



## **The Emergency Department waiting room: towards a speculative service design framework**

Troy McGee, Daphne Flynn, Selby Coxon and Rowan Page  
Monash University  
troy.mcgee@monash.edu  
Design Health Collab  
Monash University - Caulfield Campus  
900 Dandenong Rd, Caulfield East VIC 3145

### **Abstract**

This paper describes an experimental, methodological approach to design research that draws upon the methods of speculative design and service design to present the framework of Speculative Service Design (SSD). This framework aims to aid service designers to explore and interrogate the tensions within future service experiences. Its goal is to draw on speculative tools and techniques to present them as a way to explore, extrapolate and evaluate future service experiences. SSD aims to imagine hypothetical service futures before they happen, decoupling design from direct market imperatives and illuminating the capacity that we, as citizens, have to influence its development and deployment.

This paper then presents how this framework has been applied in practice to the Emergency Department waiting room within a practice-based PhD. This example investigates the role of technology in future waiting experiences in the Emergency Department, and is used as a vehicle to proactively reflect on service experience futures before they happen. In doing so, the framework provides designers with a method to unpack the

ideologies and philosophies that drive the development and deployment of technology.

Keywords: emergency department waiting room, speculative service design, speculative design, service design

## Introduction

Service design is a specific branch of knowledge, learning and practice. It is a discipline that has emerged from within the wider field of design that incorporates a range of different research areas (Stickdorn et. al, 2018, p.20), and as such is more than just the profession that bears its name. Contemporary service design practice is very much grounded in design for the *now*; drawing upon a heritage of change management, marketing and design discourses concerned with improving the status quo (Stickdorn et. al, 2018; Shostack, 1982: 1984; Downe, 2020). This paper advocates that this kind of thinking is insufficient when it comes to imagining possible alternative service futures, and that there is a need to augment service design with the approaches from elsewhere in contemporary, 'future-making' design research (Dunne & Raby, 2013; Malpass, 2017; Akama et. al, 2018) to extend the disciplinary purview of the field.

In contrast to service design, speculative design and its cousins - critical design, discursive design, subversive design and others - are obsessed with ambiguity and uncertainty (Tonkinwise as cited in Mitrovic and Šuran, 2016, p24). It combines informed, hypothetical extrapolations of an emerging or not yet available technology with a deep consideration of the cultural landscape into which it might be deployed, to speculate on future products and systems and the impact they may have on our everyday lives (Dunne & Raby, 2013). The speculative designed output is intended to be thought-provoking, and facilitate discourse with a broad audience: from experts in the field to the consumers and users of technology products and systems.

Through the union of these two discourses, this paper presents an experimental research methodology called Speculative Service Design (SSD). Presented as a framework, this research methodology aims to be useful to other service practitioners seeking to explore and interrogate future service experiences, beyond the scope of their normal practice of

immediate futuring. This paper will then go on to bring this theoretical approach together with design practice, discussing this framework in relation to an ongoing design project undertaken within a practice-based design PhD concerned with imagining alternative futures for the Emergency Department waiting room (EDWR). This paper uses this design project as a vehicle for a study of the application of the methods described in the speculative service design framework, and uses the outcomes as a ‘catalyst’ (Dunne & Raby, 2013) for collectively redefining our relationship to the realities of the EDWR. It is proposed that this framework will resonate beyond the project described here, and be useful to other service practitioners willing to explore, interrogate and critique future service experiences in other parts of the health system and other sectors.

