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SPLAT THE RAT

RESPONSIBLE INNOVATION AS SOCIOMATERIAL PRACTICE IN DIGITAL HEALTH

Linnea Tavakoli Hagström

Mälardalen University

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Linnea Tavakoli Hagström

2026

Department of Business and Mathematics

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Linnea Tavakoli Hagström

Akademisk avhandling

som för avläggande av filosofie doktorsexamen i industriell ekonomi och organisation vid Institutionen för ekonomi och matematik kommer att offentligen försvaras måndagen den 23 november 2026, 13.15 i Pi, Mälardalens universitet, Västerås.

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Abstract

Research on Responsible Innovation (RI) has developed a substantial conceptual and theoretical foundation over the past decade, yet its enactment within everyday business practice remains comparatively underexplored, particularly within digital health start-ups, where sociomaterial arrangements of technology, time, and space shape the possibilities for organising responsibly. This thesis addresses this by asking two research questions: (1) How does a digital health start-up enact de facto Responsible Innovation, i.e., Responsible Innovation practised without being explicitly named or formally adopted, in its everyday innovation practices? (2) How do sociomaterial practices in a digital health start-up configure possibilities for user inclusion in Responsible Innovation?

Grounded in a relational, sociomaterial ontology, this thesis presents a single, in-depth qualitative case study of Alfa (a pseudonym), a Swedish digital health start-up. The case is analysed through constructivist grounded theory procedures and enriched by autoethnographic reflexive engagement. The empirical material comprises 31 semi-structured interviews, 17 non-participant observations, a reflexive research diary, and document analysis, collected over a twenty-month period during Alfa's pilot studies with users across several partner organisations.

The findings show that responsibility at Alfa was not enacted through formal frameworks or explicit governance procedures, but through everyday sociomaterial configurations. Responsibility took at least four distinct, coexisting forms among users: quiet contribution oriented toward collective benefit, cautious boundary-setting to protect privacy and dignity, interpretive labour placed on users making sense of their own health data, and performance shaped by gamification, none converging into a single, coherent version of “responsible” behaviour. User inclusion, in turn, was configured by four sociomaterial mechanisms: spatial exposure, temporal nudging, technological mediation, and organisational responsiveness. What existing RI literature often frames as individual "barriers" to inclusion (privacy concerns, low psychological safety, interpretive burden, and reluctance to speak), this thesis reframes as relational effects of these sociomaterial configurations, not as deficits of individual users. This reframing shifts where the field should look when inclusion fails: not at the user, but at the arrangement.

Theoretically, the thesis extends the Anticipation, Inclusion, Reflexivity and Responsiveness (AIRR) framework by introducing ontological multiplicity, i.e., the idea that a single phenomenon can take multiple, coexisting forms depending on the practices that enact it (Mol, 2002), as a central analytical lens, and by reconceptualising user inclusion as a form of relational, care-centred governance. Rather than proposing a new framework, the thesis argues that responsibility is enacted, not possessed, and that inclusion is a relational condition that must be continuously sustained rather than achieved once and secured. These findings contribute a grounded, relational account of RI in digital health: they show that responsibility and inclusion are enabled or foreclosed by the situated work of everyday organisational life, rather than secured by the adoption of frameworks that invoke them.

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In memory of Eve

Sammanfattning

Forskningen om ansvarsfull innovation (Responsible Innovation, RI) har under det senaste decenniet utvecklat en omfattande begreppslig och teoretisk grund, men hur RI omsätts i vardaglig affärspraktik är fortfarande relativt outforskat, särskilt inom digitala hälso-start-ups, där sociomateriella arrangemang av teknik, tid och rum formar möjligheterna att organisera på ett ansvarsfullt sätt. Denna avhandling tar sig an detta genom att ställa två forskningsfrågor: (1) Hur omsätter en digital hälso-start-up de facto ansvarsfull innovation, det vill säga ansvarsfull innovation som praktiseras utan att uttryckligen benämnas eller formellt antas, i sin vardagliga innovationspraktik? och (2) Hur konfigurerar sociomateriella praktiker i en digital hälso-start-up möjligheterna för användarinkludering inom ansvarsfull innovation?

Avhandlingen utgår från en relationell, sociomateriell ontologi och presenterar en djupgående kvalitativ fallstudie av Alfa (pseudonym), en svensk digital hälso-start-up, analyserad med konstruktivistiskt grundade teoriprocedurer och berikad av autoetnografiskt reflexivt arbete. Det empiriska materialet omfattar 31 semistrukturerade intervjuer, 17 icke-deltagande observationer, en reflexiv forskningsdagbok samt dokumentanalys, insamlade under 20 månader i samband med Alfas pilotstudier med användare från flera partnerorganisationer.

Resultaten visar att ansvar hos Alfa inte omsattes genom formella ramverk eller explicita styrningsprocedurer, utan genom vardagliga sociomateriella konfigurationer. Ansvar tog sig åtminstone fyra distinkta, samexisterande former bland användarna: tyst bidragande, orienterat mot kollektiv nytta; försiktig gränsdragning för att skydda integritet och värdighet; tolkningsarbete som lades på användare att göra mening av sin egen hälsodata; samt prestation formad av spelifiering (gamification), utan att konvergera till en enhetlig, sammanhängande version av "ansvarsfullt" beteende. Användarinkludering konfigurerades i sin tur av fyra sociomateriella mekanismer: rumslig exponering, temporal nudging, teknologisk mediering och organisatorisk responsivitet. Det som befintlig RI-litteratur ofta beskriver som individuella "hinder" för inkludering

(integritetsoro, låg psykologisk trygghet, tolkningsbörda och obenägenhet att tala) omtolkas här som relationella effekter av dessa sociomateriella konfigurationer, snarare än som brister hos enskilda användare. Detta förskjuter var fältet bör söka svar när inkludering uteblir: inte hos användaren, utan i arrangemanget.

Teoretiskt utökar avhandlingen ramverket Anticipation, Inclusion, Reflexivity and Responsiveness (AIRR) genom att introducera ontologisk mångfald, tanken att ett och samma fenomen kan anta flera, samexisterande former beroende på de praktiker som frambringar det (Mol, 2002), som ett centralt analytiskt perspektiv, och genom att omkonceptualisera användarinkludering som en form av relationell, omsorgscentrerad styrning. Istället för att föreslå ett nytt ramverk argumenterar avhandlingen för att ansvar utövas snarare än innehas och att inkludering är ett relationellt tillstånd som måste upprätthållas kontinuerligt snarare än uppnås en gång för alla. Dessa resultat bidrar med en grundad, relationell förståelse av RI inom digital hälsa: de visar att ansvar och inkludering möjliggörs eller omöjliggörs genom det vardagliga, situerade arbetet i organisatorisk praktik, inte genom de ramverk organisationer antar för att benämna dem.

Acknowledgments

For the past years, I have visualised this moment: me sitting down, writing my acknowledgements. Somehow, I find it hard to write these words, because there is so much I want to say, so many things that have happened over the years, and so many people to thank. So many places, so much intellectual stimulation. As we say in Swedish, *jag har fjärilar i magen* (I have butterflies in my stomach), thinking about sitting here now, crafting these final words. Perhaps these are the first words you, the reader, will encounter, but for me, they are the last ones I write in this book. One thing is certain: this PhD was only possible because I trusted the process and let everything unfold, piece by piece.

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Linnea Tavakoli Hagström
Eskilstuna, October 2026

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“Responsibility entails an ongoing responsiveness to the entanglements of self and other, here and there, now and then.”

Barad (2007, p. 394)

Splat the Rat: A Metaphor for Responsible Innovation

Splat the Rat is a traditional British fairground game in which a small toy rat drops unpredictably through a set of tubes, and the player must strike it at precisely the right moment as it appears. The challenge lies in balancing speed with caution. Act too slowly, and you miss the moment. Act too forcefully or too soon, and you create unintended consequences.

Metaphors matter in organisational analysis. They are not simply decorative flourishes but conceptual tools that shape how we think, reason, and organise. Organisational scholars emphasise that metaphors profoundly influence how we understand organisational life (Jermier & Forbes, 2011), and research on reasoning further shows that metaphors actively shape how people think through problems (Thibodeau & Boroditsky, 2011). I use *Splat the Rat* as a metaphor for responsible innovation because it captures a central tension in innovation governance: how to respond to emerging risks and possibilities with attentiveness and care, without overreacting or closing down alternatives. Like the game, responsible innovation requires timing, responsiveness, and sensitivity to unfolding situations, not a fixed, predetermined script. This metaphor supports the core argument of my thesis: responsibility is not a static attribute or a procedural checklist, but an enacted, sociomaterial practice shaped through ongoing interactions among people, technologies, and material arrangements. Responsibility emerges through these entanglements, not before them. Placed at the beginning of my thesis, the metaphor serves as a conceptual starting point: a reminder that innovation is dynamic, situated, and unpredictable, and that responsible action involves continuous attunement.

I offer the metaphor here as a partial image, not as a literal model. Unlike the fairground game, responsible innovation does not allow for any decisive strike that determines whether the round is won or lost. Instead, each moment of response reopens the situation instead of resolving it, and the practice continues regardless of any single outcome. My metaphor borrows from the game the demand for attentive timing under uncertainty but deliberately leaves behind the game's logic of a single, individual, conclusive

action. It also leaves behind the game's element of force. What the metaphor borrows is the attentive timing, not the strike itself. Hence, 'splatting the rat' is not a discrete achievement but a recurring disposition, the same alertness, exercised again and again, never producing a final score.

PART 1: MAPPING THE TERRAIN OF RESPONSIBLE INNOVATION

CHAPTER 1. Why We Need to Care About Responsible Innovation

Since Stilgoe et al.'s (2013) foundational articulation of Responsible Innovation (RI), the concept has developed a substantial conceptual and theoretical foundation. Yet a recent systematic review of 100 business-discipline studies finds that RI still lacks a shared definition and that evidence on how firms operationalise it in practice remains fragmented and inconsistent (Wei et al., 2026). While case-study attention to RI in industry has grown (Fisher et al., 2024), fine-grained, situated accounts of how RI is enacted in everyday organisational practice remain comparatively rare. Decision-maker awareness of RI has also been identified as a key direction for future research (Spanjol et al., 2024), a question this thesis approaches by treating awareness not as an individual cognitive state but as something enacted in practice. Rauch and Ansari (2022) show that even self-serving organisations may unexpectedly repurpose themselves toward RI and call for further research on how such shifts unfold in business settings specifically. This matters beyond academic interest. Digital health start-ups develop and deploy technologies that shape how people manage their own bodies, illnesses, and data, often under pressure to scale quickly and, when positioned as well-being tools rather than medical devices, with limited regulatory oversight (Garbuio & Lin, 2019; Lupton, 2014), precisely the conditions under which "responsible" practice is easiest to claim and hardest to verify. Policy communities, too, remain actively engaged with RI, from Fisher's (2020) account of a third round of theorising reshaping what counts as RI, to concerted advocacy for keeping Responsible Research and Innovation (RRI) institutionally embedded in EU research funding (Gerber et al., 2020). RRI is the term used by the European Commission (EC) in its research and innovation policy. In this thesis, I use RI throughout and reserve RRI for discussions of EC policy specifically. To guide this research, I draw on von Schomberg's (2013, p. 63) definition of RRI as:

> A transparent, interactive process by which societal actors and innovators become mutually responsive to each other with a view to the (ethical) acceptability, sustainability and societal desirability of the innovation process

> and its marketable products (in order to allow a proper embedding of scientific and technological advances in our society).

I retain his original term here to signal the shared conceptual lineage without conflating the two. This definition emphasises that innovation processes must be not only technically sound but also ethically and socially robust, particularly given the unintended consequences that can accompany technological advancement. Researchers who study the ethics and governance of new and emerging science and technologies, such as van Oudheusden and Shelley-Egan (2021), have questioned whether the concept of RI is even fit for purpose in our complex, globalised world. Smolka et al. (2024) push this further, arguing that RI's success as a policy concept has curbed its own critical potential, leaving it caught in a double bind between challenging dominant institutions and being absorbed by them. Owen, von Schomberg, and Macnaghten (2021) reflect on a decade of RRI's institutionalisation within EU policy, arguing that while its original transformative ambition has been diluted, the underlying project, and the debate over what responsibility in innovation means, remains far from settled. What is clear, however, is that innovation will persist, and societies will continue to innovate. What will remain is also the notion of responsibility: even the most autonomous technologies cannot remove our urge to take responsibility in practice, a responsibility to our fellow humans and non-humans, especially in a time of increasing global issues (Puig de la Bellacasa, 2017). As technology increases our interdependence, the question of how responsibility for innovation is taken, and by whom, becomes increasingly pressing (Jonas, 1984; Santoni de Sio & Mecacci, 2021). By moving beyond debates on how RI should be defined, operationalised, and institutionalised, this thesis opens space for more fundamental questions, such as what responsibility means, and for whom.

This thesis contributes to the conversations on RI in management and organisation studies by creating space for users of digital health applications and grounding the analysis in their lived realities and expectations. The tension between RI as a normative ideal and RI as business practice has been noted from multiple angles: the management literature has more broadly been said to lag behind practice (Voegtlin et al., 2022), evidence on how firms put responsibility into practice remains thin (Oftedal, Foss, & Iakovleva, 2019), and Jarmai et al. (2020) argue that the RI concept remains insufficiently tailored to business contexts. Research on RI has also developed mainly in the policy realm and has so far been adopted primarily by research institutions, with less attention to how businesses might actively take up RI in practice (Jarmai et al., 2020). Recent work has begun to address

this directly: Bessant et al. (2025) call for giving users a stronger voice in firm-level innovation processes, while Landers et al. (2024) identify inclusive co-creation as a core practice for responsible digital health innovation. This thesis extends this emerging empirical line of inquiry by examining, in depth, how one digital health start-up enacts these dynamics in everyday practice: Alfa (a pseudonym), a Swedish start-up that develops a mobile well-being application offered to employees through their workplaces. As Oftedal, Foss, and Iakovleva (2019) note in discussing businesses' contribution to societal development, "Our knowledge of how businesses act responsibly in solving these challenges is scarce" (p. 1). The empirical literature on RI has predominantly examined research projects rather than the everyday implementation work of firms themselves (Oftedal, Foss, & Iakovleva, 2019). A small but growing body of recent empirical work has begun to address this, such as longitudinal studies of digital health start-ups examining stakeholder and user inclusion[1] in practice (Thapa & Iakovleva, 2026).

Three interlocking problems motivate my thesis, and it is worth stating from the outset how they relate. At the broadest level sits a societal problem: grand challenges such as SDG 3 (good health and well-being) require firms to act as responsible innovators, yet how this responsibility is exercised in practice remains poorly understood. Nested within this is a literature-level problem: existing RI research offers normative frameworks for what RI should look like, but rarely examines how businesses, and digital health start-ups specifically, enact responsibility in their everyday innovation processes. Nested further within this is the specific question this thesis takes up: even where RI frameworks exist, we know little about what they mean for the users these innovations are meant to serve, or how user inclusion is accomplished, sustained, or undermined in practice. This thesis moves through these three levels by examining, empirically, how one digital health start-up enacts RI and configures possibilities for user inclusion, thereby contributing not a new framework, but a grounded account of how the societal

[1] In this thesis, "inclusion" is the main analytical term, as in the research question and Chapter 6. Two related terms are used more narrowly. "Participation" refers to the concrete, everyday acts through which users take part in ongoing practices (Gherardi, 2012). "Engagement" is used sparingly, to describe how much users interact with the application in general. Unlike inclusion, it does not imply co-creation or influence over decisions. The three terms are related but not interchangeable: participation refers to specific acts, while inclusion refers to the broader relationship that these acts help create over time.

ambitions captured by SDG 3 are taken up, translated, and sometimes complicated at the level of everyday organisational practice.

1.1 The Background: New Roles for Businesses as Responsible Innovators

To contextualise the discussion, I begin by examining how businesses' roles are changing in response to societal challenges. Business practitioners across disciplines have begun to recognise the need to pool resources to address contemporary socio-ethical concerns such as workplace well-being, digital health practices, and global pandemics (George et al., 2016; Voegtlin et al., 2022). Such issues transcend national borders and can affect entire communities and large numbers of people. The COVID-19 pandemic, for example, made the human cost of unmet health-related challenges impossible to ignore (Voegtlin et al., 2022). Implementing responses to these issues depends on contributions from both state and non-state actors (Ferraro et al., 2015; Voegtlin et al., 2022). These pressures have pushed organisations across sectors to treat social value creation as a legitimate innovation goal, alongside economic value (Bacq & Aguilera, 2022). One of the more promising avenues for improving businesses' ethical acceptability, sustainability, and social desirability is through RI (von Schomberg, 2013), a concept that spans contexts from academic research to business practice (Owen et al., 2013) and can be operationalised through four dimensions: anticipation, inclusion, reflexivity, and responsiveness (Stilgoe et al., 2013; Voegtlin et al., 2022), commonly referred to as the AIRR framework. In this thesis, I refer to RI as a concept and field of research, and to AIRR as one framework within it.

In recent years, policymakers have increasingly sought to facilitate RI (Nilsson, 2017; Voegtlin et al., 2022). For example, the EU has promoted RRI as a cross-cutting principle in its research funding (Gerber et al., 2020), and in the United Kingdom, the Engineering and Physical Sciences Research Council (EPSRC) has institutionalised RI in its research funding (Owen, Pansera, et al., 2021). In the United States, the Office of the Comptroller of the Currency (OCC), which regulates national banks, has established an office to support responsible innovation in the banking sector (OCC, 2021). Although important, these initiatives focus mainly on research or specific regulated sectors rather than broader business innovation, and they are tied to specific policy jurisdictions. This is problematic since business firms "are important and necessary social change agents" (Aguilera et al., 2007, p. 857). Indeed, the private sector is increasingly seen as having

a critical role in addressing socio-ethical[2] concerns (Voegtlin et al., 2022). Despite this, management research on RI has paid limited explicit attention to how businesses take up this role (Lubberink et al., 2017; Voegtlin & Scherer, 2017; Voegtlin et al., 2022). Thapa and Iakovleva (2023) emphasise, for instance, that "theoretical studies have focused on normative models of RI, and relatively few empirical studies of RI in practice in corporate settings exist" (p. 2). Although there are conceptual models of RI (see, for instance, Owen et al., 2012; von Schomberg, 2013), we still know little about what these frameworks mean in practice for firms (Blok & Lemmens, 2015; Oftedal, Foss, & Iakovleva, 2019) or for the users these innovations are meant to serve. Actors in such contexts are often unfamiliar with both the term and the practice of RI (Long et al., 2020; Nazarko, 2019; Stahl et al., 2017).

