Adelman 1993]).

This research was looser, more recursive, and dialogically improved work through the work itself. Echoing agile principles (Beck et al. 2001), the work was the product, rather than the research being an end in itself. The fieldwork produced data (fieldnotes and internal ‘found’ artefacts). These ephemera marked moments of realization or epiphanies (Ellis, Adams, and Bochner 2011) for further formal validation and were not concrete data points in themselves. While the somewhat unconventional research approach might have been improved with more structure, it proved effective in grounding the overall direction of insights within the field of inquiry being researched.

**Occupational experience**

The next stage of research involved recruiting 42 designers. Most were aged between 25 and 44 (82%). The majority of respondents were female (62%), and most were based in the UK (59%). Some limitations arise in regard to the generalizability of the findings due to the self-selection approach of this recruitment. As the recruitment was undertaken during COVID-19, this was a pragmatic decision as many in-house and consulting designers had moved from co-located to remote team working.

The participants kept a diary for four weeks. During this time, they were prompted to record their design tasks and how they felt at specific times during the working day. They added notes (used in transcription) and scored their feelings against a set of descriptors (e.g. stressed to calm – see Table 2) when prompted.

The findings helped define a framework mapping designers’ occupational experience within eleven bi-polar facets (see Table 2). These results align and extend the framework of Wilcock et al. (1997) and Björklund and van der Marel’s (2019) top and bottom moments with varying levels of fit. For example, autonomy, an innate need is allocated to authority in the framework. Likewise, knowing (identified in this research) is mapped with competency.
The respondents also kept a reflective diary and co-wrote a five-act narrative. Using a shared digital workspace they developed characters, scripted events, and wrote the dialog for an imaginary agile design project. This ‘Practitioners’ Tale’ describes the characters fluctuating fortunes in agile production work. The text records points of consensus and conflict. Situations when remediating methods were applied and where the designers resisted prevailing power relations are also detailed. Remediation problems generally arose from dealing with ambiguity, poor working practices, and a lack of structure. Resistant issues commonly occurred out of needing to challenge the direction of work:

The designer gets frustrated when business analysts and product managers ignore his or her point of view on how to approach a problem because of his or her lack of knowledge of the business process and technical constraints. (Resistant problem)

the client, referring back to what she or he signed off on and, at times, the design having to be changed causes delays to the go-live date and cause friction in the team due to pressure from senior staff. (Resistant and remediating problem)

The product owner and product manager haven’t really gauged an understanding of why this is a problem to solve–they have just assembled the team and hope that it will ‘figure it out’ with little direction. (Resistant and remediating problem)

[in the agile world, sometimes designers do not have enough time to come up with great solutions. The team ends up delivering something good but not great. (Remediation problem)

senior stakeholders and product owners have not [bought] into the research ... design process, or they think research ‘takes too long’. (Remediation problem)

The intuitive and improvised nature of resistant design echoes the crucial role of practitioner agency that is noted in the related literature (e.g. Buchanan 1992; Lawson 1979). Remediating design, on the other hand, exemplifies the structured and methodical design strand found in the literature (e.g. Rittel [see Krippendorff 2008] and Jones 1992). However, this research cautions against dualist theories of design.
The occupational standpoint suggests a more constructivist approach to designing. Resistance maps with Denis, Langley, and Rouleau’s pluralistic framing construct of ‘spontaneity, creativity and imagination’ (2007; cited in Björklund and van der Marel 2019, 756), while remediating overlaps with the collective aspects of civic legitimization at the level of practice. Combining these strategies provides an outcome that is greater than the sum of its parts: it improves job satisfaction and design integrity.

Designers are habituated through design work using structure and agency. Together, these offer creative ways to tackle ‘wicked’ design challenges, and crucially, they also enable the designers to work their craft with success and integrity in difficult real-world contexts. This in turn accords with the occupational literature: work is contestable within the given power relations in any production domain.

In this context every designer must find her or his way to thrive in challenging conditions through a combination of grit, technique, and cunning. This can be difficult for new designers who are developing their own ways of working. Overtime, these personal strategies become second nature, enabling practitioners to shape their work to impose structure on ambiguity and promulgate design integrity with composure.

Research findings in this study provide detail on designers’ thriving strategies. These insights resonate with other knowledge-based work legitimization (ibid.) and habituation (Rowles 2000) strategies.

The study data was recursively coded and calculated to show the percentage of data within four facets. The facet with lowest percentage of data (3%) covered the physical and mental capabilities needed to do design work. The next (7%) consisted of theoretical knowledge that connects day-to-day doing to an esteemed body of knowledge. This facet maps to Denis, Langley, and Rouleau’s construct of legitimization (ibid.) through tradition and hierarchy. The two top ranking facets comprised resistant-oriented (67%) and remediating-oriented knowing (23%).

The first of these is highly personal and context dependent as it develops through an individual’s occupational experience (as seen in Table 3). The latter is generalizable as it pertains to common routines, repertoires and methods taken from cases and applied to work. Together these strategies enable practitioners to work with authority through codified practices and amplifies their agency to apply them masterfully.