## Towards a Speculative Service Design Framework

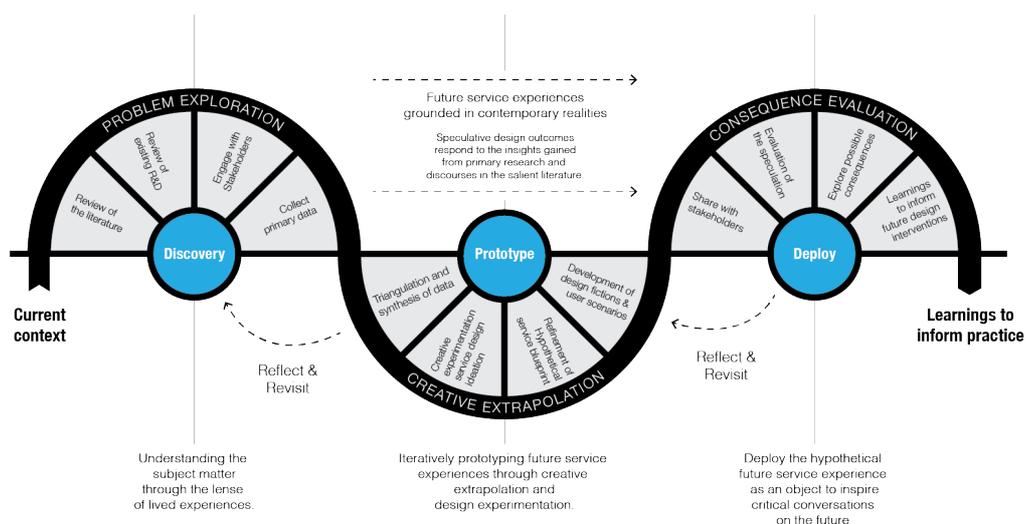


Figure 1: Speculative Service Design: A research framework/methodology for imagining, prototyping, deploying and reflecting upon future service experiences

Speculative Service Design (SSD) (Figure 1) is an experimental research methodology for collaboratively speculating upon future service scenarios. This methodological approach proposes an iterative, cyclic approach to research that is broken into the stages of ‘discovery’, ‘prototype’, and

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'deploy' – drawing upon the approaches from both speculative and service design discourses.

This framework is less concerned with the design outputs (what gets designed, built or tested) to outcomes (future, people-centered aspirations), which aim to achieve longer-term impact, aimed at opening up new possibilities for new and emerging sectors. This process does not intend to be as reductive as to suggest futuring is a three-step process. Instead, this framework asks users to extrapolate upon the current state of the world, and explore the consequences that might become apparent when interrogating a future service experience. While this framework might borrow practical methods from commercial design practice - such as co-design engagements, journey mapping and service blueprinting - it detaches them from direct market imperatives. The goal is not to 'optimise' a service for increased profit, or make things 'better' for end users, but to explore and interrogate the impact that a future might have on the world at large. This creates a new space for service design where speculative thinking can be used to proactively investigate future service experiences.

## **Discovery: Materialising our Imaginations**

To look forward, we must first look around - this section is concerned with the first arc of the SSD framework: problem exploration. This means engaging with the real, lived experiences of the people and communities through which the project is attempting to engage. The goal is to collect data which can inform speculations on the future, ensuring that they are grounded within contemporary realities.

Typical 'design thinking' approaches in service design are concerned with searching for insights that drive an 'opportunity for design' (IDEO, 2015 p.75). Finding and defining a problem is an important part of the design process (Archer, 1979). As (Dunne & Raby, 2013) highlight, design is often optimistic in the face of these challenges and while it can attempt to solve them, design might have more impact when used as a tool to think about the future. The aim is to imagine and provide alternatives; future visions that can be used as vehicles to discuss present problems. This part of the SSD framework asks us to engage in a process of 'discovery', where the goal is to collect narratives and stories that can then be used to inform the creation of alternative service experiences. (Sanders & Stappers, 2012) provide a wide range of designerly techniques to elicit

such data which are applied in this framework; from co-design engagements, empathy interviews and observational studies. These engagements generate data – narratives, stories, ‘signals’ – which can then be used to inspire design experiments.

## **Prototype: Making future service experiences**

Focussed ideation is an important part of the design process, and is applied in this framework. This section is concerned with the middle arc of the SSD framework: creative extrapolation.

Creative extrapolation upon the present should be grounded in contemporary realities, and respond directly to the data drawn from a variety of sources generated in the first phase of the SSD framework. By extrapolating on these contemporary signals, we are able to explore a variety of futures that may not be immediately obvious in the world today. Design proposals must be real enough to exist within our current understandings of science and culture, but radical enough that they challenge the current status quo. Futures ideation through this framework aims to build upon the emerging – and not yet available – technologies that might become part of everyday life in the future. This is in contrast to typical design approaches which are often in pursuit of a solution to a problem. This deviation away from the ‘problem-solution’ approach is a key and nuanced difference of this framework and typical service design approaches. It’s important that for the speculation to be meaningful as a tool to explore future consequences, it does not converge too quickly upon solving modern pains. Good quality futures should aim to represent a rich, diverse, complex and textured alternative. To put it simply, everyone thinks about the future, they just don’t do it very well (Candy, 2010, p. 31).