Digital health start-ups constitute a relevant empirical field for studying and illustrating innovative processes initiated in response to socio-ethical concerns (George et al., 2016; Oftedal, Foss, & Iakovleva, 2019). Health is central to global policy agendas, including the United Nations Sustainable Development Goals (SDGs), particularly Goal 3 on good health and well-being, and the literature often frames it as a grand challenge (Ferraro et al., 2015; Rauch & Ansari, 2022). Grand challenges such as those captured by the SDGs can not be resolved through any single technological fix. They require ongoing, situated coordination among many actors, such as firms, users, and regulators, whose responsibilities toward one another are rarely settled in advance (Ferraro et al., 2015; George et al., 2016). This is precisely where accounts of RI grounded in fixed frameworks or procedural checklists reach their limit: they specify what RI should look like, but not how it is accomplished, moment by moment, inside the organisations expected to deliver on these societal commitments (Oftedal, Foss, & Iakovleva, 2019; Thapa & Iakovleva, 2023). This thesis responds to this by examining RI as it is enacted in practice, within a single digital health start-up, showing how a goal like SDG 3, good health and well-being, gets worked out, complicated, and perhaps also unsettled at the level of everyday organisational life, instead of assuming it is simply delivered once a firm adopts the right framework.

Healthcare costs and budgets worldwide continue to rise due to ageing

[2] In this thesis, "socio-ethical concerns" refers to the ethical and social tensions that innovation raises for individuals and society. In the empirical context of this thesis, these are primarily tensions surrounding workplace digital health practices, including autonomy, surveillance, psychological safety, and inclusion.

populations, longer life expectancy, and advances in medical technology (Oftedal, Foss, & Iakovleva, 2019). However, with a demand-driven focus among healthcare businesses, costly investments in commercially attractive diseases are prioritised (Rauch & Ansari, 2022). More broadly, it remains unclear to what degree markets reliably yield societally beneficial innovation, particularly where profitability and public health needs diverge (Kucukkeles et al., 2019). Moreover, policymakers are seeking new digital tools to improve service quality and reduce costs, raising questions about the impact on vulnerable users (Oftedal, Foss, & Iakovleva, 2019). RI offers an alternative approach: a human-centred innovation design that involves users of the product or service as co-designers of their own health outcomes. While user feedback is central, it goes beyond receiving feedback to making users co-designers in the process (Oftedal, Foss, & Iakovleva, 2019). Accordingly, Oftedal, Foss, and Iakovleva (2019) call for future research that engages users in innovation processes to ensure responsible outcomes. Moreover, the growing use of self-tracking and wearable technologies in workplaces raises critical concerns about surveillance, precarity, and control over workers' bodies (Moore & Robinson, 2016).

Furthermore, a central challenge for businesses engaged in RI is soliciting meaningful feedback from stakeholders, particularly users (Bacq & Aguilera, 2022). This challenge reflects a broader issue of user governance, which necessitates critical reflection on the underlying purposes of RI, the degree of user involvement in development processes, and the intentions guiding such engagement. In the business context, de facto RI, which I define below, risks being reduced to a new narrative that merely repackages existing practices. To move beyond this, RI principles must enable firms to critically examine and transform their innovation processes, not simply legitimise them. Extant management theories largely overlook questions like these, at least those focused on corporate forms of organisation (Bacq & Aguilera, 2022; Voegtlin et al., 2022). Moreover, businesses' contextual awareness of responsibility remains low, and entrepreneurial start-ups are often prevented from reflecting on the knowledge they have gained. RI activities are also commonly bundled with other, commercially focused organisational activities instead of being pursued as a distinct concern (Oftedal, Foss, & Iakovleva, 2019).

This thesis adopts Lubberink's (2018) two-assumption rationale for why RI can already be meaningfully studied within a business context, adapting it to this study's empirical setting. Lubberink (2018) defines de facto RI as "purposes, processes and products of innovation that are in fact in line with conceptualisations of responsible innovation but not undertaken with the

rules, guidelines or frameworks of responsible innovation in mind" (p. 4). Following this logic, the present thesis rests on two corresponding assumptions. First, there are existing business cases, including digital health start-ups, in which such de facto RI practices can be identified, offering valuable insights for research even where firms have never engaged with RI as a formal concept. Second, entrepreneurial start-ups operating in the field of digital health are, in their own right, a particularly suitable context for examining such practices, given their responsiveness to societal challenges and capacity for innovation, much as Lubberink (2018) identified social entrepreneurship as a fertile context for studying de facto RI in his own work.

This thesis therefore **aims** to contribute to knowledge of de facto RI practices within digital health start-ups. To explore how RI is enacted in such settings, the study adopts a relational perspective, focusing on how user engagement is orchestrated and performed. This perspective draws on sociomaterial and relational theories that emphasise the entangled, situated, and performative nature of innovation processes (Barad, 2007; Gherardi, 2012; Orlikowski, 2007). Within this framework, I use user inclusion as a heuristic lens to examine how responsibility is enacted in everyday innovation practices. In this sense, inclusion functions as the agential cut enacted in this study: a temporary analytical boundary that makes it possible to study a complex, entangled setting more clearly (Barad, 2007). By focusing on inclusion, the distributed and situated enactments of responsibility become visible in practice.

Given the limited understanding of how digital health start-ups engage with RI, this thesis also seeks to deepen understanding of how RI can be understood and enacted in technology-driven business contexts. While recent process-oriented frameworks identify key activities for implementing digital technologies in health (Nair et al., 2025), this thesis shifts attention to how responsibility is enacted within these processes as situated sociomaterial practices. To address these aims, the following research questions have been developed:

1. How does a digital health start-up enact de facto Responsible Innovation, i.e., Responsible Innovation practised without being explicitly named or formally adopted, in its everyday innovation practices?

2. How do sociomaterial practices in a digital health start-up configure possibilities for user inclusion in Responsible Innovation?

In the remainder of this introductory chapter, I further introduce RI and describe its study to date. Following this, I unpack the concepts of "innovation," "responsibility," and "digital health" to articulate the onto-epistemological stance that informs this thesis. Finally, I outline the thesis structure.

1.2 Reformulating Responsible Innovation

> A key question confronting advocates of responsible innovation today is to use insights gained over the last ten years and weave together old and new approaches, such as social innovation, ecological economics, (techno)feminism, care ethics, postcolonialism, slow science, and others with the aim of reconstituting R(R)I anew – or as policymakers would say, building back better. (van Oudheusden & Shelley-Egan, 2021, p. 144)

Looking back, there has been a fair share of theorising on RI. When browsing the literature, one quickly notes that RI and RRI are often used interchangeably. Yet, despite sharing common features, they have taken two distinct paths in recent years. As noted at the beginning of this chapter, I use RI throughout and reserve RRI for EC policy. The main difference in origin is that RRI stems from the EC as a public policy narrative. In contrast, RI has stronger roots in academia (Owen & Pansera, 2019). The foundations of RI date back a few decades, with the first dedicated theorisations emerging around 2010 (Owen & Pansera, 2019) and the field developing steadily since. Stilgoe (2013, p. 9) described it as follows: “The broad aim of responsible innovation is to connect the practice of research and innovation in the present to the futures that it promises and helps bring about.” As Stilgoe et al. (2013) elaborate, RI is characterised by the four AIRR dimensions introduced in Section 1.1. Gurzawska et al. (2017) add that RI is a strategic choice for long-term competitive success, as it aims to anticipate future societal ethical norms. However, research on RI has neglected the economic motives behind organisational decision-making (Garst et al., 2017). While innovation processes are often described as core practices in societies and among their members, one often overlooks that businesses are also expected to prioritise profitability and efficiency. As Garst et al. (2017) further describe, societal pressure forces businesses to take responsibility for societal challenges, such as ethical issues. Hence, companies may be more willing to incorporate responsibility into their innovation processes. RI has thus come to serve as a vehicle for incorporating responsibility into innovation processes.

As van Oudheusden and Shelley-Egan (2021) argue, scholarly agendas for the future of RI are emerging at a critical juncture, marked by increasingly complex relationships between society and technoscience. They describe the early 2020s as a period of accelerated digitalisation, climate-driven social vulnerability, and shifting policy discourse that is prompting scholarly, practitioner, and policy communities to rethink what counts as RRI. In the EC's science policy discourse, for instance, RRI is increasingly being reframed within the Open Science agenda, and its future as a distinct priority has become uncertain (Gerber et al., 2020; Owen, von Schomberg, & Macnaghten, 2021). Naturally, this trend raises questions as to what responsibility means. If policy communities are rethinking what counts as RRI, how can businesses define what counts as RI, or even responsibility itself?

In recent management research, Ambos and Tatarinov (2022) focus on the innovation aspect of RI, examining how international organisations struggle to innovate while acting responsibly. Rauch and Ansari (2022) take an organisational repurposing angle, showing how an organisation can reorient itself toward RI. Bacq and Aguilera (2022), by contrast, focus on stakeholder governance in the context of RI and value distribution. Publications like these have contributed markedly to management and RI. However, the underlying assumption seems to be that responsibility is predetermined, and the literature leaves its meaning underspecified. In contrast, this thesis adopts a relational understanding of responsibility that aligns closely with Young's (2011) social connection model, which argues that responsibility is not reducible to individual blame or discrete decision-making, but emerges from participation in broader social processes and structural conditions. According to Young (2011), actors become responsible not because they single-handedly cause particular outcomes, but because they are *connected* through shared systems, infrastructures, and practices that collectively produce effects. This perspective resonates strongly with the argument developed in this thesis: that responsibility in digital health start-ups is distributed, emergent, and enacted through sociomaterial relations rather than possessed by isolated individuals. Situating RI within this relational framing helps move beyond voluntaristic or managerial interpretations, instead foregrounding responsibility as an ongoing, shared, and structurally mediated practice.

Reconnecting to the citation at the beginning of the section, van Oudheusden and Shelley-Egan (2021) note an important point about RI research today: the need to reconstitute the concept by weaving it with new approaches. For example, Szymanski et al. (2021) recently highlighted the importance of

using multispecies studies alongside RI, as they rarely intersect, arguing that RI should expand its definitions of stakeholders and responsibility to include non-human others. Thus, conceptual overlaps could cultivate greater responsiveness, which RI research that attends mainly to human stakeholders often overlooks.

The widely cited AIRR framework by Stilgoe et al. (2013) outlines four key dimensions of RI: anticipation, inclusion, reflexivity, and responsiveness. However, scholars have increasingly highlighted what dominant RI frameworks lack or underdevelop (Boenink & Kudina, 2020; Fisher et al., 2024; Smolka et al., 2024; Wei et al., 2026). In response, alternative conceptual approaches have been proposed, such as care ethics (van Oudheusden & Shelley-Egan, 2021) and response-ability (Haraway, 2016), to offer more nuanced understandings of responsibility and inclusion. Notably, the most influential RI literature (e.g., Owen et al., 2012; Owen et al., 2013; Stilgoe et al., 2013; von Schomberg, 2011) tends to treat values as abstract principles or normative anchor points, not as practices (Boenink & Kudina, 2020). For instance, these works do not explicitly address how care for users and others affected by innovation can or should be mobilised. One exception is found in Stilgoe et al.'s (2013, p. 1570) definition, which refers to "taking care of the future through collective stewardship of science and innovation in the present." Yet, as Boenink and Kudina (2020) argue, this use of care remains abstract: care is treated as a general value, an entity to uphold, not as a practice carried out by specific people in specific situations. Moreover, these frameworks offer little guidance on whom to involve, how, and to what extent, or on whether stakeholders, such as users themselves, know what matters to them (Iakovleva et al., 2021; Oftedal, Foss, & Iakovleva, 2019).

Furthermore, engaging RI in dialogue with other conceptual approaches becomes increasingly crucial in specific sectoral contexts. For example, ethical codes of conduct in health innovation are relatively formalised and new devices must be regulated for safety and security (Demers-Payette et al., 2016). At the same time, businesses are advancing rapidly in new technologies and innovations. This development includes, for instance, rapidly advancing genomics technologies. Yet RI research has paid comparatively little attention to health-specific challenges (Lehoux et al., 2019). Hence, we need to articulate the aspects unique to RI within health-related businesses (Moors, 2019), while also asking whether and how RI can be steered and achieved in such environments.

Within health, this thesis focuses on digital health, where these questions become especially pressing: digital technologies, often developed by start-ups operating outside traditional healthcare institutions, move health practices into everyday settings such as workplaces and homes (Garbuio & Lin, 2019; Lupton, 2016; Marent & Henwood, 2023). Digital health is defined here as an "umbrella label for a wide range of technologies that could meet the health challenges. Examples include various apps, telemedicine, electronic medical records, 'smart' homes and 'connected medicine'" (Bessant et al., 2019a, pp. 1–2). Digital health is often associated with human-centred design and increased user involvement (Bessant et al., 2019b). Digital health is further promoted as a way to lower costs while simultaneously improving the quality of care. One can look back at earlier visions of automated factories and see how the same optimism now surrounds the digitalisation of health businesses' products and services (Bessant et al., 2019b).

RI processes within digital health are commonly presented as a way for health businesses to involve users and empower them throughout the innovation process (Bessant et al., 2019a; Iakovleva et al., 2021). In earlier work, we argued that user inclusion in digital health innovation cannot be understood solely as the invitation of users into predefined processes. Instead, we showed that inclusion is actively shaped by sociomaterial conditions, such as where participation occurs, how technologies structure interaction, and which forms of visibility and voice are enabled or risky for users (Tavakoli Hagström & Othman, 2025). From this perspective, fostering meaningful user inclusion in RI requires more than procedural arrangements, it requires attentiveness to how technologies, spaces, and social norms co-produce the conditions under which participation becomes possible.

User involvement is an essential dimension of RI in this context, reflecting the inclusion dimension of the AIRR framework (Stilgoe et al., 2013). From an organisational perspective, involved and innovative users (Oftedal, Iakovleva, & Bessant, 2019) create opportunities to reduce costs and increase accessibility: an involved user is not only a source of information but also a source of feedback that benefits both parties, allowing businesses to refine their products and services as they advance toward commercialisation. Digitalisation has made this kind of involvement easier, giving digital health businesses new ways to draw on users' input to advance innovation (Oftedal, Foss, & Iakovleva, 2019). Yet the spectrum of user involvement is not uniform: as Bessant et al. (2019b) describe in their research on the future of RI, not all stakeholders want to be involved to the

same degree in an innovation's development, underscoring that who counts as a relevant user, and how much say they have, cannot be settled unilaterally by the firm (Bacq & Aguilera, 2022). Furthermore, while considering the digitalisation of health businesses as a way to involve users in proactively managing their health, one also has to recognise the risk that technologies are typically introduced to the market and thus shaped primarily in developers' interests, echoing broader concerns about how workplace and health technologies can reinforce existing power asymmetries between those who design systems and those who use them (Moore & Robinson, 2016). This naturally raises the question of how RI's digital focus ultimately affects user involvement and, in turn, how users give back to the business.

Before turning to the next chapter and deepening the theoretical understanding of RI processes in digital health, this thesis must outline the ontological assumptions and methodological choices that underpin it. These foundations enable a consideration of the embodied and entangled nature of RI as a digital health practice. Approaching responsibility in innovation requires a reflection on the underlying assumptions that shape how it is conceptualised and studied. Finally, on terminology: as set out in the footnote earlier in this chapter, this thesis uses inclusion as its main analytical term, while participation and engagement are used more narrowly.

1.3 Innovation as a Continuous Process

> If an organization updates itself on a daily basis then it's possible for that organization to maintain a close fit with its surroundings. (Weick, 1979, as cited in Gherardi, 2012, p. 219)

Orlikowski and Scott (2008) analysed four leading journals in academic management research. They observed that most publications did not engage with technology in their discussions of organisational life. Although this observation dates from 2008, it remains worth noting, as it has prompted more recent calls for organisation scholars to engage directly with technology (Bailey et al., 2022). Technologies and innovations are studied across numerous disciplines, and definitions of innovation vary widely between them (see, e.g., Jarmai et al., 2020). That said, innovation can be understood relationally, as made up of relationships among those involved, as Callon's definition below illustrates. As the quote above from Weick (1979, as cited in Gherardi, 2012) indicates, innovation is a daily practice

produced by everyone involved. In my earlier discussion of dominant RI frameworks, I argued, following Boenink and Kudina (2020), that substantive values such as care are treated as general values, not as practices. This parallels the shift within organisational learning from knowledge to knowing, or from object to process, which reframes knowing as something accomplished in work practice (Cook & Brown, 1999; Gherardi, 2012). In accordance with Gherardi (2012), I do not view innovations as static but as relatively continuous and processual. As Gherardi (2012) explains, we have witnessed a practice turn within the social sciences, or, more specifically, in organisation studies, as Schatzki et al. (2001) call it. By practice, I mean recurring, socially recognised ways of doing things that bring together people, artefacts, and knowledge (Gherardi, 2012). For this thesis, the practice turn matters because it shifts attention from what RI is in principle to how it is done in everyday work, a point I return to below when discussing Orlikowski's (2015) modes of engaging with practice. From a practice perspective, innovations consist of connections, and Callon's definition captures this relational view:

> Innovation is by definition an emergent phenomenon based on gradually putting into place interactions that link agents, knowledges, and goods that were previously unconnected, and that are slowly put in a relationship of interdependence […]. What marks innovation is the alchemy of combining heterogeneous ingredients: it is a process that crosses institutions, forging complex and unusual relations, the market, law, science, and technology. (Callon, 1999, as cited in Gherardi, 2012, p. 224).

Viewing innovations as an alchemy of ingredients reflects a more relational approach, in contrast to the classic view of innovation as a rational process. This relational approach, consistent with Gherardi's (2012) broader framing of innovation as continuous and context-dependent, fosters sensitivity to contextual conditions. Practice can thus be viewed as a situation in which technology and humans are continuously entangled. Normative and procedural conceptualisations of RI (Owen et al., 2013; von Schomberg, 2011), by contrast, divide innovation and responsibility into distinct pillars. A practice view helps us unite activities instead of dividing them into separate entities. One can view RI and innovation in themselves as continuous processes with dynamic refinements. This view is especially necessary in the context of innovations in the digital health ecosystem, where humans and technology co-compose complex systems shaped by sociomaterial practices. Mele and Russo-Spena's (2019) definition is particularly useful for this thesis, since it combines a practice perspective with a healthcare setting and explicitly links innovation to well-being. They describe innovation in healthcare as "a texture of practices such that the set

of practices rests on other practices performed by actors who integrate material and social resources (e.g., knowledge, tools, languages, artefacts) to improve service provision and actors' well-being" (p. 517). Similarly, in a study of decision-making on service innovations in health care, Turner et al. (2022) show the relevance of a sociomaterial practice perspective to healthcare innovation. They emphasise the many stakeholder groups involved and how a practice perspective helps account for this diversity. Innovation can thus be understood as a dynamic process involving a constellation of heterogeneous actors, shaped by sociomaterial mechanisms.