The findings suggest that two combined factors help practitioners thrive in agile and in design to play a more dominant role vis-à-vis management and development. These comprise method-based structures and positive resistant (McCabe, Ciuk, and Gilbert 2020) and productive resistant (Courpasson, Dany, and Clegg 2012) behaviour, in accordance with the occupational literature.
Remediating methods help harmonize design with agile by imposing a structure that enhances creative collaboration and fast-paced production. Resistant behaviour ranges from individual ‘pushbacks’ against compromise, promoting principled solutions, through to formal escalations that are presented to management. How these factors work together is, however, beyond the scope of this research.

While there is no silver bullet for every situation, the research points to generalizable ways of improving agile design. Specific remediating enhancements arise from a combination of the four ‘D’ methods (see Figure 1) that form the proposed and validated foundation practice framework. Firstly, a lack of vision is addressed through collaborative service blueprinting (method D1). Method D2 centres on design thinking to aid cross-team knowledge sharing and direction (Adikari, McDonald, and Campbell 2013). Meanwhile, design operations (method D3) help designers integrate into continuous delivery. Lastly, method D4 mitigates risk through design research and legitimizes practice through aligning with human-centred design standards and methodologies.
**Summative research design**

In the final inquiry, research questions surveyed practitioner resilience and success strategies in agile across internal and consulting contexts. The first set of questions aimed to extend understanding of how design work operates in the two different kinds of organization as an indicator of remediating and resistant design. The second set of questions centred on occupational differences in the level of agency and tackled the practitioners' level of authority and autonomy. Questions about their future employment prospects were also tackled as markers of job satisfaction and value. The last set of questions focussed on levels of resistant and remediating design integration. Precise questions included questions about stakeholder relationships, requirements for quality, levels of ambiguity, method adoption, time utilization and levels of rework.

**Method**

The participants were recruited through a popular professional social media platform. Fifty-seven subjects were selected to complete an online questionnaire. The cohort included 37 agency workers and 20 in-house respondents. The respondents had a majority of men in the in-house teams (74%) and a majority of women in the agencies (57%). This recruitment approach introduced some limitations in sampling.

**Results**

Most of the respondents were between 25 and 34 years old. The agency cohort was relatively evenly spread age wise, forming a discernible pyramid with a minority of elders. The salaried cohort formed a rough bell-curve distribution of age.

Tenure was less evenly spread. The consultancy cohort had more senior practitioners with over 10 years’ experience in the role. The in-house group was distinctive in having designers with under four years’ experience. Seniority differed significantly at mid-weight level, with the in-house population (82%) far exceeding the consultants(18%).

Overall, the findings show a positive (.99) correlation and significant difference between salaried designers and agency designers across all the survey questions (as shown in the study population correlation data, displayed in Table 4). This was calculated from the mean of all data points across populations.

Design work is distinctly different in the two contexts. Overall, consultants apply the foundation practices more fully and with greater strategic focus than in-house designers (see Figure 2). Integrating design and research into
this cohesive framework helps align incremental, tactical and transformational types of work and improve job satisfaction.

The two groups remediating practices were slightly different. Service design was reported as more widely adopted by the consultants in the data. This strategic marker suggests they do more rewarding and impactful work. Unsurprisingly, design operations ranked higher for in-house respondents, suggesting a strong production orientation to their work. Similarly, the higher ranking of design thinking suggests that stakeholder collaboration is more challenging in-house.

The consultants’ positive responses are reflected in significant differences in improvised work shown in Figure 3. These findings also suggest in-house designers have less control over the direction of projects and weaker authority to mandate how they do the work compared to consultants. This in turn diminishes their individual autonomy and may explain the differences in job satisfaction between the two cohorts.

The two groups diverged on assimilation levels within their host organizations. Surprisingly, the data suggests consultants are more deeply integrated

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<th>Table 4. The study data Pearson correlation coefficients.</th>
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![Figure 2. Practitioners’ foundation practice utilization.](image-url)
than in-house designers. External designers reported nearly double (62%) the level of integration compared to their in-house peers (26%).

Employee satisfaction (measured by standardized Employee Net Promoter Score) data indicated a clear advantage for the consultants. These designers’ responses suggest they have stronger growth and career opportunities and apply foundation practices more fully than the in-house group. Similarly, the external group reported higher levels of relatedness and autonomy as well as having greater clarity, better quality requirements and less stress compared to their in-house peers (as seen in Figure 4).

Across the two populations, learning through doing was paramount. Second was education through working with others, and someway distant, came formal and self-directed learning (as seen in Figure 5). This suggests that habituation is an outcome of occupation itself rather than being a prerequisite for it. Design is learnt through a complex interaction of using methods, delivering project work, collaborating with peers and developing personal resistant strategies.

The data indicates consultants benefit from strong portfolios, suggesting their work merits attention. Project variety and the proximity of senior practitioners suggests strong, supportive and inclusive cultures for the consultants as seen in Figure 6. This cohort also benefits from learning within a wider variety of project types, across differing sectors, and from a more design-dominant working culture.
Figure 4. Practitioners’ occupational experience comparisons.