A useful way to speculate and extrapolate on the current status quo is to ask a ‘what-if’ question. In science fiction and popular culture, this approach results in fantastical narratives that can alter current, canonical trajectories. The Marvel *What-If* series of comics is one such example of extrapolation upon an existing continuity. In the 1st volume of the *What-If* series, readers are greeted by “Uatu the Watcher”, who explains to the readers that there exists a number of alternate realities. In each alternate reality, there is a divergence from what has happened and what could have happened (Marvel, 1977). These ‘what-if’ questions provide a

starting point for creative experimentation and investigation, exploring how different characters, stories and scenarios might unfold differently.

Crafting an engaging speculation is a balance between the 'real' and 'unreal'. If it is too 'futuristic', it will appear as a piece of science fiction, a piece of 'art', and mere speculation. If it is too close to the present, viewers will expect it to be implementable and ready for commercialisation.

Through careful negotiation between these two contradictions, a speculative service future can emerge. More effective speculative service futures should raise more questions than the designer can answer. As (Barthes, 1968) articulates, "the birth of the reader must be at the cost of the death of the Author". Whatever debates emerge from the speculative service design work, they should not be attributed to the designer. They are emergent from the work, conversations by an audience – not the author – on a hypothetical future.

## **Deploy: Reflecting upon future service experiences into the world**

How we communicate and disseminate the hypothetical service future, generated through speculative service design practice, is a key part of their value. This section is concerned with the last arc of the SSD framework: consequence and evaluation.

No matter how futures are deployed into the world, they should all draw upon the human proclivity for storymaking and storytelling. From exhibition, theatre, roleplay, comic strips and more; the goal is to deploy futures in a way that is thought-provoking. Creating and sharing fictions about a designed future - design fictions (Malpass, 2017) – enable us to explore the nuances and intricacies of an intended experience (Ahmadpour et. al, 2019). Conventional service design tools, while useful for providing a high-level schematic of multiple processes and interactions over time, fall short when it comes to exploring the minutiae of service experiences. As Bleecker articulates: "Design fiction objects are totems through which a larger story can be told [...]. They are like artifacts from someplace else, telling stories about other worlds." (Bleecker, 2009, p.7). (Downe, 2020, p.20) highlights the relationship that services have with products, with the service that exists around the product. In speculative design practice, the 'artefact' is central to the speculation - and is the

vehicle through which knowledge is conveyed. Rarely is the 'service' in the foreground. In this framework, the service experience is at the center of the speculation.

These design fictions should not aim to pin-down or prescribe a given future. Indeed, they should highlight the textured nature of reality and how it may unfold differently for different people. Design fictions illuminate the unexpected, or unintended implications of contemporary actions (Ahmadpour et. al, 2019). Design fictions enable us to experience a glimpse of a possible future service experience through someone else's eyes – through their individual ontology – and help us to begin to develop a shared understanding of what the future might be like. The inherently political nature of service design (Penin & Tokinwise, 2009) means that service design futures must reconcile a multitude of world views to identify what the *preferable* attributes of the future are for all of us.

Speculative service design practice does not aim to present implementable service experiences – rather use design as a catalyst for debate (Dunne & Raby, 2014) and to imagine alternative realities to what exists today. This kind of design aspires to help democratise possible service futures, raise awareness of the consequences of our actions as citizen-consumers and widen participation in discourse. Exhibiting design work in museums and galleries is one approach, but a plethora of other approaches continue to emerge through speculative design discourse that range from workshops, interactive installations and public events in the community. Participatory approaches like these act as a 'theatre for conversation', and enable an audience to be critical of the future while still embracing the possibilities.