Furthermore, Orlikowski (2015) introduces three different modes of engaging practice in research. More specifically, she reviews the management literature, including the strategy and practice literature, and examines the different ways practice has been approached. I interpret the three distinct modes of engaging practice as not mutually exclusive. The first mode she describes treats practice as a phenomenon, focusing on understanding what happens in practice rather than aligning with theoretical expectations. Second, practice can serve as a perspective and an analytical lens. Third, practice can be understood as a philosophy, holding that practices fundamentally constitute social reality. Because some of the foundational and most widely cited research on RI (Owen et al., 2012; Owen et al., 2013; Stilgoe et al., 2013; von Schomberg, 2011) builds on theoretical expectations of what RI should be, this thesis engages practice primarily as a phenomenon, attending to what actually happens in practice. At the same time, it draws on practice as a perspective, using sociomaterial theory as an analytical lens, and rests on the philosophical assumption that practice constitutes social reality. I will elaborate on these choices in the methodological chapter, but they are essential to mention in the context of innovation as a practice and a continuous process. Understanding innovation as a continuous, situated process helps challenge the disjunction between RI principles as static concepts and their enactment as lived practices.

1.4 Responsibility and Its Connection to Sociomateriality

To understand RI, one must first understand responsibility, since it is what RI promises to bring into innovation. Yet RI frameworks largely take the meaning of responsibility for granted (Grinbaum & Groves, 2013; Pellé, 2016), which is why this section examines the concept more closely. As discussed above, much of the RI literature focuses on the guiding principles of responsibility, without breaking down what responsibility means in

practice (Boenink & Kudina, 2020). It is worth being precise here about what "responsibility" means in my thesis, since the term can easily be conflated with "accountability". Accountability, close to what Young (2011) calls the liability model of responsibility, typically refers to an individual or organisational actor being answerable, after the fact, for a specific decision or outcome. Responsibility, as this thesis uses the term, is broader and more distributed: following Young's (2011) social connection model, it is not reducible to individual blame or discrete decision-making, but emerges from participation in shared systems, infrastructures, and practices. Although Young developed her model to address structural injustice on a large scale, its core idea, that responsibility arises from participation in shared practices, is also useful for analysing responsibility within and around organisations. This thesis is concerned with responsibility in this distributed, relational, and ongoing sense, not with allocating accountability to specific actors for specific outcomes. I focus on responsibility, not ethics more broadly, because RI frames ethical concerns in terms of responsibility, and because responsibility points to relations: who responds to whom, and how. This does not mean that no one is accountable. A relational view can make accountability more precise, since it shows which arrangements shape responsibility, and these arrangements, such as how feedback is handled or what data are made visible, are designed and maintained by identifiable actors.

Pellé (2017) argues that, in the context of RI, responsibility is often defined from the perspective of corporate actors and not by all actors in the network. She further argues that all actors must participate in and evaluate what responsibility actually means. Price et al. (2020) provide a clear example of the implicit (mis)use of responsibility within management; they cite Prahalad (2010), who wrote a piece titled "The Responsible Manager" for Harvard Business Review. Prahalad (2010) does not explicitly define responsible management (RM), but instead outlines aspects of becoming a responsible manager. Moreover, research within the responsibility domain has been centred on social issues in management, focusing, for instance, on social entrepreneurship, stakeholder management, and corporate citizenship (cf. Carroll, 1991; Freeman, 1984/2010; Waddock, 2004). In research on responsible management, authors such as Gherardi and Laasch (2022) focus on relationships instead of individuals. For example, they examine the entanglements of societal responsibility and its ethical implications.

Research on responsibility as a sociomaterial practice can disentangle the relationships among responsibility, technology, work, and business. Why is it important to talk about responsibility within studies on management and

technologies? According to Mintzberg and Laasch (2020), this need stems from questionable business practices. Moreover, the challenges of the Anthropocene motivate a move beyond the instrumental approach to management studies and to seek new methodologies. Authors such as Fox and Alldred (2020) recently criticised the dualistic framework that separates humans and non-humans. Non-humans, in this sense, include technologies and other material entities. Braidotti (2013) adds that this approach holds that we, as humans, are not superior but deeply interdependent with non-humans. This relational epistemology has significant roots in the work of Haraway (1988, 2016), among others.

In RI research, the overarching aim is to address socio-ethical concerns throughout the innovation process (von Schomberg, 2013). However, this often reflects a voluntaristic view of business practices, assuming managers inherently understand what responsibility entails and how to enact it. Gherardi (2019) offers an alternative lens by proposing sociomateriality as a way to navigate organisational phenomena, viewing them as entanglements of technologies and human actors. By sociomateriality, I mean the view that the social and the material, such as people and technologies, are not separate but constituted together in practice (Orlikowski & Scott, 2008). In the context of RI, the human actors in these entanglements include the users and others involved in the development process. Haraway (2016) emphasises "response-ability" as something cultivated through collective knowing and doing, not as a fixed capacity one simply possesses. In this thesis, response-ability means the ability to respond, which grows out of our relations with others (Haraway, 2016). Responsibility is the broader term I use throughout. I believe this change in terminology reflects the core way of thinking about responsibility and sociomateriality, and it invites an approach to RI as a dynamic, relational process.

1.5 Digital Health: A Relational Perspective

> Emerging technologies are pushing us to reimagine central phenomena in organization studies. For example, data that once served in the background to support management, when clustered into data objects, such as user profiles or machine representations, now take center stage in processes of knowing in organizations. (Bailey et al., 2022, p. 3).

As mentioned above, a sociomaterial view inspires us to see responsibility as a set of entanglements (Gherardi, 2019). Having discussed responsibility, I now return to digital health, defined in Section 1.2, to consider it

relationally: what does digital health do in practice, and who does it matter for? A related, narrower concept is telehealth, which the World Health Organisation Regional Office for Europe (2024) broadly defines as the remote delivery of health care services between patients and providers using information and communication technologies for diagnosis, treatment, research, and professional education. While telehealth specifically concerns remote clinical service delivery, this thesis addresses digital health more broadly, including tools such as the application developed by the start-up studied in this thesis, which are not oriented toward remote clinical care. Although Alfa's application is not a medical device and is used in workplace settings, it falls within digital health as defined in this thesis, as one of the "various apps" through which technologies address health challenges in everyday life (Bessant et al., 2019a). Various materialist approaches offer valuable insights into how digital health is conceptualised and enacted in practice. Even this definitional work does not fully resolve the term's ambiguity: I agree with authors such as Marent and Henwood (2023), who argue that digital health is often treated as an empty signifier, a term stretched to justify funding appeals and policy reform rather than describe any settled reality. They also note that attempts to understand ongoing transformations in health and care are scarce. In digital health, the increasingly popular term user inclusion remains conceptually vague (Nielsen & Langstrup, 2018). Its flexibility risks reducing it to a political platitude and inviting users into ambiguous or poorly defined innovation processes. User inclusion in RI practices and in care practices more generally is part of the participatory turn in health. Digital health has a leading role in this new facilitation (Marent & Henwood, 2023).

Data once served mainly in the background to support managers, whereas today they take centre stage in organisational processes of knowing (Alaimo & Kallinikos, 2022). A relational approach to digital health suggests that health technologies matter within the entanglements of practice, rather than the objects having innate meaning (Marent & Henwood, 2023). This intertwining of the social and the material builds on Latour's work (cf. Latour, 2005). Historically, researchers such as Winner (1986) and Smith and Marx (1994) have acknowledged that technologies are shaped by human action and societal forces rather than developing independently. Jasanoff (2016) takes it further, describing how political, economic, and institutional influences shape technologies. In innovation research, authors such as Arthur (2009) argue that technologies consist of subassemblies, and the relations among these parts affect innovation itself. He thus emphasises that technologies are relational. What, then, does digital health encompass? One answer is that its meaning materialises in practice and can therefore shift

over time. Marent and Henwood (2023) further argue that digital technologies have been studied from a substantialist stance, in which they are seen as objects, or, more specifically, as objects with boundaries that are separate and independent of humans.

Also, Bailey et al. (2022) have recently contributed to conversations on emerging technologies and organising by advocating a relational perspective on technology. They argue that technologies should be treated as constitutive elements of organisational life rather than as discrete entities that merely influence organisational actions. This argument is particularly relevant in an era of intelligent digital technologies, where human engagement is increasingly intertwined with technological systems. In digital health, for example, digital self-tracking technologies in workplaces create new forms of interaction and coordination that extend across organisational boundaries (Lupton, 2016). Pentland et al. (2022), writing, like Alaimo and Kallinikos (2022) and Bailey et al. (2022), in *Organization Science*'s 2022 special issue on emerging technologies and organising, likewise encourage organisation scholars to engage more directly with technologies in empirical research and, ultimately, to become what Bailey et al. (2022) call theorists of technology. Such perspectives invite researchers to approach digital health as a complex sociotechnical phenomenon constituted through ongoing relations among users, technologies, organisations, and practices.

Adopting this relational stance makes it possible to understand digital health as continually assembled through relations among humans and technologies, rather than as a fixed technological domain (Marent & Henwood, 2023). Such a perspective raises important questions about RI processes: How do users understand their interactions with digital technologies? How is the relationship between humans and health applications enacted in practice? And what forms of responsibility emerge through these interactions? Barad (2007) offers a useful lens for addressing these questions by emphasising the temporal and dynamic nature of material practices. She argues that objects do not possess inherent properties independently of relations, rather, they come to matter through particular material-discursive practices, an argument Marent and Henwood (2023) bring to digital health. As Barad (2007) states, "(m)eaning is made possible through specific material practices" (p. 148). Consequently, digital health can be understood as constituted through interconnected relations in which meanings, responsibilities, and forms of care emerge through ongoing interactions among human and non-human actors.

Digital health applications illustrate this perspective by connecting users, devices, health professionals, data infrastructures, and organisations across time and space. Such connections enable what Marent and Henwood (2023) describe as collaborative actions across spatiotemporal situations. As health increasingly becomes enacted through these sociomaterial arrangements, conventional understandings of care are challenged and reconfigured (Mol, 2008). What counts as "good" care is no longer determined solely through human judgement but emerges through relations among technologies, practices, organisations, and users (Puig de la Bellacasa, 2017). For this reason, the following theoretical chapter incorporates the concept of care to explore its constitutive role in digital health. Examining responsibility as a sociomaterial practice can thereby contribute to a richer understanding of how responsibility, technology, work, and organising are mutually constituted.

When applied to innovation, a relational perspective shifts attention away from isolated actors, activities, or technologies and towards the processes through which they become connected and acquire meaning (Gherardi, 2012). RI and innovation can therefore be understood as ongoing and emergent accomplishments, not as bounded stages or predefined procedures. Given the increasing entanglement of users, organisations, and digital technologies in health, it is particularly important to study RI as a continuous sociomaterial process through which responsibilities, forms of care, and innovation practices are enacted and transformed (cf. Barad, 2007; Orlikowski & Scott, 2008).

1.6 Outline of the Thesis

The thesis is organised into three main parts, each contributing to the overall aim of understanding how RI is enacted in practice within a digital health start-up, and how sociomaterial arrangements configure possibilities for user inclusion. As the reader has seen, the thesis opened, before Part 1, with the metaphor of Splat the Rat, which frames RI as a matter of timing, responsiveness, and care, not a fixed script.

Part 1, Mapping the Terrain of Responsible Innovation, introduces the research problem, theoretical positioning, and the study's conceptual foundations. This first chapter outlines the motivation for studying RI in business contexts, situates the thesis within ongoing debates in management and organisation studies, and introduces the relational and sociomaterial perspective that guides the inquiry. It has also presented the research aims

and questions. Chapter 2 develops the theoretical framework by reviewing and critically engaging with key strands of RI literature, including normative and procedural approaches, stakeholder governance, user inclusion, and digital health innovation. This chapter introduces sociomateriality and care ethics as central conceptual resources and articulates the thesis's contribution to rethinking RI as a relational and practice-based phenomenon. Chapter 3 synthesises the conceptual analysis and identifies key tensions and limitations in existing RI research, particularly regarding gamification and social relationships, and introduces ontological multiplicity as a further conceptual resource for understanding responsibility, thereby sharpening the empirical chapters' analytical focus.

Part 2, Methodological Pathways, details the study's research design and methodological commitments. Chapter 4 outlines the relational, sociomaterial onto-epistemology that underpins the thesis and explains how this orientation informs the choice of methods. The chapter describes a qualitative, multi-method research design, including interviews, observations, document analysis, and reflexive diary writing, and reflects on research ethics, reflexivity, and positionality. It pays particular attention to RI as it unfolds in everyday organisational practice and traces sociomaterial relations across time, space, and technological mediation. The chapter also describes participant selection and material analysis, and introduces the case: Alfa and its mobile application for sustainable health.

Part 3, Enacting RI, presents the empirical analysis and the concluding discussion. Chapter 5 addresses the first research question by examining how de facto RI is enacted through sociomaterial practices in a digital health start-up. The chapter analyses how responsibility emerges through everyday configurations of technology, space, time, and organisational routines, and not through formal frameworks or explicit governance structures. Chapter 6 turns to the second research question and explores user inclusion as a relational and care-oriented practice, drawing on care ethics. It examines how ethical tensions, technological mediation, organisational narratives, and governance arrangements shape inclusion, and critically assesses the limits of established RI frameworks such as AIRR when confronted with ontological multiplicity and entrepreneurial conditions. Chapter 7 brings the thesis together by revisiting the research questions and synthesising the study's theoretical, methodological, and empirical contributions. It reflects on the implications of understanding RI as a sociomaterial and relational practice, discusses the research's scope and limitations, and outlines directions for future inquiry. The chapter also develops methodological reflections on what it means to study and engage with RI in practice,

including the researcher's role and the ethical considerations that arise when responsibility and inclusion are understood as ongoing, situated accomplishments shaped by everyday organisational arrangements.

In sum, the thesis's structure moves from conceptual grounding through methodological reflection to empirical analysis and synthesis, allowing the argument to unfold progressively while remaining attentive to the complexity, multiplicity, and situated nature of RI in practice.

CHAPTER 2. Theoretical Reasoning of Responsible Innovation in Digital Health Business Contexts

I spent approximately the first year of my PhD journey reading and doing a thorough literature review. My initial idea was to explore debates on digitalisation and sustainability within management and organisation. To be frank, it took me a while to come across the concept of RI, which eventually caught my attention. I familiarised myself with existing research on RI and identified the authors who appeared most often. I also learned which journals have ongoing conversations about RI, such as the *Journal of Management Studies*, the *Journal of Business Ethics*, *Sustainability*, *Research Policy*, and, of course, the *Journal of Responsible Innovation*. I began with an inductive approach and spent time with the case company, a digital health start-up based in Sweden, where I collected empirical material to understand the themes that emerged and how de facto RI looked in practice. As Langley (1999) reminds us, the research process never begins from a blank slate. I entered it with a foundational understanding of RI. Each theme introduced in the theoretical review prepares the ground for the analysis that follows. The relevance of these themes becomes clearer through the relational and performative lens guiding this inquiry, in which concepts are not static but come to matter through entangled practices.

This chapter situates RI within business and organisation studies, its disciplinary home. The thesis's specific empirical domain, digital health start-ups, is developed further in Chapter 4. The broader business literature reviewed here provides the theoretical vocabulary for analysing this case. The chapter proceeds in three parts. The first part (Sections 2.1 to 2.3) examines the conceptual foundations of RI and how businesses take it up. The second part (Sections 2.4 to 2.6) turns to users, addressing stakeholder governance, digitalisation as a catalyst for user inclusion, and user inclusion in digital health. The third part (Sections 2.7 and 2.8) introduces the relational ontology guiding the thesis and summarises my proposed contribution to RI theorising.

2.1 Conceptual Analysis of Responsible Innovation

To begin the theoretical review of RI, I first offer a concise historical account of its emergence. As Lubberink (2018) notes, RI did not emerge from a conceptual big bang, instead, it evolved incrementally from earlier research in bioethics and socio-ethical concerns, including frameworks such as Ethical, Legal and Social Aspects (ELSA) (Burget et al., 2017; Lubberink, 2018). This genealogy highlights how RI is situated within broader discourses of responsibility in science and technology and underscores its relational and interdisciplinary roots. Compared with ELSA, RI offers added value through its focus on industry collaboration and economic valorisation (Zwart et al., 2014). RI also needs distinguishing from several other closely related concepts frequently invoked in innovation research:

- **Co-design** refers to a participatory design methodology in which users directly shape the development of a specific artefact or service, typically concentrated at the early, front-end stages of development (Sanders & Stappers, 2008). RI is broader than any single method: it concerns the governance of the innovation process across its whole lifecycle, through anticipation, reflexivity, inclusion, and responsiveness. Co-design can be one enabling practice, but not a substitute for the wider ethical orientation RI requires.

- **User involvement,** similarly, is often treated as a management practice aimed at improving product-market fit through user feedback or co-creation (von Hippel, 1986). User involvement can occur without any corresponding commitment to anticipating harm or ensuring societal desirability, a firm can consult users extensively while still developing something ethically or socially problematic. RI requires that inclusion serve this broader ethical and reflexive purpose, not simply product improvement.

- **Stakeholder engagement** has a longer lineage in management scholarship, rooted in stakeholder theory's concern with managing relationships with any group affecting or affected by an organisation (Freeman, 1984/2010), often for reasons of risk management or legitimacy. RI narrows and redirects this: inclusion within RI specifically serves the anticipation of, and responsiveness to, the ethical and societal implications of innovation, rather than stakeholder management as a general business practice.

- **Implementation research**, drawn from the organisational change and technology-adoption literature (Klein & Sorra, 1996), focuses on how successfully an innovation is adopted, diffused, and

embedded within an organisation, including questions of readiness, resistance, and rollout. This body of work is largely agnostic to the ethical or societal desirability of what is being implemented; an innovation can be implemented highly successfully while remaining ethically problematic. RI, by contrast, is explicitly value-oriented: successful implementation is not, by itself, evidence of RI.