- Though doing the work
- Learning from others doing the work
- Self directed learning
- Informal coaching
- Formal training

Figure 5. Practitioners’ learning approach comparisons.
Discussion

Consultant work typically centres on pre-production strategic discovery and concept development. This kind of work is arguably more rewarding than production activities and certainly less constrained and protracted. Consultants benefit from positive client perceptions too. Status gained through affiliation with a creative agency or renowned technology consultancy can only enhance external designers’ status and sense of coherence.

There are some negatives to consulting design, however. Consulting designers rarely see their work in production. Changing clients regularly gives consultants variety but also means that they lack the strong relationships and connection with the product or service that their in-house peers enjoy. Conversely, internal teams face considerable challenges in gaining visibility at a tactical level and in gaining traction at a strategic level. This positioning reduces their ability to influence the type of work they do and their opportunities to do rewarding, meaningful work.

Similarities between the in-house workers and consultants centre on common practices and learning preferences. For both groups, learning through doing is predominant. As methods are integral to doing, then it is plausible that they aid learning as they structure ambiguity into doable tasks with potential learning outcomes. Naturally, differences in projects (e.g. regarding the technology stack, timelines etc.) are contributing factors too.
The findings support the overarching finding of Björklund and van der Marel (2019, 760) regarding innate needs mapping with designers’ top and bottom moments in work. Foremost among these is competency. There is a clear advantage for consulting designers in this regard, as well as opportunities for autonomy and relatedness within work.

Björklund and van der Marel (ibid.) also highlighted the primacy of meaning in design work. From an occupational perspective, meaningful work (Hammell 2004) gives individuals purpose, agency and knowledge. Consultants’ chance of doing this kind of work is far greater than that of their in-house peers. However, these findings indicate that in-house designers’ work is distinctly different from consulting designers, possibly because they are tightly integrated into a production-oriented servicing model.

**Conclusion**

The findings offer an important contribution to challenging dualist theories of design. Designers are habituated to tackle ‘wicked’ design challenges and crucially work their craft to model design integrity in multi-disciplinary teams tasked in difficult real-world contexts. This conclusion, based on practice-based research, indicates a strong divergence between the related literature and the realities of design work. The implications of this key finding are wide-ranging, spanning the theoretical foundations of design through to practical questions about apposite educational curricula.

Contributions to practice emanating from this research include the foundation practice framework to remediate extreme digital production. This addresses the gap noted in the literature (Hinderks et al. 2022) regarding the lack of an overarching framework with which to harmoniously integrate design and agile. As a practical, non-proscriptive framework, this solution aims to help habituate designers rather than constrain their individuality.

In contrast to other integrative approaches, this research points to the importance of practitioner agency regarding, not only assuring design integrity through methodology, but also at the behavioural level of doing. Principled resistance against occupational imbalance and disciplinary degradation is proposed as an important counterbalance that transcends methods. Methods correlate with knowledge; they evolve through practice, from rote through to improvisation. Non-practitioners also develop knowledge about design through methods as they codify legitimate practice.

The research methodology also contributes to practice. This includes specific novel methods of doing fieldwork, including collaborative writing and the case-work approach itself. The latter provides rich insights into practice. Similarly, practitioner diary studies proved to be effective in compensating for the relatively ad hoc nature of the immersive fieldwork. Together these
two research methods help achieve a holistic account of practice, connecting emic and etic perspectives on the field of inquiry. A more structured approach to might build on the wider potential of this mixed-methods approach.

These various modes of inquiry and the insightful data they produced were amplified by the overarching occupational perspective of this research. From this standpoint, work is much more than salaried time for designers. Design is the work as well as the resultant deliverable product or service.

Occupational experience (Håkansson, Dahlin-Ivanoff, and Sonn 2006) gives individuals meaning (Hammell 2004), agency and understanding of the world (Filstad 2014). These insights suggest that individual purpose is actualized through doing. In this research, positive resistant agency (McCabe, Ciuk, and Gilbert 2020) and productive resistant agency (Courpasson, Dany, and Clegg 2012), combined with structuring methods, help make design work better. Lastly, this occupational standpoint closes the gap between research and intervention.

Gaining more insight into this topic is perhaps the most challenging outcome to achieve. At the same time, it has potential to extend our understanding of work in general, as well as our understanding of the possibilities for design to intervene in this critical field of human activity at an occupational level. More formal validation would substantiate the claims made based on the final research inquiry results.

Notes
1. Knight (2023), Studies A, B, and C.
2. Knight (2019), Studies D to J.
3. Knight, ditto.
4. Knight (2019), Study D.
6. Knight, ditto.

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John Knight has worked in the creative industries for over 35 years. During this time, he has worked with many global brands including BBC, Vodafone and Microsoft as well as leading creative agencies including Fjord and Accenture Interactive. His responsibilities in these organisations has spanned research and development, strategy and delivery and service design and creative leadership. John studied Fine Art with telematic pioneer Roy
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