## An example of the framework: The ED waiting room

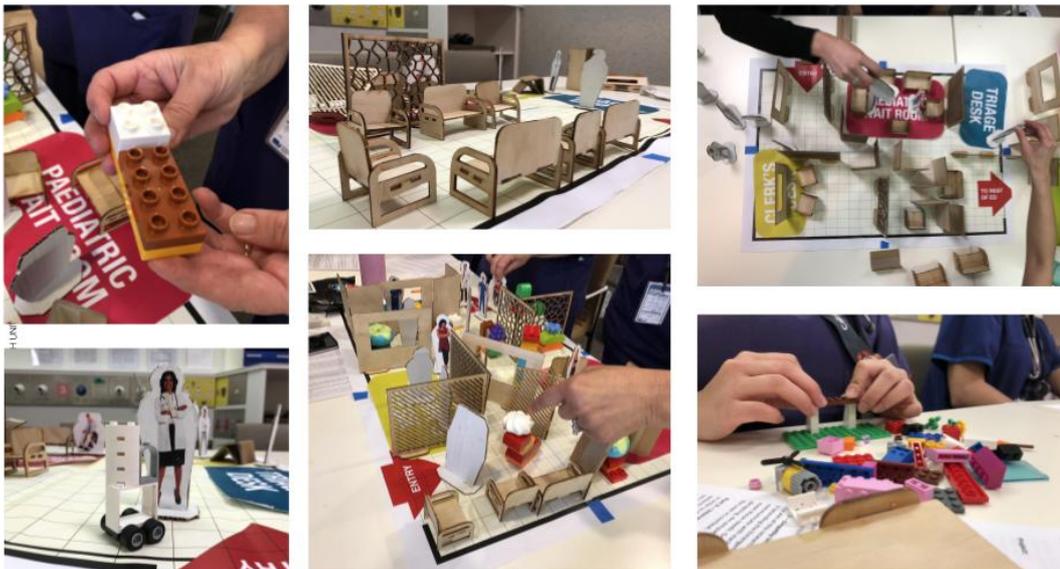


Figure 2: Co-Design engagement with ED Staff at a Melbourne Hospital.

### **Discover: Engaging Emergency Department stakeholders through Co-Design**

An urgent or unexpected visit to the Emergency Department (ED) can be one of the most unsettling healthcare episodes that one can experience. Patients usually have little time to emotionally or physically prepare, and the ED environment in which they enter is typified by high volume, high acuity, emotional patients with visible injuries. In recent years, patient presentations have increased, which means that more patients are required to wait in the ED for treatment (Lowthian et. al, 2012). This has led to these waiting spaces – the Emergency Department waiting room (EDWR) – becoming increasingly congested, which is recognised as a major patient safety concern and associated with poorer patient outcomes. This section describes how the SSD framework was applied to this unique problem space, through a practice-based PhD concerned with speculating on the future ED waiting experience undertaken by the authors. Through a review of salient literature and a series of co-design engagements (Figure 2) with ED staff, patients and carers, a series of insights were formulated to guide and inspire speculative design experiments on the future of the waiting room. The initial co-design engagement that provided the groundwork for the speculative practice is discussed in (McGee et. al, 2018)

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A 'what-if' question was then formulated in response to co-design data and salient literature. This question took the form of: *What if we leverage the power of emerging and not yet available technologies to enhance the service delivery and experience of ED waiting rooms?*