- Finally, **business model innovation** concerns how firms create, deliver, and capture value: new revenue models, value propositions, or customer relationships (Foss & Saebi, 2017). This is a largely orthogonal concern to RI: a firm may pursue a highly innovative business model while enacting innovation irresponsibly, or a conventional business model while enacting RI carefully. RI is not a business model category; it is a governance orientation that can, in principle, accompany any business model.

This also distinguishes the thesis from user experience research. The question is not whether the application is easy or pleasant to use, but how responsibility and inclusion are enacted around it, and with what ethical consequences for users.

The concept of RI was introduced to the management literature only recently (Ambos & Tatarinov, 2022; Voegtlin & Scherer, 2017). Early takes on the concept stem from the science and technology development literature (Burget et al., 2017). The scientific community has long lacked consensus on the concept's definition (Ruggiu, 2015), and a recent systematic review confirms this (Wei et al., 2026). However, Burget et al. (2017) conducted a thorough assessment of RI definitions, including those from policymakers and scientists. After reviewing the wide variety of conceptualisations and definitions, they concluded that:

> [RRI] is essentially an attempt to govern research and innovation in order to include all the stakeholders and the public in the early stages of research and development. The inclusion of different actors and the public is, in turn, meant to increase the possibilities to anticipate and discern how research and innovation can or may benefit society as well as prevent any negative consequences from happening. (Burget et al., 2017, p. 15)

To summarise their assessment, we can conclude that RI is perceived as an innovation-governance concept aimed at democratising these processes. In fact, Ruggiu (2015, p. 220) claims that the origin of RI "should be placed within the framework of the 'new governance turn'". The "new governance" model is characterised by similar traits, such as stakeholder participation,

flexibility, and informality. With that in mind, many conceptualisations of RI have been criticised for not differentiating between research, development, and commercialisation, focusing narrowly on the conduct of technological advancements and what counts as responsible science rather than on how innovations are ultimately brought to market (Lubberink et al., 2017).

Throughout this thesis, I use "user" as my main empirical concept, referring to the individuals who directly engage with Alfa's application. In the RI literature, users are usually discussed as one group within a wider set of stakeholders, which may also include investors, regulators, and the public (Iakovleva et al., 2021; Stilgoe et al., 2013). The two terms are therefore related but not interchangeable. This thesis focuses specifically on users, as the stakeholder group most directly affected by digital health applications, and draws on the broader stakeholder literature as the context for understanding their inclusion. In this case, users are employees offered the application through their employer, which shapes the conditions of their inclusion in ways the analysis attends to.

Two dominant approaches to understanding RI have emerged: the *normative* and *procedural* approaches (Lubberink, 2018; Ruggiu, 2015). They differ mainly in when an innovation can be considered responsible. According to Ruggiu (2015), these are the normative substantive approach and the socio-empirical processual approach. In the socio-empirical approach, the term RI is commonly used, whereas in the normative approach, it is RRI. The socio-empirical approach is the most frequently used one in the RI literature (Ribeiro et al., 2017). Moreover, the socio-empirical version focuses on *interaction processes* amongst the different stakeholders to ultimately create co-responsibility. Because it focuses on interaction processes, it is also commonly referred to as the procedural approach. The other approach, a normative one, articulates stakeholder processes through a set of normative filters (Ruggiu, 2015). The normative substantive approach to RI, inspired by von Schomberg (2011, 2013), holds that an innovation is responsible and ethically acceptable only if its implications align with the principles set out in the EU Treaty and its Charter of Fundamental Rights. For von Schomberg (2011, 2013), these documents provide the normative anchor points against which the ethical impacts of innovations should be assessed. These values include, for example, human rights, sustainable development, and solidarity. Briefly, both approaches are prescriptive, though one focuses on social dimensions and the other on legal norms.

Stilgoe et al. (2013) adopt a procedural (socio-empirical) approach to RI. They propose four dimensions of RI to provide a framework for addressing

societal concerns. The dimensions can be heuristically helpful for the responsible governance of innovation. I use AIRR as the main reference point because it is the most widely used expression of the procedural approach to RI (Ribeiro et al., 2017). Although the line between the dimensions is blurred, the four of them require their own explanation (Stilgoe et al., 2013):

Anticipation calls for improved anticipation in innovation governance. Anticipation involves systematic thinking and encourages businesses and researchers to ask, "what if…?" questions. The idea of improving anticipation in governance comes from a multitude of sources, including political, environmental, and scholarly concerns about top-down, risk-based governance models (see, for example, Jasanoff, 2003). Anticipation is supposed to increase resilience while also shaping agendas for new opportunities within innovation. This would require those involved in developing the innovation to engage in foresight activities. The foundational idea is that, instead of predicting the future, it is wiser to design innovation toward a desirable future. Finally, a democratic process that includes relevant stakeholders can determine what counts as a desirable future. Hence, to improve anticipation, it is important to involve stakeholders at the outset to shape the innovation (Stilgoe et al., 2013).

Reflexivity is a word that social theorists have argued is a condition of contemporary modernity (Beck, 1992; Beck et al., 1994). Stilgoe et al. (2013) argue that institutional reflexivity is required in innovation governance. They take the example of holding a mirror up to oneself to view one's own commitments and assumptions. By doing so, we learn that a particular framing of an issue may not be understood the same by everyone. In practice, this means that all actors involved should become aware of their own values. They also become aware of how their norms and values potentially impact the course of the innovation.

Inclusion raises questions about power. This dimension is central to RI and emphasises that stakeholder involvement and public engagement can help steer innovation in a desirable direction. Moreover, "The waning of the authority of expert, top-down policymaking has been associated with a rise in the inclusion of new voices in the governance of science and innovation as part of a search for legitimacy" (Stilgoe et al., 2013, p. 1571). Inclusion processes encompass diverse expectations from public participants about the benefits of dialogue (Stirling, 2008). Current and past attempts at stakeholder inclusion are regarded as ongoing experimentation, as it is unclear whether they constitute a new governance paradigm (Lövbrand et al., 2011).

Finally, *responsiveness*, the fourth dimension in the framework from Stilgoe et al. (2013), focuses on the need to respond to external changes among stakeholders and their networks. These could include changes in norms and values, and those responsible for the innovations must address societal problems while also aligning development processes with stakeholder interests. RI thus requires the capacity to change direction in response to surrounding values and the broader environment. Therefore, Stilgoe et al. (2013) advocate reconsidering how innovation processes are constructed to make them as responsive as possible. In other words, "Responsiveness involves responding to new knowledge as this emerges and to emerging perspectives, views and norms" (Stilgoe et al., 2013, p. 1572). Factors that could affect implementation include institutional leadership and the level of openness and transparency within the leadership. Diversity is also essential to implementing a resilient and responsive innovation system (Stirling, 2007). In the empirical chapters, AIRR functions as a minimal vocabulary that will be densified through multiplicity, care, and sociomaterial mediation, rather than as a linear template to be applied. Moreover, Table 1 below builds on Čeičytė's (2019) overview of RI characteristics. While the original framework offers a normative and policy-oriented lens, this adaptation reflects the relational, situated, and performative dimensions of RI as observed in the empirical context of digital health innovation.

Table 1. *Main Characteristics of RI*

Characteristic	**Description**	**Authors**	**Interpretive Lens in This Study**
Addressing Grand Challenges	Using innovation to tackle systemic societal problems, such as pollution, social exclusion, ageing, and health.	Owen et al. (2013); von Schomberg (2013); Sutcliffe (2011)	Seen as a heuristic cue for legitimacy in digital health innovation: invoking a grand challenge, such as SDG 3, signals alignment with societal priorities without requiring the innovation to demonstrate, in practice, how it addresses that challenge.

Characteristic	Description	Authors	Interpretive Lens in This Study
Socio-ethical Embeddedness	Considering ethical and societal issues at every stage of the innovation lifecycle.	Sutcliffe (2011); von Schomberg (2011); Owen et al. (2013)	Interpreted through care ethics and user inclusion.
Democratic Innovation Process	Making innovation inclusive, transparent, and reflexive, including questions about its intent and purpose.	von Schomberg (2011); Sutcliffe (2011); Ribeiro et al. (2017)	Reframed as relational governance in entrepreneurial settings.
Stakeholder Engagement	Involving a range of stakeholders from the earliest ideas onward, so that multiple perspectives shape the innovation.	von Schomberg (2013); Guston (2013); Owen et al. (2013)	Users were invited into feedback and co-creation processes, but structural and organisational constraints often limited this to a reactive, instructed role rather than genuine co-design.
Shared Responsibility Practices	Taking collective care for the future through innovation.	von Schomberg (2011); Grunwald (2012); Stilgoe et al. (2013); Grinbaum and Groves (2013)	Viewed as emergent and situated in socio-material practices.

Characteristic	Description	Authors	Interpretive Lens in This Study
Meta-responsibility	Going beyond legal compliance during the innovation process.	Stahl et al. (2013); Owen et al. (2013); Grinbaum and Groves (2013)	Interpreted as reflexive responsiveness in iterative development.
Desirable Innovation Outcomes	Aiming for innovations that are ethically acceptable, sustainable, and socially desirable.	von Schomberg (2013); Stahl (2013); Wilford (2016)	Linked to user trust and well-being in digital health contexts.

Note. Characteristics and authors based on Čeičytė (2019, p. 23). The column "Interpretive Lens in This Study" is my own.

2.2 Input, Throughput and Output of Responsible Innovation

This section uses Blok and Lemmens' (2015) distinction between the input, throughput, and output of RI as an organising device for surveying existing debates about RI adoption, not as an account of innovation this thesis itself endorses. It does not compete with AIRR: as discussed below, AIRR describes the throughput, the innovation process itself, while this distinction helps situate that process between what motivates RI and what it produces. The relational, practice-based understanding developed later in this chapter (see Section 2.7) moves away from this more linear, systems-oriented framing. To explore the reasons RI may be adopted, I will examine the concept's inputs, throughput, and outputs, drawing on existing research on RI. Blok and Lemmens (2015) argue that difficulties with the inputs, outputs, and throughputs of innovation processes undermine their responsibility. What, then, is the *input* of RI? Reasons for initiating RI range from public policy demands to the urge to deliver societal benefits (Ribeiro et al., 2017). The demand for RI implementation has mainly been driven by the need to handle grand challenges. Grand challenges, including inequality and inequity, represent persistent failures that stand out against humanity's

broader record of progress (von Schomberg, 2013; Waldron et al., 2022). The inputs are thus not triggered by isolated, clear-cut problems but by complex, multifaceted phenomena. Other inputs are so-called wicked problems (Blok & Lemmens, 2015) or, in other words, complex challenges that are hard to pin down. Innovations can bring uncertainties and dilemmas, even when they offer short-term advantages (Stilgoe et al., 2013). If we democratise innovation by introducing new forms of governance, such as stakeholder and public engagement, we could advance responsible science and technology (Stilgoe et al., 2013). Part of the complexity stems from the many stakeholders involved, who have different ideas about what the problem truly is (Kreuter et al., 2004). The agendas and motives of profit and non-profit organisations also shape differences among stakeholders (Yaziji & Doh, 2009). In fact, Blok and Lemmens (2015) describe these divergent goal interests as bottlenecks in RI. In the collaboration and partnership literature, authors such as Selsky and Parker (2005) and Bryson et al. (2006) argue that problem formulation and initial agreement are vital to collaboration. Hence, a certain degree of push and pull is present when different actors are to decide on societal and ethical aspects (Blok & Lemmens, 2015). Blok and Lemmens (2015) conclude that these underlying power imbalances among stakeholders are problematic, since RI input presupposes responsiveness to stakeholders.

The RI *throughput*, or process, is an interactive process conceptualised in various frameworks. The most prominent is the one developed by Owen et al. (2012) and Stilgoe et al. (2013). This framework includes the four dimensions of RI that I elaborated on above: anticipation, reflexivity, inclusion, and responsiveness. Blok and Lemmens (2015) challenge a key assumption of this framework: that, to incorporate ethical and societal aspects, stakeholders must be involved from the start. They argue that the throughput in such approaches presupposes transparency, interaction, and mutual responsiveness. Roelofsen et al. (2011) similarly show that power dynamics and institutional structures can constrain how dialogue outcomes translate into stakeholder action. Moreover, they question whether finding common ground is even desirable, since an overly strong focus on mutual responsiveness could make specific stakeholders hesitant to participate. Transparency can thus come across as naive, especially in a business setting. Innovation can be a source of competitive advantage, but mutual responsiveness among stakeholders may challenge it.

Information asymmetries open the way for new solutions to existing problems, or, in the case of RI, to grand challenges. Flipse (2013) similarly emphasises that such asymmetries confer a competitive advantage in

business, and collaborations with stakeholders are often restricted by intellectual property rights. Hence, Blok and Lemmens (2015) argue that complete transparency is hazardous from a business perspective. Full transparency toward stakeholders also runs counter to a business logic in which information asymmetries allow firms to claim features that are not yet substantiated but could attract investment (Millar et al., 2012). Transparency and stakeholder interaction may not, per se, make the process more manageable. Blok and Lemmens (2015, p. 25) conclude that "when the throughput of responsible innovation processes is characterised by information asymmetries, the presupposed mutual responsiveness towards stakeholders becomes questionable". Also, uncertainty is relevant here. The mutuality of responsiveness can be limited in non-profit organisations, such as non-governmental organisations (NGOs). It may not be reasonable to expect NGOs to take full responsibility for a highly uncertain innovation (Blok & Lemmens, 2015). It is questionable whether such stakeholders would cooperate constructively given such unpredictable impacts. In this example, if the innovation proves doubtful, NGOs could be accused of collaborating with their enemy (Burchell & Cook, 2013; van Huijstee et al., 2007).

The *output* of RI is predominantly understood as science and technological development (Burget et al., 2017). Blok and Lemmens (2015) argue for a broader conception that includes social innovations. If we look at the overall goal embedded in various conceptualisations (cf. Ribeiro et al., 2017; von Schomberg, 2013) of RI, we can see that social and ethical considerations should be taken into account during the innovation process. If we return to the two dominant approaches to RI, we can see that they differ in their RI outputs. The normative approach assesses whether the outcomes of an innovation process can be considered responsible in light of prior norms and moral judgements (Lubberink, 2018). For example, von Schomberg (2013) argues that his normative anchor points in the European Treaty constitute requirements for innovation. The European Treaty mentions factors such as sustainable development and social justice; therefore, von Schomberg (2013) argues that RI processes must be sustainable and socially desirable (Lubberink, 2018).

On the other hand, authors such as Stilgoe et al. (2013) apply the socio-empirical approach. They argue that no single actor can decide or guarantee a responsible outcome in the innovation process, especially given that innovation is a cumulative collaboration among various actors whose outcomes are inherently difficult to foresee. As Blok and Lemmens (2015) ask:

> The question then is what responsibility could mean if this premise were indeed true. Are responsible innovations those forms of science and technology development whose protagonists are willing and able to take accountability for, or "stand up for," the societal and environmental consequences of their endeavours? (p. 26).

Finally, in this thesis, I treat AIRR as a valuable procedural framework and a minimal vocabulary for RI. My aim is not to replace it, but to extend it by examining how its commitments are enacted, strained, and negotiated in everyday practice.

2.3 Responsible Innovation Uptake from Businesses

Progress in the RI area, Lubberink et al. (2017) argued, depends on investigating how de facto RI can be implemented within the private sector, given the political and socio-economic conditions under which firms operate. This call remains relevant: recent work continues to examine de facto RI "in the wild" (Randles et al., 2024), and a recent systematic review finds that evidence on how firms put RI into practice is still fragmented (Wei et al., 2026).

"So, do you mean that I am irresponsible?"

A common first reaction, when a contemporary entrepreneur is asked whether they would like to alter their innovation processes to become more responsible, is something close to defensiveness: "So, do you mean that I am irresponsible?" (Jarmai et al., 2020, p. 7). Jarmai et al. (2020) argue that once an entrepreneur understands RI, they are likely to ask what it means for them and their business. The authors further outline five steps that may guide businesses in engaging with RI. They argue that businesses can outline a general RI strategy process and use available resources. Specifically, they suggest that businesses should (1) understand what RI entails, (2) reflect on its expected benefits, (3) establish both management and employee commitment, (4) develop an action plan to develop or adapt practices, and (5) stay focused on RI's objective (Jarmai et al., 2020, pp. 11–13). Finally, businesses must stay focused on RI's objective. With this approach, Jarmai et al. (2020) argue that businesses can best implement RI by tailoring initiatives to what they already do. Meanwhile, businesses can explore other aspects of RI and expand their RI elements.

In addition, noting that RI adoption in business was still in its infancy, van de Poel et al. (2017, p. 14) argued that "what is needed is not just more tools for RRI, but a more integral view of RRI in a business context". Lubberink et al. (2017) conducted a comprehensive literature review of 72 empirical scholarly articles to examine RI practices in business settings. They found that businesses are often already engaged in systems thinking for innovation and in working with stakeholders and target beneficiaries. However, they also found that businesses seldom proactively examine whether their innovation activities fail to achieve specific desirable outcomes or reflect on the types of negative externalities they create. Interestingly, van de Poel et al. (2017) found that companies had often never heard of the term RI. This framing, however, has been contested by industry voices, who argue that academic accounts overstate businesses' unfamiliarity with RI and understate the extent to which industry already engages with its underlying concerns (Dreyer et al., 2017). Where such unfamiliarity exists, it may reflect that the term is better known in the EU policy arena than in business. Van de Poel et al. (2017) claim that companies often feel they are not doing everything required to count as an RI practice. While they do not consider themselves sufficiently attuned to the RI discourse, they tend to use other terms instead. Companies may use terms like open innovation or stakeholder dialogue instead (Lubberink et al., 2017). In business and industry, concepts such as corporate social responsibility (CSR) are also more established.

Moreover, van de Poel et al. (2017) argue that RI adoption contributes to market competitiveness, as companies can better understand their stakeholders and adapt their products and services in response to feedback. They also emphasise that such a purely instrumental motivation may lead companies to use RI practices that amount to mere window-dressing. Companies must therefore adopt practices that proactively embed responsibility in their innovation processes (van de Poel et al., 2017). Because only a limited number of companies have developed an explicit RI strategy, I would argue that piloting RI in business, while remaining open to failure, is crucial. European projects such as COMPASS and SMART-map (Responsible Innovation Compass, 2023) have done so. Brand and Blok (2019) take the discussion further and develop the question of stakeholder engagement in business RI processes. They argue that deliberative engagement in a business context can create tension between the ideal RI implementation and de facto RI in the competitive market.

In business contexts, judgements about innovation have traditionally been left to the market, whereas RI calls for deliberation about an innovation's ethical direction. This is where a tension may arise. Brand and Blok (2019)

argue that most publications on RI merely apply existing approaches in the business context without considering the impact of market forces. They argue that the tension mainly occurs between deliberative engagement and innovation capacity, between knowledge sharing and competitive advantage, and finally, between inclusive governance and current corporate governance structures (Brand & Blok, 2019). Another direction for RI in business could be to avoid taking deliberative governance for granted.

Reconnecting to the idea that RI is characterised as procedural, Pellé (2016) suggests this approach may lack practical relevance for business. She argues that many conceptions of RI rest on normative foundations: some on consequentialist reasoning about the outcomes RI practices must achieve, others on dispositions and virtues, in line with Aristotelian ethics. She argues:

> While procedural approaches allow a pluralistic definition of responsibility in which the word carries no substantive content, they lack practical relevance and applicability because they do not specify the particular norms that could stem from the general conditions they defend. Outcome-oriented approaches offer a framework in which the normative horizon to be pursued can be identified less ambiguously, insofar as responsibility is defined by the achievement of particular outcomes. (p. 248)

Now, what does this tell us about RI in start-ups? Because the empirical case for the present thesis focuses on a digital health start-up, and start-ups typically qualify as small and medium-sized enterprises (SMEs) by size, it is relevant to examine what the existing literature on RI in SMEs says in this realm. Flick et al. (2020) highlight the importance of raising awareness of the concept among businesses and informing them of its potential value. They argue that low awareness is the main challenge, leading to little interest in implementing RI. In their chapter, they show that engaging companies in RI practices can be complicated. This hardship stems from conflicting ideas about roles, confusion about its benefits, and limited imagination about what the outputs might be. One answer is to identify key values within the industries in which the businesses operate. The key is to find values that align with RI principles and practices, and then utilise them as a spark for engagement. By not presenting RI as a blueprint, it is possible to tailor information to the business and align it with the company's already recognised components. Finally, Flick et al. (2020) found that, to implement RI in SMEs, it is preferable to avoid the terminology and use more familiar concepts. They also suggest that ethical approaches in commerce can strengthen credibility and trustworthiness.

2.4 Stakeholder Governance in Responsible Innovation Processes

As Blok (2014) argues, grand challenges such as climate change, poverty alleviation, and ageing societies increasingly call for the active involvement of public actors and stakeholders in research and innovation processes, with stakeholder dialogue helping find common ground among the many parties involved. So far, existing research on RI in business shows that stakeholder engagement has taken centre stage in the discussion (cf. Blok & Lemmens, 2015; Ribeiro et al., 2017; Stilgoe et al., 2013; von Schomberg, 2013). Stakeholders are groups or individuals who can affect or are affected by an organisation (Freeman, 1984/2010). Harrison and Wicks (2013) even argue, in line with Porter and Kramer (2006), that few businesses today can thrive solely on shareholder value. Businesses that focus solely on maximising profit may at best avoid harming others, but can hardly achieve the goal of doing good (Aguilera et al., 2007; Scherer & Voegtlin, 2020). Stakeholder involvement consequently lies at the heart of the RI literature. For instance, Blok and Lemmens (2015, p. 20) describe how RI is often conceived as regular innovation combined with stakeholder involvement.

Yet this emphasis on stakeholder involvement rests on particular assumptions. In his foundational descriptions of RI, von Schomberg (2013) established that stakeholders become "mutually responsive" to one another (p. 63), an idea that stems from the notion that stakeholder engagement helps steer innovation in a collectively desirable direction. Stakeholder engagement is thus understood as dialogue, not debate (Blok, 2014). The word "dialogue" is used because it emphasises cooperation, openness, and mutual understanding in achieving collective goals. Bergen (2017) highlights a significant critique of this view: the assumption that stakeholders in RI processes are all willing to cooperate, that their interests align, and that they work harmoniously toward the same results. Blok (2014) similarly emphasises how ideals of openness, alignment, and harmony in stakeholder communication are rarely realised in practice. Such harmony may be achievable for relatively simple issues that market forces can handle.

Bigger problems, such as grand challenges, may involve a wide variety of judgements from multiple stakeholders that are not always aligned. Blok (2014, p. 174) introduces the term stakeholder paradox that may appear in RI processes: to genuinely stay open and respectful toward other stakeholders throughout a dialogue, one must, paradoxically, first resist that same openness, temporarily favouring one's own position over the self-referential views of others involved. He then emphasises that this problem of

stakeholder dialogue arises from the complexity of grand challenges and the significant uncertainties involved, as the characteristics of the stakeholders, such as vision, status, and motives, become even more visible here. Blok et al. (2015) also point to tensions in stakeholder engagement in businesses specifically. They argue that stakeholder engagement within RI literature carries a normative undertone: framing science and innovation as being *for* society implies that society's interests must be accounted for in RI, while framing it as being *with* society implies that those same interests must actively shape the innovation process itself, in order to move closer to genuine RI. Stakeholder engagement is often elevated as an important topic in RI without a corresponding account of how it is managed in practice, a tension that reflects RI's emergent status as a field. The empirical evidence on stakeholder engagement in RI is also scarce and underdeveloped. Macnaghten and Owen (2011) and Blok et al. (2015) suggest that a stage-gate innovation model would help conceptualise RI processes, based on the belief that conceptualising the innovation process is critical for studying stakeholder engagement. As I argue later, such linear models struggle to capture how engagement unfolds in practice.

In a later publication, Bacq and Aguilera (2022) conclude that existing governance models for RI remain limited in their ability to secure stakeholder participation. Consequently, businesses pursuing RI lack governance mechanisms to create, appropriate, and distribute value among stakeholders. To implement RI effectively, a business must govern value more comprehensively. It should be noted that when they use the word value, they also emphasise that it must go beyond merely economic value. Because businesses often must choose how to prioritise value allocation among stakeholders, RI itself raises a fundamental stakeholder governance problem (Bacq & Aguilera, 2022). Consider innovation output: what an innovation will ultimately bring is hard to foresee. This is because the innovation produces new outputs that have not been observed before (Owen et al., 2013). Bacq and Aguilera (2022) build on Stilgoe's (2011) emphasis on the role of intent in governance, in contrast to more product-focused accounts (Owen et al., 2013). This calls for new types of questions that reflect on purpose: why do it, and for whom? The problem is that extant governance theories in management research offer little guidance here, particularly for businesses. Why is that? According to Bacq and Aguilera (2022), governance theories applied to RI must meet two conditions. First, they must not be anchored solely in economic conceptions of value production. Second, they must not minimise the importance of "values" as the primary channel for governance mechanisms among stakeholders. Since coordination problems in business collaborations can arise from weak governance (Scherer & Voegtlin, 2020),

it is essential to distinguish the main RI strategies in business. Gutierrez et al. (2022, p. 1124) identify two stakeholder engagement strategies used by responsible innovators, which they call strategies *rainbow warriors* and *rainbow washers:* rainbow warriors engage from the outset with a broad base of stakeholder groups and sustain that breadth over time, while rainbow washers begin the same way but ultimately narrow down to intensive engagement with only one or a few of those groups. In sum, the ongoing conversations on stakeholder dialogue within RI in businesses tend to point to the underlying assumption of harmony, consensus, and alignment among stakeholders as problematic and questionable.

2.5 Digitalisation as a Catalyst for User Inclusion in Responsible Innovation Processes

This section examines how digitalisation, by which I mean the growing use of digital technologies in how organisations innovate, operate, and relate to users, can open up new possibilities for user inclusion in RI. Traditionally, R&D departments have been dedicated units for organising innovation-related tasks. They usually consist of more senior managers (Haapasaari et al., 2018; Opland et al., 2022). As discussed in Chapter 1, users have begun to take centre stage because they can reduce hindrances to innovation within companies (von Hippel, 2005). Digitalisation has changed how technologies support business goals and, in fact, enabled the transformation of entire industries (Nylén & Holmström, 2015; Opland et al., 2022). Democratising the innovation process has led to greater stakeholder engagement in RI. This trend clearly marks a shift from innovation production in closed rooms to co-creation. Whether digitalisation increases user engagement in RI processes depends on how entrepreneurial activities are conducted (Thapa & Iakovleva, 2023). Digitalisation can create opportunities for entrepreneurial activity and may even catalyse emerging economic activity (Davidsson, 2015; Nambisan, 2017; Parker et al., 2017). Thapa and Iakovleva (2023) also emphasise that, if deployed correctly, new ventures employing digital technologies can help solve many societal challenges, including in health and welfare services. At the same time, amid growing digitalisation, entrepreneurial activities must be inclusive and responsive to a wide range of societal effects to guide their direction. As Lehoux et al. (2019) make clear, the university and research sectors have dominated discussions on RI. It is therefore vital to examine businesses, and more specifically entrepreneurial businesses, as digitalisation in these contexts drives innovation and, at the same time, increases user engagement.

Entrepreneurial businesses are considered change agents whose contributions to societal challenges are critical (Choi & Gray, 2008; Lubberink et al., 2017; Thapa & Iakovleva, 2023). Digitalisation offers businesses and innovators stronger capabilities to collect data and deepen analysis (Brynjolfsson & McAfee, 2014). The unprecedented velocity of such data aggregation and learning also tends to outpace the governance of these innovations, and this is where RI becomes timely. Dufva et al. (2017) emphasise that co-creation and, ultimately, user engagement emerge from the ecosystems that digital platforms bring together. They argue that this ecosystem includes users and customers, as well as producers themselves.

According to Zahra and Wright (2016), entrepreneurial ecosystems involve a growing variety of stakeholders, not just the individual entrepreneur, and the diversity of these stakeholders and their needs shapes how new ventures behave. Relatedly, Thapa and Iakovleva (2023) argue that a user's adoption of a product is linked to trust in the entrepreneurial business that offers it. The perceived confidence in the solutions offered is affected by the degree of trust and engagement with the user. Nambisan (2017) and Thapa and Iakovleva (2023) add to the discussion by elaborating on the various digital artefacts entrepreneurial businesses have engaged with in recent years. They describe this as a surge in the creation of such artefacts. Von Briel et al. (2018) remind us that digital technologies can enable new venture creation. Arguably, the extent to which digitalisation can continue to impact, and perhaps improve, health services will depend on how entrepreneurial activities are governed (Bessant et al., 2017; Thapa & Iakovleva, 2023). For this thesis, the key point is that digitalisation creates new channels for user inclusion, such as applications, data, and feedback functions, while also raising new questions about how such inclusion is governed. The next section takes up these questions in digital health specifically.

2.6 Responsible Innovation and User Inclusion in Digital Health

Related to the discourse on RI, public concerns are growing about the underlying motivations for using digital technologies in health and welfare services. This matters because entrepreneurial practice itself, not digitalisation alone, appears to be a key factor shaping whether these technologies deliver meaningful improvements to health and welfare (Thapa & Iakovleva, 2023). The health sector is complex because it comprises highly diverse groups. These diverse groups include patients, governments, equipment providers, and innovators, among others (Iakovleva et al., 2021). Governmental

institutions can operate at the municipal, regional, or national level, which adds to the complexity. This, in accordance with Timmermans et al. (2020) and Thapa and Iakovleva (2023), indicates that scepticism and user-unfriendliness can result from a relatively linear techno-scientific approach. The classic linear approach is often rejected because it is hard to implement in complex existing systems. The emergence of digitalisation in health services has begun to disrupt traditional linear models of innovation, creating opportunities for greater user involvement. In particular, "digitalisation might lower the costs of health services, facilitate the provision of services in remote areas, and increase the efficiency and effectiveness of care" (Thapa & Iakovleva, 2023, p. 1). Meanwhile, as Zahra and Wright (2016) argue, we cannot assume that all venture ideas benefit broader society. Businesses will at times have negative externalities arising from their innovations. Lazonick (2014) similarly shows how corporate practices such as stock buybacks can benefit executives and shareholders while leaving broader society worse off. This nascent field of research raises many unanswered questions: Do users play a role in health innovation? What are their motivations to innovate and share? (Oliveira et al., 2019, p. 44). Users are the target beneficiaries of health innovations, and we are just beginning to understand how and why they innovate. Oliveira et al. (2019) explain that this is why RI is considered mandatory: health matters to all citizens, and society has a duty to achieve better outcomes and sustainability.

Understanding users' role in health innovation also requires attention to the power relations they face. Berry et al. (2017) highlight that health users are often reluctant to assert their interests in front of clinicians, simply because clinicians hold authority and are seen as experts. The relationship between the perceived expert and the health user can create ingrained, socially sanctioned roles. Berry et al. (2017) call this phenomenon Hostage Bargaining Syndrome (HBS). Health users are potentially susceptible to HBS because of the fear and confusion they can feel while approaching authorities. The situation can also escalate, leading the user to remain silent against their better judgement or to engage in non-authentic involvement in shared decision-making. Berry et al. (2017) further explain that to prevent learned helplessness, health care organisations must acknowledge and be sensitive to the inherent power imbalances in the relationship. HBS can compromise the quality of care, so they must help users trust that communication is safe. Iakovleva et al. (2021) connect this directly to RI, suggesting that digitalisation can itself become a route out of HBS dynamics: as digital tools give patients more direct control over how technologies are used in their own care, the broader shift toward digital health does not just change what tools

are available but also gradually reshapes how patients, clinicians, and the wider system relate to one another and understand their respective roles (Iakovleva et al., 2021, p. 5). Since user inclusion in health innovations is not fully understood, Iakovleva et al. (2021) open the user dimension rather than treating users as a homogeneous group. As shown in Table 2, based on Oftedal, Iakovleva, and Bessant (2019), users range from informed users, who seek information to understand their own circumstances, to innovative users, who develop new solutions themselves. Oftedal, Iakovleva, and Bessant (2019) further explain that most users can be considered involved users. Consequently, health professionals, broader society, and researchers must ask critical questions, such as those listed in Table 2, including how to encourage users to engage more with innovation.

Table 2. *Types of Users*

Name of user	**Description**	**Questions to be addressed**
The Informed User	Uses information sources to understand their own situation.	How can users be helped to avoid misinformation?
The Involved User	Takes an active part in health care when invited by the sector.	How can mechanisms be created to involve users and listen to their perspectives? How can user feedback be reflected on effectively?
The Innovative User	Develops new solutions to problems they experience.	How can space be created for innovations developed by users, including user entrepreneurs?

Note. Based on the typology in Oftedal, Iakovleva, and Bessant (2019, p. 29). The original uses the term "patient". I use "user" here because the users of the application studied in this thesis are not patients.

Building on this categorisation, which shows that user inclusion can take many forms, I conceptualise user inclusion in RI as a heuristic cue. Inclusion in AIRR originally concerns involving publics and stakeholders in the governance of science and innovation. In this thesis, I apply it to users of a commercial product, reflecting RI's shift into business settings, where users are often among the most directly affected stakeholders (Iakovleva et al., 2021). Liu et al. (2022) showed how users interpret source expertise and

personalisation as heuristic cues in chatbot interactions, that is, as shortcuts for judging whether a technology can be trusted. Inspired by this work, I argue that user inclusion functions similarly in RI: it serves as a cue for legitimacy and responsiveness, signalling that an innovation is socially attuned, even when inclusion is only partially realised in practice. In this thesis, user inclusion therefore plays two roles. For the actors studied, it can function as a heuristic cue that signals responsibility. For me as a researcher, it serves as a heuristic lens for examining how responsibility is enacted, which is also practical, given the potential messiness of studying complex RI processes.

Research on digitalisation in health increasingly addresses machine learning and artificial intelligence (AI), which is relevant here since Alfa describes its application as drawing on such technologies (see Section 4.8). For instance, Garbuio and Lin (2019) elaborate on AI as a growth engine for health start-ups. They argue that for an innovation to thrive in the market, a start-up must first assess the value it creates for users, and that identifying users is crucial when building a new enterprise. Using AI-driven health technologies as an example, where users may include a variety of groups, they emphasise that a technology-driven health start-up must critically assess its primary and secondary users and examine who actually pays for the product or service. This distinction is directly relevant to Alfa, whose application is paid for by employers but used by their employees. This question is especially important in health, where insurance providers in many health systems bear some of the costs. The authors also note that a growing number of entrepreneurs are bringing both established and emerging technologies into healthcare, yet it remains unclear whether ventures tackling different problems converge on similar business models, or how value is ultimately distributed among the many parties involved, from clinicians and patients to insurers, administrators, and government bodies.

On responsibility, Garbuio and Lin (2019) emphasise the importance of governance and decision-making. They highlight the potential confusion about who is responsible for what in AI-driven health and give examples of decision-making errors: should responsibility lie with the person who ultimately reviews the results, or with the start-up that created the innovation? Such questions become even more pressing as health technologies expand into wearable technologies (Plester et al., 2024), such as Moodbeam devices, which aim to track employees' emotional well-being.

Taken together, this review shows that users are increasingly central to RI in digital health, yet their inclusion remains uneven, shaped by power relations, organisational settings, and the technologies through which they participate. It also shows that as digital health moves into workplaces and everyday life, the question of who is responsible for what becomes harder to answer. Garbuio and Lin's (2019) question of whether responsibility lies with the person reviewing the results or with the start-up behind the technology assumes that responsibility can be located in a single actor. The next section introduces the relational ontology that guides this thesis, which offers a different starting point: responsibility as something that emerges through the relations among people, technologies, and organisations.

2.7 Going Forward: A Relational Ontology

As the previous section concluded, the question of who is responsible for what in digital health cannot easily be answered by locating responsibility in a single actor. As noted in Chapter 1, RI research has also tended to assume that managers inherently understand what responsibility entails and how to act on it (von Schomberg, 2013). To move beyond both assumptions, I draw on Barad's (2007) concept of agential realism. Her emphasis on the inseparability of the social and the material offers a productive lens for understanding how responsibility is enacted in complex organisational settings. Agential realism is not the only theoretical foundation on which studies of sociomateriality can be built. Mutch (2013) argues for critical realism as an alternative, better suited to specifying technology's determinate properties and situating practice within broader social structures. As Leonardi (2013) shows, the choice between these foundations is not simply a matter of philosophical preference: it shapes what can be studied and how. Actor-network theory, which also informs relational thinking (Latour, 2005), offers a further alternative. However, agential realism's attention to how boundaries and responsibilities are enacted in practice fits this thesis's focus on responsibility more closely. This thesis deliberately grounds itself in agential realism because its central concern, how responsibility is enacted through entangled, situated sociomaterial relations, not possessed by pre-existing entities, is precisely the kind of phenomenon agential realism is built to illuminate. Although Barad developed agential realism from quantum physics, organisation studies has widely taken it up to analyse how social and material elements are entangled in practice (Orlikowski & Scott, 2008).