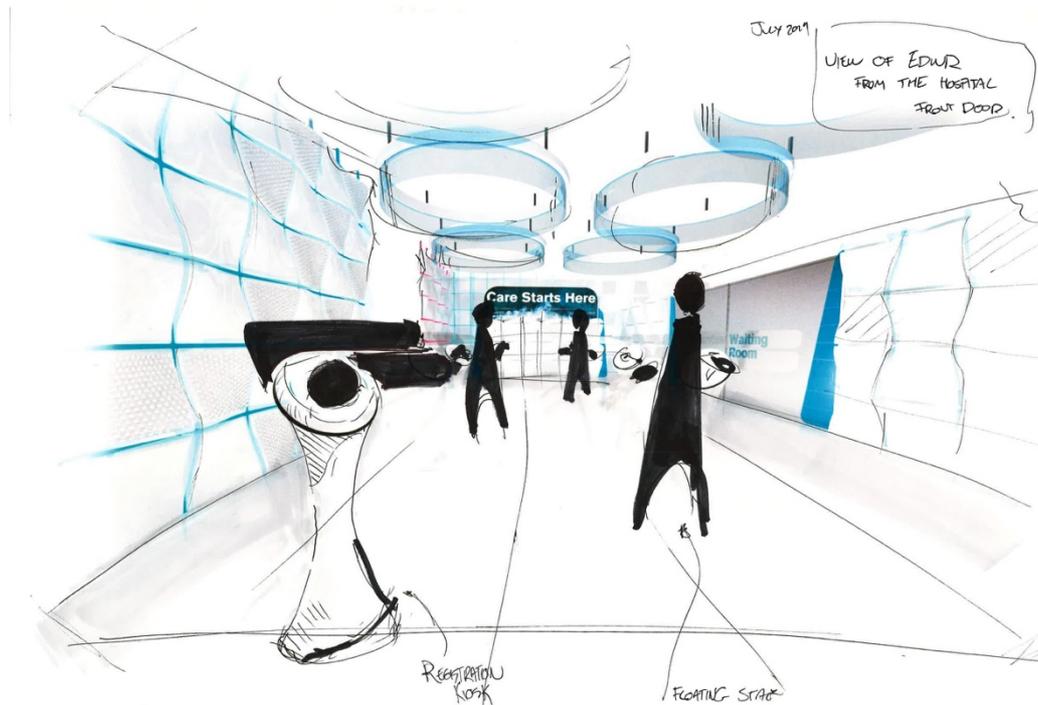


Figure 3: Design experiments: a view of the front door of the Emergency Department featuring registration and triage

### **Prototype: Engaging Emergency Department stakeholders through co-design**

The EDWR is a service experience, as multiple stakeholders - patients, carers, clerks and nurses - facilitate multiple interactions throughout a waiting period. These interactions are supported by a plethora of systems that are not always immediately visible to the user (Penin, 2018, p12). Following from the what-if question, this ideation process examined the role of emerging and not-yet-available technologies and how they might be applied to the service journey. This included the development of a speculative service blueprint (Figure 4), which contrasted the current service with an alternative, and an exploration into the potential touchpoints that might make up that future journey. Figure 3 depicts the view from the front door when they attend an ED, where a kiosk device would 'triage' and 'register' them into the hospital without the need for

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human intervention. Figure 5 depicts a view of an autonomous waiting room chair that remotely monitors and supports patients awaiting urgent care through an array of embedded sensors. These ideas were developed through an inductive design process, where ideas were refined iteratively - and the focus laid upon the speculative service journey, not the touchpoints within the journey.

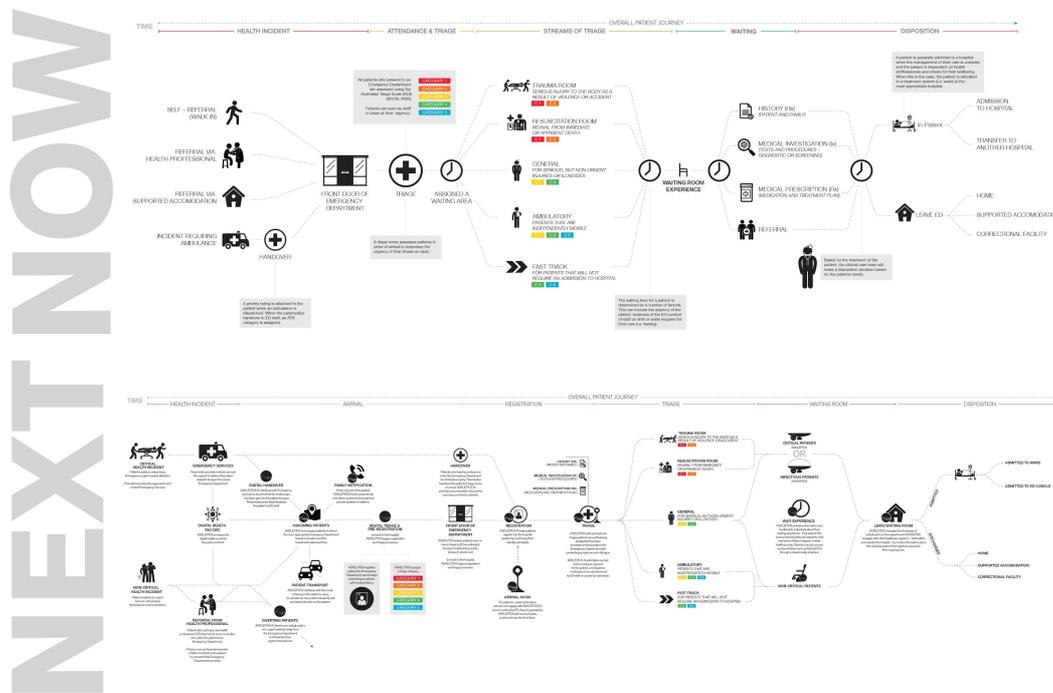


Figure 4: Diagram of a speculative service blueprint. The NOW section depicts an approximation of the current service journey. The NEXT section provides a schematic of a speculative alternative. A high resolution version of this graphic is available at <https://figshare.com/s/35abfffe2a2a215d191b>