Both the normative and procedural approaches discussed in Section 2.1 often presuppose discrete, autonomous entities, such as “science,” “society,” or “technology,” interacting in linear or hierarchical ways. In contrast, an ontology of relationality, as articulated by scholars such as Orlikowski (2007) and Barad (2007), foregrounds the entangled and co-constitutive nature of these entities. From this perspective, phenomena do not pre-exist their intra-actions. Instead, they emerge through specific material-discursive practices. This implies that responsibility in innovation is not merely a matter of ethical deliberation after the fact, but is embedded in the very practices through which knowledge and technologies are constituted. Studying RI through this lens therefore shifts the focus from managing the external impacts of innovation to the practices through which innovation itself takes place. Similarly, Orlikowski's (2007) practice-based ontology highlights the constitutive role of sociomaterial practices in shaping both organisational and technological outcomes. Unlike sociotechnical approaches, which treat the social and the technical as interacting but separate systems, a sociomaterial approach treats them as inseparable in practice (Orlikowski & Scott, 2008). While this aligns with RI’s emphasis on reflexivity, it deepens the analysis by demonstrating how innovation is always already situated within webs of relations involving human actors, technological artefacts, institutional norms, and discursive regimes. Responsibility, then, is not an external add-on but an emergent effect of these relational configurations. Thus, I argue that adopting an ontology of relationality enables a more nuanced and situated analysis of how responsibility is enacted within RI practices. It foregrounds the performative, emergent, and distributed nature of responsibility and calls for methodological approaches that can trace the complex entanglements through which innovation is enacted. This perspective not only enriches theoretical debates in RI but also offers practical insights for designing more responsive and inclusive innovation processes.

Moreover, Barad (2003) reminds us that agency is not an attribute of humans or things but emerges through intra-action. Put simply, “it is through the specific sociomaterial intra-actions of an 'apparatus' or sociomaterial practice that an observed phenomenon or 'object' is performed" (Doolin & McLeod, 2012, as cited in Symon & Pritchard, 2015, p. 243). This invites us to question whether agency should be located exclusively in either the human or the material, such as the user or the technology, or whether it is more productively understood as emerging from their mutual intra-action. Orlikowski (2007) illustrates this with the example of the smartphone’s push email capability, which, when entangled with individuals’ choices to remain constantly connected, gives rise to new organisational communication

norms. As she concludes, “focusing on these sociomaterial aspects of everyday practices will open up important avenues for examining and understanding the ongoing production of organisational life" (Orlikowski, 2007, p. 1445). This insight is particularly valuable for understanding how mobile phones and other artefacts are used to enhance employee well-being in the workplace.

What, then, does responsibility require within such entanglements? Alongside agential realism, I draw on care ethics as a second conceptual resource. Tronto (1993) understands care not as a feeling or a private virtue, but as a practice: the ongoing work through which we maintain, continue, and repair our world so that we can live in it as well as possible. She distinguishes between phases of care, from noticing that care is needed to taking responsibility for it, giving it, and how it is received, and links these phases to the moral qualities of attentiveness, responsibility, competence, and responsiveness. Puig de la Bellacasa (2017) extends this thinking into more-than-human worlds, arguing that care is always material and ethico-political: it is done through technologies, bodies, and things, and it involves asking what and who is neglected. Care ethics shares vocabulary with RI frameworks, not least responsiveness in the AIRR framework (Stilgoe et al., 2013), but it shifts the question from whether a procedure has been followed to what situated practices of attending and responding actually require. Care ethics and agential realism fit together because both treat responsibility as something done in relations, not something individuals possess. In this thesis, care ethics serves mainly as an analytical vocabulary in Chapter 6, where I examine user inclusion as a relational and care-oriented practice and the ethical tensions it involves.

Finally, I bring these resources to bear on technology itself, through a relational approach to digital health artefacts (Marent & Henwood, 2023). This approach helps us grasp how health technologies come to matter through their entanglement in practice, instead of assuming that these objects possess innate meaning. Building on recent theorising of technology-in-use (Pentland et al., 2022), I will engage empirically with technologies to explore their complex entanglements. Some argue that mobile technologies facilitate stronger connections between employees, their colleagues, and the organisation (cf. Symon & Pritchard, 2015). Marent and Henwood (2023) describe the resulting relations in terms of digital interconnectedness and connectivity. This relational lens will support my efforts to understand the evolving roles of businesses and users and, ultimately, what good care means to them.

2.8 Summing Up: My Theoretical Contribution to Researching Responsible Innovation

This review has shown that RI has largely been theorised through normative and procedural approaches that treat innovation, and the digital artefacts involved, as relatively stable objects to be governed from the outside. This thesis instead approaches them as dynamic processes. My study contributes to RI theory by advancing understanding of responsibility in digital health contexts through a relational and performative lens. Drawing on agential realism (Barad, 2007) and, later, ontological multiplicity (Mol, 2002), this thesis argues that responsibility is not a fixed attribute or outcome but an emergent, negotiated process shaped by user interactions, organisational dynamics, and technological design. This perspective challenges linear applications of traditional RI models and highlights the need for more reflexive and inclusive approaches to innovation governance. Figure 1 illustrates the conceptual model of RI approaches adopted here.

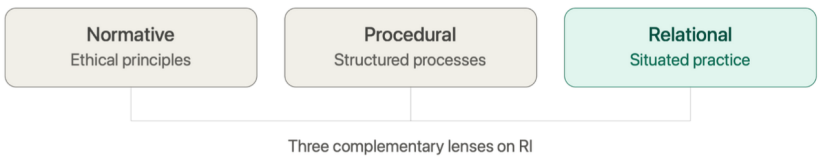

Figure 1. *Three Perspectives on Responsible Innovation: The relational perspective, developed in this thesis, extends and complements normative and procedural accounts of RI rather than superseding them.*

The model presents three perspectives on RI, each addressing a different dimension of how responsibility is constituted. The normative approach articulates the foundational ethical principles guiding innovation, emphasising alignment with societal values and standards. The procedural approach operationalises these principles through structured processes, stakeholder inclusion, and transparency. The relational approach, developed in this thesis, attends to how responsibility is embedded in situated, everyday practices within digital health contexts. These perspectives are not presented as successive stages in which later approaches supersede earlier ones: as argued throughout this thesis (see Sections 2.1, 2.2, and 7.2), the relational approach extends and complements normative and procedural accounts instead of replacing them. The figure's left-to-right arrangement reflects this thesis's specific analytical entry point, the relational dimension,

not a claim that RI has evolved, or should evolve, away from normative and procedural concerns. Each conceptual resource has a distinct role in this thesis. Agential realism provides the ontological starting point: responsibility as enacted, not possessed. Mol's multiplicity helps analyse how responsibility takes several coexisting forms, which is central to RQ1. Care ethics helps analyse what inclusion requires in practice, which is central to RQ2.

Adopting a relational approach to RI, this thesis understands digital artefacts as active in how RI materialises, not as passive or externally imposed. In earlier work, Othman and I demonstrated that inclusion in digital health innovation is not exhausted by questions of who is formally invited to participate. Instead, we showed how material arrangements such as interfaces, data visualisations, and organisational routines actively shape what users feel able to say, share, or withhold, and how users and organisations distribute responsibility in practice (Tavakoli Hagström & Othman, 2025). Building on this insight, the present thesis treats digital artefacts not as neutral tools awaiting responsible use, but as active participants in the co-constitution of practices, values, and responsibilities in situ. Compared with that article, which focused on user inclusion, this thesis extends the analysis to how responsibility itself is enacted, to the multiplicity of these enactments, and to the organisational side of the case, including gamification and Alfa's responsiveness to users.

As argued in Section 2.7, responsibility in this view is not a static attribute assigned to human actors post hoc, but an emergent effect of sociomaterial configurations that unfold in practice. By attending to how digital artefacts, such as mobile digital health applications, are entangled with organisational routines, user expectations, and institutional norms, we can begin to trace how notions of "good care" and "responsible innovation" are enacted, contested, and stabilised. This relational ontology thus allows for a more dynamic and situated understanding of RI, one that is sensitive to the performative effects of technologies and the distributed nature of agency as enacted in practice. It also opens space for empirical inquiry into how responsibility is negotiated and materialised in everyday organisational life, offering a richer and more grounded account of what it means to innovate responsibly in contemporary digital contexts.

In the next chapter, I synthesise this conceptual analysis and identify key tensions and limitations in existing RI research, particularly regarding gamification and social relationships, and introduce ontological multiplicity as a further conceptual resource. Chapter 4 then turns from conceptual

reasoning to methodological practice, detailing how the relational and sociomaterial commitments outlined here are operationalised in the study design and empirical work that follows.

CHAPTER 3. What the Conceptual Analysis Tells Us

This chapter draws together what the conceptual analysis in Chapter 2 tells us. As noted there, I engage primarily with scholarly conversations on RI in management and organisation studies. This choice follows from my research questions, which concern how RI is enacted in the everyday organising of a firm, and from calls within this field for more attention to how businesses take up responsibility in innovation (Voegtlin et al., 2022). A 2023 search of the Web of Science database using the terms "responsible innovation" and "digital health" revealed a broad and expanding body of literature across diverse academic domains, including biochemistry, environmental sciences, management, business, economics, and computer science. This illustrates how interdisciplinary RI has become. In this thesis, I approach RI through the lens of management and organisation studies while drawing on insights from science and technology studies (STS) to enrich the theoretical framing (e.g., Barad, 2007; Mol, 2002). This interdisciplinary engagement reflects the multifaceted nature of RI, particularly within digital health, where ethical, organisational, and technological dimensions are not merely adjacent but deeply entangled. By integrating these perspectives, I aim to foreground the relational and situated dynamics through which responsibility is enacted in innovation practices.

The perspectives introduced below should not be read as a critique of RI's core understanding of responsibility, but as analytical resources for giving empirical substance to its ethical ambitions in practice. My aim is not to evaluate RI frameworks on their own terms, but to identify where their assumptions leave everyday enactments of responsibility analytically under-specified. Section 3.1 discusses the limits of RI research thus far, Section 3.2 turns to gamification and social relationships, and Section 3.3 introduces ontological multiplicity as a lens for understanding responsibility.

3.1 Limits to Responsible Innovation Research Thus Far

Despite RI's growing prominence in academic and policy discourse, significant tensions remain when it is examined in everyday organisational practice, particularly in start-up contexts (Fisher et al., 2024; Wei et al., 2026). Studies of start-ups and SMEs show that early-stage ventures often face structural and contextual constraints that make it difficult to align their innovation processes with RI principles (Flick et al., 2020; Long et al., 2020; Oftedal, Foss, & Iakovleva, 2019). De Hoop et al. (2016) articulate this challenge succinctly, highlighting how power asymmetries, unclear responsibility boundaries, and interdependencies can obstruct the realisation of RI. These dynamics may lead innovators to deviate from RI ideals, prompting the authors to argue that RI must entail a commitment to innovate responsibly, or not at all. They critique the outdated "division of labour" model, where universities conduct research, businesses innovate, and society passively benefits, noting that such assumptions fail to account for the complex ethical and social dimensions of innovation: "Research and innovation do not automatically lead to a societally desirable and ethically acceptable combination of profits, societal welfare and environmental sustainability" (de Hoop et al., 2016, p. 110). This is especially relevant for start-ups, which are expected to innovate and act responsibly at the same time, without the support structures that larger organisations or research institutions may have.

Current RI scholarship has tended to take successful implementation as its point of departure. With notable exceptions, such as de Hoop et al. (2016), it has engaged comparatively little with failure, whether of innovations themselves or of attempts to implement RI principles. Researchers and technology-driven businesses would benefit from exploring what these shortcomings reveal. Learning from failure matters particularly in digital health, where implementing AI systems requires coordination across multiple activities and actors, so that things can go wrong in many places (Nair et al., 2025). De Hoop et al. (2016) suggest that RI literature could benefit from integrating insights from adjacent fields such as participatory design and constructive technology assessment, which have long grappled with similar issues of inclusion, reflexivity, and power. Indeed, the call for interdisciplinary integration is echoed across the RI literature. For example, Fisher et al. (2015) advocate for socio-technical integration to embed ethical reflection into innovation processes. De Hoop et al. (2016) further emphasise the importance of addressing unequal power relations in participatory processes, warning that without careful attention, RI initiatives

risk becoming performative or even exclusionary. This concern resonates with critiques from development studies, such as Dasgupta and Beard's (2007) analysis of elite capture in community-driven development projects. These projects, while ostensibly participatory, often reinforce existing inequalities and leave marginalised groups out of the benefits. Similarly, RI processes, particularly in start-up contexts, may fall short if they do not actively confront and mitigate conflicting interests.

Another emerging challenge for RI is the rapid evolution of digital health technologies, particularly in wearables (Plester et al., 2024). These technologies are increasingly used in both professional and personal contexts, adding to a broader development in which digital technologies open new avenues for innovation and organising (Faraj & Pachidi, 2021; Faraj et al., 2016). However, they also raise complex ethical and societal questions that become visible when RI is examined in situated and sociomaterial terms. As such, there is a growing need to examine how RI frameworks can be adapted to the specificities of digital health innovation, where issues of user autonomy and engagement are particularly salient.

3.2 Responsible Innovation, Gamification and Social Relationships

This section turns to gamification, the integration of game design elements into non-game contexts. I discuss it here because it emerged as central in my empirical material: Alfa's application included a leaderboard, which, as Chapter 5 shows, reshaped how users engaged with the pilot. Gamification is also increasingly used in both business and health settings, as digital technologies are deployed to enhance organisational efficiency and user engagement (Ruggiu et al., 2022). Given that user engagement is central to RI (von Schomberg, 2013), the convergence of RI and gamification warrants closer examination. In this thesis, gamification is approached not as a discrete design choice, but as a sociomaterial arrangement that shapes how responsibility, visibility, and participation are enacted in practice. Gamification introduces mechanisms such as challenges, leaderboards, notifications, and user profiles into workplace environments, aiming to motivate and instruct users beyond mere entertainment (Ruggiu et al., 2022). In health, these elements are increasingly used to influence patient behaviour and enhance productivity without overt coercion (Mavroeidi et al., 2020). This subtle behavioural steering raises critical ethical questions about autonomy, consent, and transparency.

As Ruggiu et al. (2022) note, gamified systems can lead individuals to act in ways they might not have chosen independently, potentially impacting their health and well-being. This concern is amplified in contexts involving wearable technologies and other forms of workplace enhancement, where physical and moral dimensions intersect (Pustovrh et al., 2018). While some scholars argue that gamification can enhance workplace motivation (Perryer et al., 2016) and help organisations respond to stress and fatigue (Ruggiu et al., 2022), this potential comes with trade-offs. To fully leverage gamification, companies often require extensive data collection, raising concerns about privacy, surveillance, and data ethics. Although anonymisation and pseudonymisation techniques are commonly employed to protect user identities, advances in data analytics have made re-identification increasingly feasible. This undermines privacy assurances and can place employees in vulnerable positions, especially when health data is involved. In RI frameworks that emphasise inclusion and user participation (Long et al., 2020), these vulnerabilities must be addressed critically. Participation should not only gather feedback but also empower users as co-creators of innovation processes. Trust thus becomes a foundational element in adopting RI in gamified workplace settings (Ruggiu et al., 2022). Organisations must therefore ensure employees know their rights and the implications of data use, balancing enterprise-level insights with individual privacy (Adams, 2017). The challenge is not to reject gamification outright, but to assess whether and how its design aligns with RI's normative commitments, particularly regarding autonomy, fairness, and inclusivity.

Ruggiu et al. (2022) underscore that not all gamification elements carry the same ethical weight. For instance, when employees collect points individually through a digital health application, the process may be benign. However, when user performance is publicly displayed, such as through leaderboards, the situation shifts. By making user data visible, leaderboards can violate privacy. Similarly, avatars that reflect personal characteristics may also compromise user anonymity (Mavroeidi et al., 2020). Ruggiu et al. (2022) identify several potentially problematic elements in workplace gamification: avatars, challenges, inter-employee communication, competition, leaderboards, notifications, and user profiles. While these features are designed to enhance engagement, they raise significant concerns about employee autonomy and data protection. As gamification becomes more embedded in organisational practices, safeguarding privacy becomes a critical component of ethical innovation.

At the same time, the rationale behind gamification overlaps with that of RI: both aim to foster user engagement, although RI does so for ethical and

societal reasons, not for performance alone. On the surface, gamification may offer mutual benefits, enhancing productivity for businesses and reducing stress for employees (Ruggiu et al., 2022). However, deeper ethical concerns persist, particularly around health, autonomy, and labour. Till (2014) critiques the gamification of everyday practices, arguing that it can extract unpaid labour. In line with Lupton's (2016) work on self-tracking, Till (2014) suggests that gamified systems often reflect what companies want users to do and what data they wish to collect. These systems, he argues, promote a neoliberal entrepreneurial self, a subject who is constantly optimising, self-monitoring, and amenable to improvement (Till, 2014). In this view, gamification becomes a mechanism of behavioural governance, blurring the line between play and labour. This critique has direct implications for RI. If innovation processes are to be truly responsible, they must critically examine how gamified systems shape subjectivity, extract value, and redistribute agency.

Closely related to gamification is the broader spread of self-tracking at work, including wearable technologies, which raises critical concerns about autonomy and the commodification of the body. As Moore and Robinson (2016) argue, the integration of wearables can be seen as an extension of Deleuze's (1992) concept of societies of control, in which the body becomes a site of quantification and optimisation. They argue that this dynamic reflects a resurgence of Cartesian dualism, subordinating the qualitative, lived experience of precarious workers to a form of digital Taylorism that penetrates the body itself. Against this regime of quantification, Moore and Robinson (2016) suggest that new forms of resistance may emerge, such as refusing to self-track or submit to corporate surveillance. This raises a fundamental question: what is the cost of health and wellness at work? As Rose (1996) observed, neoliberalism fosters a self that constantly works on itself, striving for improvement under the gaze of external metrics. Today, this logic extends beyond traditional office spaces into home-based and outsourced work, where visibility to the quantified gaze shapes subjectivity. Lupton (2013) emphasises that self-tracking is emblematic of contemporary society, where individuals are encouraged to take responsibility for their own optimisation. In this context, RI processes that produce digital self-tracking innovations risk reinforcing individualised responsibility, shifting the burden of health and productivity onto individual users. Yet, as Lupton (2013) also notes, self-tracking is no longer merely personal; it has become commercialised, embedded in corporate strategies and market logics. This shift necessitates a deeper ethical interrogation of the commercial purposes behind such innovations. Building on Lupton's (2014) account of health apps as sociocultural artefacts shaped by human decisions and embedded

social norms, understanding how organisations deploy wearable technologies requires critical empirical inquiry.

Beyond the body, digital technologies also reshape workplace social relationships. Building on Pickering's (1995) notion of the mangle of practice and identity work (Sveningsson & Alvesson, 2003), Symon and Pritchard (2015) conceptualise connection as a sociomaterial assemblage that enacts specific identities: being contactable, responsive, involved, and authoritative. These identities are not merely discursive but are materially enacted through devices, platforms, and organisational expectations. To deepen their analysis, they invoke Haraway's (1991) cyborg metaphor, which challenges the binary between the natural and the artificial. In this framing, individuals are reimagined as hybrid beings, whose identities are co-constituted through their entanglement with technology. This metaphor opens space to deconstruct entrenched boundaries, such as those between work and life, that often reproduce power asymmetries. In the context of RI, these insights are particularly relevant. The governance of innovation, especially in digital health, can mirror the power dynamics described above. These debates highlight that responsibility in digitally mediated work settings cannot be assumed to reside in individuals alone, but emerges through entanglements of technologies, organisational expectations, and everyday practices. Together, they provide the background for the analysis of gamification as a sociomaterial practice of responsibility in Section 5.3.

3.3 Responsible Innovation and the Multiplicity of Responsibility

The theoretical reasoning above suggests that while RI provides a valuable structure, it often presumes a relatively unified and stable notion of what "responsibility" entails. To critically interrogate this assumption, I turn to Mol (2002), particularly her concept of ontological multiplicity as developed in *The Body Multiple*. In this ethnographic study of atherosclerosis in a Dutch hospital, Mol shows that the disease is not a singular, stable entity but is enacted differently across practices such as diagnostics, clinical consultations, and patients' experiences. These enactments do not merely reflect different perspectives on the same object; instead, they constitute different versions of the object itself, coexisting and interacting in complex ways.

Mol's (2002) insight that reality is enacted and that objects are multiple, not singular, offers a powerful way of rethinking responsibility in innovation.

Just as atherosclerosis manifests differently across settings, so too does responsibility. Responsibility differs from a disease in that it is not a bodily condition but a relation. Mol's insight still applies, since her approach focuses not on the kind of object studied, but on how practices enact it. In compliance routines, responsibility might be enacted as risk management. In policy documents, it might take the form of governance and foresight. In the everyday use of an application, it might take the form of concerns about accessibility, safety, or ethical alignment. These are not simply different views on the same responsibility. They are different enactments of what it means to be responsible. This multiplicity does not imply fragmentation or relativism. As Mol (2002) shows, the different versions nevertheless hang together through practices of coordination, even if full coherence is never achieved. In this thesis, coherence among different enactments of responsibility within RI must likewise be actively worked out through inclusive and reflexive practices, not assumed in advance. This means clarity is not always the goal; instead, responsibility involves navigating complexity and partial connection in practice, a point Law (2004) articulates through the "messiness" of social science.

Mol's practice-oriented approach also extends RI's emphasis on reflexivity by insisting that attention be paid to the material, embodied, and situated dimensions of responsibility. Responsibility is not only discussed or theorised; it is done, and done differently, across contexts. This perspective enables a more grounded and nuanced analysis of RI, one that is sensitive to the plural, contested, and evolving nature of responsibility in real-world innovation settings. By integrating Mol's (2002) concept of multiplicity into the theoretical framework of RI, this thesis explores how responsibility is enacted in practice, how different enactments coexist and interact, and what this implies for RI governance. This approach allows RI to be understood not as a fixed framework, but as a dynamic and situated practice. This lens is taken up in the empirical chapters, where responsibility appears in several distinct, coexisting forms (Chapter 5), and where multiplicity is used to rethink the governance of user inclusion (Chapter 6).

This concludes Part 1. Having laid the theoretical foundations and contextual framing, I now turn to the methodological journey. The following chapter marks a pivotal shift, from exploring what RI is to examining how it can be studied. This transition is not merely procedural; it is deeply personal. Here, my voice becomes most present as I reflect on the choices, challenges, and transformative moments that shaped the inquiry. Chapter 4 opens a space for methodological transparency and reflexivity, offering

insight into how the research was conducted and why specific paths were taken.

PART 2: METHODOLOGICAL PATHWAYS

CHAPTER 4. Studying Responsible Innovation

Flyvbjerg (2006) argues that good social science should be driven by the problem at hand, not by methodology itself, meaning the methods chosen should be whatever best helps answer the research questions, not whatever the researcher happens to favour. This chapter presents the thesis methodology and methods. It matters a great deal to me, because it outlines my approach to answering the research questions and gives me the chance to critically examine myself as a researcher and reflect on how I sought to conduct an ethically sound study.

What first drew me to qualitative methods was reading Carlsen and Dutton's (2013) book *Research Alive: Exploring Generative Moments in Doing Qualitative Research*. The book's examples describe generative moments that bring research to life. As Carlsen and Dutton (2013) note, qualitative research literature rarely asks what makes such research worth doing, or when researchers feel most alive and energised in their work. At the beginning of my PhD journey, I wondered how we become researchers, and the book made me realise that the answer lies in the accumulation of lived experiences. Although there are no straightforward answers, we can feel authentic and become the researchers we want to be by providing a fuller account of the research experience, which may in turn enable and invite others to do the same. In that spirit, I aim to make this chapter transparent, however messy social science research tends to be (Law, 2004).

The chapter proceeds as follows. Section 4.1 describes how the research design came into being, and Sections 4.2 to 4.4 present how I gathered, selected, and analysed the material. Section 4.5 sets out the philosophical assumptions behind these choices, and Section 4.6 discusses research ethics. Sections 4.7 and 4.8 introduce Alfa and its application, and Section 4.9 explains how the findings are presented.

4.1 An Interpretive and Relational Inquiry Comes into Being

My study is grounded in an interpretive and relational approach, which shapes how I formulate the research questions and engage with the empirical material. In line with this perspective, I seek to understand how RI is experienced, interpreted, and enacted in a particular context and at a specific point in time (cf. Merriam, 1998). The empirical inquiry centres on an in-depth study of the digital health start-up Alfa, which provides a situated context for exploring how RI unfolds in practice. This thesis adopts a qualitative, interpretive single-case study design (Merriam, 1998) analysed through the procedures of constructivist grounded theory (Charmaz, 2006, 2013), used here as an analytical method, not as an ontological position, and enriched by autoethnographic reflexive engagement. Unlike positivist case study approaches oriented toward generalisability through cross-case comparison (e.g., Eisenhardt, 1989), this design prioritises contextual depth and theoretical development within a single, richly understood setting. This design follows from the problem identified in Chapter 1: since existing research has largely examined RI through managers' accounts and normative frameworks, studying how RI is enacted in practice requires methods that get close to everyday practice and users' experiences. The case is Alfa, while the unit of analysis is the practices through which responsibility and inclusion were enacted around its application and pilot studies.

Instead of testing predefined hypotheses, I focus on developing a contextual and processual understanding of how RI is enacted within this organisational setting. This involves attending to how organisational actors engage with responsibility in their everyday work, and how meaning emerges through relations between people, technologies, and organisational arrangements. As such, the study aims for a holistic understanding of the phenomenon, not a reductionist analysis of isolated variables. This approach is reflected in the methodological choices made throughout the study, which allow for close engagement with the empirical setting and enable sensitivity to context, interaction, and change over time. In line with interpretive and practice-based research traditions, the study emphasises understanding processes, developing contextual insight, and engaging reflexively with the relationship between researcher and participants (cf. Merriam, 1998).

Moreover, after spending time with Alfa and observing how RI is practised, I realised I needed additional material to deepen my understanding of RI practices. Following Taylor's (1971) critique of "brute data", my inquiry is

not about collecting data for its own sake, but about generating material and analysis that can answer my research questions. At the beginning of my PhD journey, I placed a lot of emphasis on formulating the research questions, not yet knowing that my process would be inductive and that the questions would change multiple times. Refining research questions during the study is consistent with grounded theory, where questions are sharpened as the analysis develops (Charmaz, 2006). When I started my research, I did not know beforehand how I wanted to structure my research design. At the time, I was simply interested in the concept of RI, which I came across after a few months of reading related literature on keywords such as "sustainability", "digitalisation", and, eventually, "digital health".

To clarify my research approach and provide a coherent rationale for my choices, I will outline the process chronologically, tracing its evolution. Fortunately, at the beginning of my PhD journey, I was introduced to Nadin and Cassell (2006) and their idea of using a research diary as a tool for reflexive practice. I was intrigued because it focuses on management research, which aligns with my own research area. For me, reflexivity means reflecting on how the research is carried out as it happens. In line with Hardy et al. (2001), I believe that by keeping a diary, I can not only retell my history in the methodological chapter but also understand how the research process can shape its outcomes. In fact, I emphasise this reflexive process and the use of a diary because Nadin and Cassell (2006) position reflexivity as an increasingly central concern for qualitative researchers in management, arguing that it offers real benefits: it deepens understanding of the researcher's own role and influence on the study, and it strengthens the trustworthiness and overall integrity of the research process.

Looking back, what ultimately affected my research design fundamentally was the decision to reach out to potential case companies early in the process. By that time, I had seen a pattern in the literature on RI processes in digital health: qualitative studies thus far had largely focused on interviewing senior managers about their thoughts and understanding of RI (e.g., Oftedal, Foss, & Iakovleva, 2019). Therefore, following authors such as Iakovleva et al. (2021), I deemed it necessary to complement and develop the current literature through a qualitative approach that would deepen my understanding of RI by engaging with the actual users of these technologies. I wanted to understand *how* RI occurs in dialogue with the key users, who serve as primary participants. The next step was thus to reach out to health technology companies in Sweden to begin the process of gaining access. For company selection criteria, I drew on the current RI literature, specifically the paragraphs on future research inquiries. The criteria are shown in Figure

2. At the time of the search, I did not yet know which research design I would use. It would depend on the timeline, the company's overall nature, and the access provided.

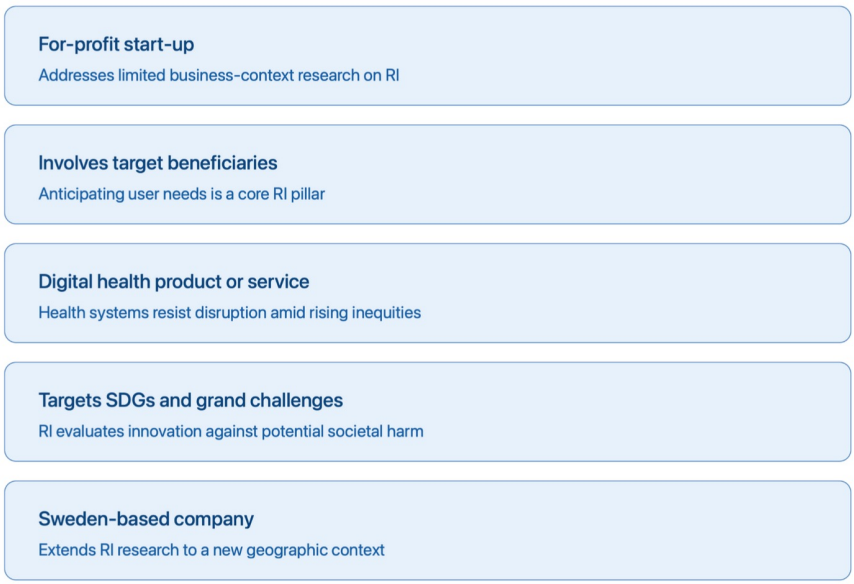

Figure 2. *Firm Selection Criteria.*

I had only reached out to about 10 companies when Alfa answered my query. Although Alfa was among the first companies to respond, it also met the selection criteria shown in Figure 2, and its ongoing pilot phase made it a particularly suitable case for studying user inclusion. My initial email only briefly explained my topic. The next step was a thorough conversation about our expectations on both sides. At the time, my foundational knowledge of RI in business, discussed in Section 2.3, led me to believe companies had likely never heard the term RI (van de Poel et al., 2017). Nonetheless, companies may perform RI, either knowingly or unknowingly (Oftedal, Foss, & Iakovleva, 2019). For this reason, and to avoid complicating the narratives, I did not discuss or articulate the four dimensions of the AIRR framework (Stilgoe et al., 2013). Instead, I introduced the topic to the company by talking and asking questions about what is essential to the user, what inclusion means to them, and when it is most important to include them. This choice also reflected that, as discussed in Section 2.3, companies may use other terms, such as open innovation or stakeholder dialogue, or more established concepts like CSR (Lubberink et al., 2017). That being said, as a researcher, I also learned foundational narratives from Alfa and

the specific terms they use in the field. Slowly but steadily, over almost two years, my understanding of what was going on in the company developed. What I gradually came to understand reflects what Lubberink (2018) describes as de facto RI, where responsible practices emerge even without formal RI frameworks. De facto here does not mean that Alfa lacked ethical intentions. It means that its practices were not framed or organised through RI frameworks, even where they shared some of their aims. I resonate with Randles et al. (2024), who argue that de facto RI examines how actors frame and govern responsibility through existing practices, "in the wild." "In the wild" refers to practices situated in place, not external standards. It can thus be seen as the mode of enacting responsibility, often embedded in organisational cultures. I found this perspective relevant because I aim to explore how responsibility is enacted through relational practices outside formal RI protocols. Alfa's iterative engagement with users illustrates one way RI can be enacted through such practices.

Table 3. *Case Company: Alfa. As indicated, "Alfa" is a pseudonym, and the information provided is illustrative.*

Attribute	**Details**
Product/Service	Mobile application for mental well-being, combining self-report prompts, dashboards, and gamified features, described by Alfa as using machine learning and generative AI to analyse user data and generate feedback.
Purpose	For sustainable health and profitability. Supports SDG 3 (Good Health and Well-being) and SDG 8 (Decent Work and Economic Growth).
Registered as	Data, IT, and Telecommunications. Purpose: IT system provider, organisational consultant, and organisational development activities.
Established	Around 2020
Status	Start-up launched; Form: AB (Swedish limited company)
Geographic Location	Office located in Sweden, customers across multiple regions in Sweden.

Attribute	Details
Target Groups/Customers	Private individuals and companies, with a primary focus on employee well-being in corporate settings.
Number of Employees	8–10 people, organised in an interdisciplinary team combining technology and psychology expertise. Roles and Contributions: • CEO – Strategic leadership and business development. • CTO and Full-stack Developer – Technical architecture and product development. • Psychology and Psychometry Expert – Designs and validates mental well-being assessments. • Cognitive Neuroscience and Positive Psychology Specialist – Develops evidence-based approaches for motivation and resilience. • Organisational Psychologist – Implements workplace well-being strategies. • Creative Designer (UX/UI) – Enhances user experience and interface design.
Affiliated Researchers	2–3 people (Professors, Assistant Professors, Post-docs). Contribute to research on digital health, psychometrics, and AI.
Advisory Board	2–5 members (industry experts and academics). Provides strategic guidance, ensures compliance with ethical principles, and facilitates network connections.

I follow Ries's (2011) widely used definition of a start-up as a human institution designed to create new products or services under conditions of

extreme uncertainty, a definition that foregrounds iterative experimentation, rapid organisational change, and unstable or emergent structures, all of which shaped how RI and inclusion were enacted at Alfa throughout the pilot studies. Alfa also meets the European Commission's small and medium-sized enterprise (SME) criteria. However, I use the term "start-up" as the primary term in the thesis, instead of "SME", since it better captures Alfa's early-stage, iterative, and rapidly evolving organisational character, which is directly relevant to the analysis in Chapters 5 and 6. Alfa is thus treated in this thesis as a digital health start-up, not as a platform or an AI company, although it describes its application as drawing on AI. Below, I explain my research design and data collection in depth, highlighting the inductive and iterative approach I have taken by alternating among empirical collection, analysis, and engagement with the existing literature.

As shown in Table 4, the problematization and focus of my research questions have evolved as I have spent time with my participants and the case company, making the process iterative. In the first year, I focused on understanding the broader conversations about RI. At the time, I was not as aware of the importance of narrowing the conversation to journals I would see myself "belonging to". This shaped my thesis focus and made my research field too broad. During the thesis proposal at the end of year 1, I received helpful feedback from other scholars, who asked questions such as, "Who do you want to talk to about your thesis after your defence?" These comments helped me narrow my theoretical references. After studying RI through a broad lens in the first year, drawing on stakeholder management, knowledge management, and health innovations, I decided to remove some of them and start reading about RI conversations in journals such as the *Journal of Management Studies*, the *Journal of Business Ethics*, *Sustainability*, *Research Policy*, and the *Journal of Responsible Innovation*. From my literature review, I noticed that digital health-focused companies would make an excellent case for examining RI through the user inclusion dimension, which has been my central phenomenon since the end of year 1. This is also when I began interviewing my participants and conducting company observations. Naturally, because the application users were part of a pilot study initiated by the case company, I also reviewed the literature on user inclusion and user-driven innovation. Over time, I realised I needed to revise the literature and research questions. Interestingly, my empirical material spoke to me and showed me how de facto RI translates into practice through users' experiences of involvement in research and development. Themes such as workplace relations and self-tracking emerged from my collected material. The relationship between technology and human beings began to interest me as I saw it as part of de facto RI practices. Hence, I

amended my interview guide accordingly and began asking more follow-up questions about those themes.

Having outlined the case company and the iterative nature of the research process, I now clarify the theoretical trajectory that guided this inquiry. While the empirical work evolved alongside the company's development, the conceptual framing also shifted over time. This thesis is primarily grounded in RI as the overarching theoretical concept. From Year 3 onward, the interpretive stance moves toward a relational ontology (Mol, 2002; Barad, 2003), which informs the understanding of RI as situated, entangled, and performative. The thesis employs supporting theories, such as sociomateriality, care ethics, and relational perspectives, contextually to deepen analysis. The hierarchical structure in Table 4 below illustrates this progression from foundational RI concepts to the relational and sociomaterial lens that constitutes the thesis's main theoretical contribution.