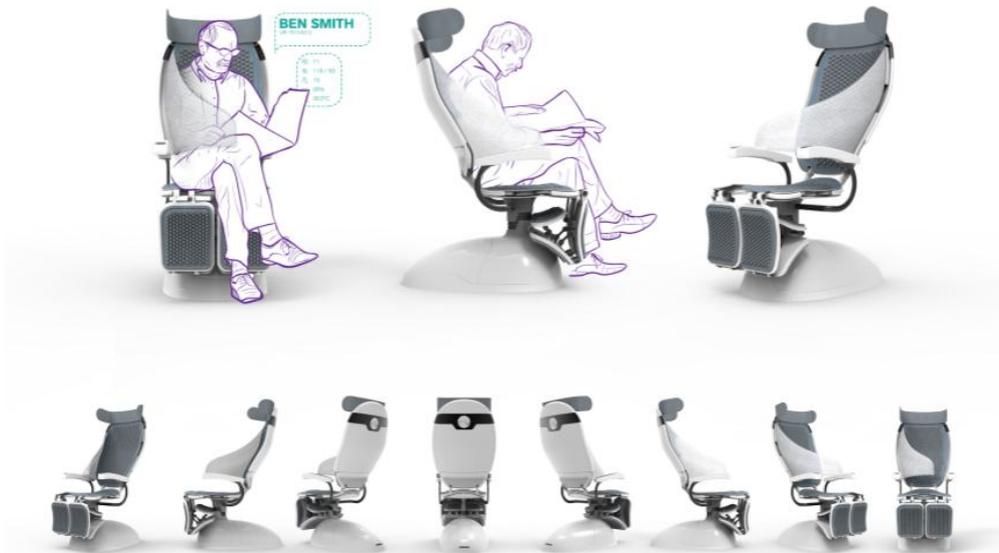


Figure 5: Multiple views of the speculative waiting room chair

### Deploy: the waiting room of the future



Figure 6: Snapshots from the 5 different design fictions on the ED waiting experience of the future. Each fiction followed the perspective of a different patient in the ED.

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Choreographing the many interactions and systems that impact the waiting experience in the ED has proved a significant challenge for healthcare administrators and service design practice alike, with little consensus existing in the literature as to the 'optimal' arrangement of systems or care models (Wiler Et. Al, 2010). Part of this difficulty is due to the number of stakeholders and complexity of the environment. In attempting to evaluate a speculative concept about an alternative, the challenge is much the same - how might we reconcile a multitude of perspectives about the service experience. The views of patients, carers and staff on a future service experience are all important, but are sometimes in tension with one another. This tension cannot be captured by a speculative service blueprint alone.

To address this gap, dissemination of the speculative service was achieved through a series of design fiction publications (Figure 6). These fictions were produced as a 'poster-zine', and illustrated in a comic-book style. This approach was chosen due to its low cost and ease of production, but also helped reinforce the 'sketchy' and amorphous nature of the future and how it is not yet 'pinned down'. Unlike the service blueprint, the design fictions enabled an exploration into the full contextual, emotional and spatial-temporal richness of a hypothetical service experience in a low-fidelity format. Through five separate editions, the design fictions explore the benefits, implications, challenges and problems presented by new and emerging technologies, and introduce us to how people might experience the ED of the future.

## **Conclusions and future work**

As design continues to be challenged as a problem-solving, material-oriented suite of professions (Vaughan, 2018), design should embrace how it might be extended into new contexts of operation and engagement. The speculative yet grounded approach to future-making that the SSD framework engenders might be applied to a plethora of analogous sectors, complicated by multiple stakeholders and challenged by an uncertain future. The novelty of this methodological proposal lies in its combination of approaches, and the nuanced differences from typical service and speculative design methods. The SSD framework demonstrates how we might augment and mobilise service design to approach these problems.

While this paper describes its application to an ED waiting room, it is hoped that the framework will prove useful to other practitioner-researchers. The speculative service-futures generated through this research help us open up critical debate, and help us explore some of the ethical, cultural, social and political tensions that might emerge. In doing so, we are better equipped to explore and define the attributes of preferable service futures.

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