Table 4. *Hierarchical Overview of Theoretical Frameworks and Analytical Approaches Across Research Phases*

Year	Phenomenon	Main Theory	Interpretive Stance	Supporting Theories	Analytical Approach
Year 1	Stakeholder management in RI	Responsible Innovation (Stilgoe et al., 2013; von Schomberg, 2013)	Not yet defined	Stakeholder management, Knowledge management	Not yet defined
Year 2	User inclusion in RI	Responsible Innovation (Stilgoe et al., 2013; von Schomberg, 2013)	Not yet defined	Innovation management, Stakeholder inclusion	Thematic analysis
Year 3	How de facto RI is translated in practice	Responsible Innovation (Stilgoe et al., 2013; von Schomberg, 2013)	Relational ontology (Mol, 2002; Barad, 2003)	Relational perspective (Haraway, 1991, 2016), Care ethics (Puig de la Bellacasa, 2017)	Thematic analysis, Grounded theory

Year	Phenomenon	Main Theory	Interpretive Stance	Supporting Theories	Analytical Approach
Year 4	RI as relational, situated, and entangled	Responsible Innovation (Stilgoe et al., 2013; von Schomberg, 2013)	Relational ontology (Mol, 2002; Barad, 2003)	Sociomateriality and performativity (Gherardi, 2012; Orlikowski, 2007), Care ethics and feminist technoscience (Haraway, 2016; Puig de la Bellacasa, 2017)	Grounded theory, Reflexive thematic analysis
Years 5 and 6	Consolidation and theorisation of RI practices	Responsible Innovation (Stilgoe et al., 2013; von Schomberg, 2013)	Relational ontology (Mol, 2002; Barad, 2003)	Sociomateriality and performativity (Gherardi, 2012; Orlikowski, 2007), Care ethics and feminist technoscience (Haraway, 2016; Puig de la Bellacasa, 2017)	Reflexive thematic analysis, Narrative synthesis

4.2 Gathering My Material

To study how RI is performed in practice, I conducted semi-structured thematic interviews with a selected group of Alfa's users and key participants. A summary of the empirical material collection can be found in Tables 5, 6, and 7. As Hallin and Helin (2018) argue, an interview can provide valuable insights into how people experience situations, beyond mere observation. I wanted to understand how my participants think and reason, so I chose to conduct interviews as my primary data source. In line with my interpretive stance, I treat interview accounts not as direct reports of what happened, but as situated accounts of how participants made sense of their experiences. Given my exploratory research questions, I have chosen a research strategy that allows me to gain an in-depth understanding of how RI practices occur through users' perspectives. I also chose to interview key participants at Alfa to understand how they work with RI and how they understand the concept. According to Cassell et al. (2018), one of the most widely used and traditional approaches for collecting qualitative data is conducting interviews, which involves exploring the interviewee's perceptions, experiences, and understandings regarding a particular

phenomenon, leading to extensive data collection (Blakely & Moles, 2017; Cassell et al., 2018).

Moreover, interviews can be seen as a structured, deliberate form of communication that requires self-awareness and identity expression as participants seek insight into a person's unique perspective (Blakely & Moles, 2017). Participants had received information about the study beforehand, and I briefly explained my research at the start of each interview. I also asked participants what responsibility meant to them, which may have made the topic more salient in their answers. Most questions, however, concerned their experiences of the application, the pilot, and being included, and I did not introduce the AIRR framework or its dimensions. My semi-structured interviews focused on digital health artefacts in the workplace, and we discussed their involvement in developing an innovative start-up's application. As I moved through the iterative cycle of data collection and analysis and delved further into the literature, I realised that to move beyond surface-level descriptions, I needed to broaden my understanding of what constitutes an interview and the types of data it can generate. I did not limit my approach to interviews to formal sessions in which the research subject explains the study object to me, an external researcher detached from the subject matter and the data-generating process. Here, I found Hultin's (2019) work inspiring, as she frames the interview as a relational practice through which researcher and researched, subject and object, become entangled with one another, building on onto-epistemological approaches grounded in post-humanist ontologies. She further explains that bringing material artefacts into interviews was intended to help interviewees give richer accounts of everyday sociomaterial work practices, the kinds of practices they often regarded as too insignificant to mention (Hultin, 2019). I found these insights highly relevant to my own interviews, since Alfa offers a digital application, presented by Alfa as AI-driven, which during my fieldwork was offered to employees through their employers (Alfa has since also begun offering it to private users, who are not part of this study; see Section 4.8). The application is promoted as an "AI-robot" or "coach" that helps employees lower stress levels, work proactively on their well-being, and maintain and create sustainable health. By default, the application sends the user notifications three times daily to maintain continuous interaction and dialogue between the user and the software. This type of usage naturally raises questions about everyday sociomaterial practices at work.

As Hultin (2019), drawing on Barad (2007), argues, incorporating material objects into interviews allows for situated material engagement. In my

collection of interview materials, I therefore worked to understand the performativity of their practices. For example, to better understand how users engaged with the application in the pilot study, I acknowledged that experiences such as competition, stress, and uncertainty shaped their engagement. In other words, attending to sociomaterial practices helped me see how subject and object positions were enacted as RI unfolded. This practice can be likened to what Hultin (2019) identifies as central to decentring the human in data production: dwelling in the sociomaterial world closely enough to grasp the material and embodied nature of the practice itself. The material engagement with the application and their descriptions of workplace use allowed me to deepen my understanding of embodied practices and gain a situated sense of them.

To conclude, I believe semi-structured, in-depth interviews were the best option for me, given the nature of my research questions and how they allowed me to get closer to the practice of user engagement in RI. As became evident in my interviews, the perception of being engaged and taking ownership of their health outcomes was affected by having to use the application in front of colleagues. Also, as mentioned, the artefact sent a notification when it was time to report their well-being status, which, even though the frequency could be customised, meant that the application's prompts, not users' own choices, often set the rhythm of their use. The interview guide is available from the author on request.

Gaining organisational knowledge entails more than observing human interactions oriented toward shared goals. As Mol (2002) argues, meaningful insights emerge not only from explicit representations, such as text, audio, or visuals, but also from close attention to the knowledge embedded in everyday practices and situated activities. Additionally, I found it vital to understand how Alfa describes its innovation process and the pilot studies in which users were involved in development. Hence, I also conducted non-participant observations of various meetings that Alfa held with its users (see Table 6). Nine of these were webinars hosted by Alfa. I treat them as showing how Alfa presented its work and its view of user inclusion publicly, not as observations of everyday internal practice. The meetings that I observed took place online, through digital software such as Microsoft Teams and Google Meet. After the COVID-19 pandemic, my case company continued to hold meetings online, both internally and with clients. Before the pandemic, they met their clients and users in person through site visits. As Pink et al. (2016) argue, researchers in our contemporary, non-static world must adapt and consider changes and developments in research amid new techniques. Although I do not focus on how digital artefacts

influence user meetings, it is essential to highlight how Alfa and other start-up businesses in the field often operate in today's environment. This affects how I, as a researcher, approach these alternative ways of communicating. Naturally, I had to explore how to conduct non-participant observations in an online setting. The aim of the observations was, first, to understand how the case company discussed conducting pilot studies with users, and second, to explore how they discussed the development process of their innovation and to observe the dialogue between them and the users. In other words, I wanted to understand what was going on in the company and interpret it accordingly (Czarniawska, 2007). Exploring the concept of RI, partly through virtual observations, made me reflect early on the actual practice of studying these practices. While my direct observations took place online, the embodied and spatial dimensions of the analysis draw primarily on participants' retrospective accounts and my autoethnographic diary, not on in-person observation.

Attending to such practices requires me, as a researcher, to remain attentive to what is done, not only what is said (Mol, 2002). In the meetings I observed, most users kept their cameras off, so I only saw a black screen with their name, an avatar, or a photo of themselves. My observations therefore focused on what was said and shared on screen, not on participants' body language. This was a limitation, since embodied expressions matter for understanding participation. At the same time, keeping cameras off was meaningful as a way to manage visibility, and I explored the embodied dimensions of participation through interviews and my diary instead. Usually, the company managers kept their cameras on, and the participants from the case company did as well. As a non-participant observer, I kept my camera on at all times. I introduced myself at the beginning of the meeting to explain why I was there and what my role was. Before the meetings, Alfa's CEO informed participants that I would attend and shared information about me and my research.

To support the material I observed at the case company, I reviewed the company's materials. I elaborate on this method further in the data analysis section below. In addition to non-participant observations and interviews, I also had informal meetings with Alfa's CEO and other employees on various occasions during the empirical material collection period. These meetings were not recorded, and I did not consider them pure empirical material collection. Looking back, however, they were necessary for the research, since I genuinely got to know the people who make Alfa the company it is today. Since it is a start-up, the company is relatively small, which has

allowed me to connect with them, they are also conveniently located close to me.

To be clear about my role: I observed meetings, introduced myself and my research at the start of each one, used the application myself, and had informal contact with Alfa's CEO and staff. Alfa occasionally invited me, as it did other researchers, to give feedback on its material. However, I did not take part in the pilots as a user, and I did not contribute to decisions about the application or to the design or running of the pilot studies.

In addition to the interviews, observations and document analysis, I also wrote a diary. The diary is based on my reflections from using the application myself. I used the application with Alfa's knowledge, as part of getting to know the company and its product. This reflexive engagement aligns with Gherardi's (2019) view that data is co-produced through sociomaterial entanglements. The diary becomes a site of relational, reflexive engagement, where the researcher and the researched are mutually constituted through embodied, situated reflection. This practice has enabled me to reflect on how the RI process and practice unfold at the case company. As I used the application, I asked myself, "What is going on there?" to prompt reflection on how it incorporates RI principles, such as privacy, security, and ethical considerations. I also asked myself whether I had any concerns about the responsible use of technology in health applications, and how I addressed or mitigated them. Another critical aspect to consider in my usage was whether I observed any efforts by the developers to engage users in the RI process, such as soliciting feedback, conducting user research, or implementing user-centred design principles and whether I had any conversations or interactions with the developers or support team regarding RI practices in the digital health application. I wanted to reflect on how receptive they were to addressing these concerns. As Gherardi (2019) tells us, there is a relational entanglement between the researcher's production of data and how data produces the researcher. Ethnographic practice has influenced me, and I acknowledge that all elements, including texts, languages, materialities, and actors, are entangled.

Organisational ethnography is nothing new. Over the past two decades, practice-based studies have attempted to revive ethnography (Feldman & Orlikowski, 2011; Gherardi, 2012; Nicolini, 2012). In fact, Rouleau et al. (2014) note that management and organisation studies have shown growing interest in ethnography over the past decade, describing this as an ethnographic turn toward a method that is, in many respects, distinctly old-fashioned. By engaging in an autoethnographic writing process, I have

gained more creative insights. The process has taught me that insight does not only come from systematic techniques. It can also emerge through reflexive writing. In line with this thesis's relational ontology, I, as a researcher, do not see myself as a neutral observer.

Another part of the diary writing consisted of reflecting on how I understood the rest of my research material, in the hope of improving my research practice. I printed a set of diary prompts to support the creative process. This did not mean that I answered the questions every time, rather, they served as inspiration. I found it useful to incorporate images into my printed diary notes to strengthen or clarify what I was trying to explain. For instance, when using the application, I took a screenshot and saved it for my diary notes. I then inserted them into the scanned diary and wrote my reflections around the images. This helped me avoid forgetting thoughts when I wasn't near my physical diary. Another way to remember my thoughts was to write them temporarily in the Notes app on my iPhone. I therefore made it a habit to rewrite my notes in the physical diary daily or weekly. Using the application myself also allowed me to compare participants' descriptions with the interface they referred to. The diary does not stand in for participants' experiences. My position as a researcher familiar with the study's aims differs from theirs, and I use the diary as a reflexive complement to the other material, not as a basis for claims about how users in general experienced the application. I kept the diary throughout the fieldwork, from before the first interviews, although the extracts presented in this thesis are from 2023. Later entries were inevitably shaped by what I had already heard, which I treat as part of the reflexive process, not as an independent source of insight.

The autoethnographic experience has strengthened my analytical work by prompting deeper reflection and discussion on RI. Through my own autobiographical voice, I have deepened my study and understanding. The writing process has functioned as an act of agency and has created room for alternative narratives. Autoethnography can be understood as a form of ethnography centred on rewriting the self within the social world, a practice that demands the researcher be willing to expose their own vulnerability (Pullen et al., 2020). Drawing on dialogues in critical management studies, I view autoethnography as a way to restore and make visible the researcher's presence within the research itself. Pullen et al. (2020) note that writing an autoethnographic diary may not only advance the researcher's understanding of the phenomenon itself but also the researcher's role in relation to other humans and non-humans in the field. For me, this practice has been an embodied and reflexive research process (cf. Helin, 2019). To this end, I

have acknowledged tensions in how I present my identity here, both in producing and analysing the material (Pullen et al., 2020).

Moreover, Pullen et al. (2020) highlight the strength of autoethnographic studies in speaking to broader social issues through detailed, often deeply personal, accounts from the field, and in conveying the complexity of research material and its context in fresh and illuminating ways. That said, I have not conducted a complete autoethnographic study, but it has influenced my diary writing. In sum, I see how the diary process enables a more detailed illustration of the complex research material. As I kept the diary outside my regular work hours, it became part of my everyday routine. In accordance with Helin (2019), I view my research as relational. The autoethnographic process has helped me step back and challenge the masculine stereotypes of writing research in rational, rigorous ways (Pullen et al., 2020).

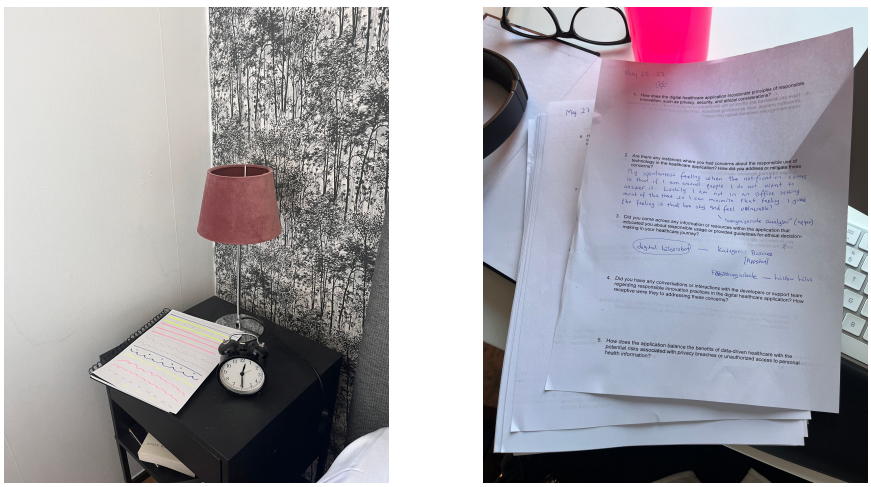

Figure 3. *Illustration of the Diary Process*

Table 5. *Interview Details*

Interview Number	Date of Interview	Affiliation (pseudonym) – Job Position	Name (pseudonym)	Duration (minutes)
1	17 May 2022	Alfa – Advisory Board and Business Development	Marc	75
2	20 May 2022	Beta – Process Engineer	Alex	31

Interview Number	Date of Interview	Affiliation (pseudonym) – Job Position	Name (pseudonym)	Duration (minutes)
3	20 May 2022	Beta – Business Manager	Carlos	37
4	23 May 2022	Beta – Section Manager Quality	Hugo	33
5	23 May 2022	Gamma – Section Manager Quality	Jon	37
6	23 May 2022	Beta – Validation Engineer	Ane	31
7	1 June 2022	Delta – People and Culture Coordinator	Julia	29
8	1 June 2022	Gamma – Marketing Manager	Carla	24
9	3 June 2022	Delta – Client and Solutions Manager	Juan	29
10	3 June 2022	Delta – Recruitment Consultant Manager	Martina	32
11	10 June 2022	Beta – Regional Business Manager	Ricardo	28
12	30 June 2022	Delta – Business Director	Elena	28
13	5 July 2022	Gamma – Senior Consultant/Manager	Sofia	40
14	11 August 2022	Epsilon – Sales Representative	Jorge	44
15	11 August 2022	Zeta – Senior Electronic Design Engineer	Manuel	43
16	12 August 2022	Epsilon – Sales Coordinator	Lana	37
17	12 August 2022	Zeta – Accountant	Maria	32
18	17 August 2022	Zeta – Project Manager R&D	Santiago	26

Interview Number	Date of Interview	Affiliation (pseudonym) – Job Position	Name (pseudonym)	Duration (minutes)
19	18 August 2022	Zeta – Accounting Director	Lisa	29
20	18 August 2022	Zeta – Head of Software Development	Mateo	34
21	18 August 2022	Zeta – Design Architect	Valeria	33
22	19 August 2022	Zeta – Chief HR and Sustainability Officer	Mona	31
23	23 August 2022	Zeta – Warehouse Manager	Nina	33
24	23 August 2022	Zeta – HR Manager	Nicole	31
25	24 August 2022	Zeta – Systems Engineer	Davide	36
26	24 August 2022	Epsilon – Finance Director	Diego	31
27	24 August 2022	Epsilon – Key Account Manager	Santos	36
28	22 September 2022	Delta – Chief Executive Officer	Estrella	27
29	28 November 2022	Alfa – Chief Executive Officer	Gonzalo	61
30	16 February 2023	Alfa – Professor of Software Engineering	Lucas	39
31	23 February 2023	Alfa – Creative Designer	Dante	35

Table 6. *Observation Details*

Observation Number	Date of Observation	Type of Meeting	Duration (minutes)	Focus/Notes
1	26 January 2022	Virtual sales Meeting	60	Presentation of application concept and value
2	4 February 2022	Virtual start-up meeting	40	Pilot study setup
3	9 February 2022	Virtual start-up meeting	30	Pilot study setup
4	25 February 2022	Virtual follow-up meeting	60	Review of user feedback
5	31 March 2022	Virtual start-up meeting	40	Pilot study setup
6	28 April 2022	Virtual start-up meeting	30	Pilot study setup
7	16 May 2022	Virtual start-up meeting	45	Pilot study setup
8	16 May 2022	Virtual follow-up meeting	45	Evaluation of pilot study
9	7 February 2023	Webinar about sustaining habits	30	Presentation of Alfa's work on user inclusion
10	7 March 2023	Webinar about Alfa's work	30	Presentation of Alfa's work on user inclusion
11	19 April 2023	Webinar with Alfa and guest researcher	30	Insights on user behaviour analysis
12	25 April 2023	Webinar with Alfa and guest researcher	30	Discussion on user data integration

Observation Number	Date of Observation	Type of Meeting	Duration (minutes)	Focus/Notes
13	9 May 2023	Webinar with Alfa and guest researcher	30	Exploring user interaction patterns
14	15 May 2023	Webinar about Alfa's work	30	Updates on Alfa's pilot studies
15	29 May 2023	Webinar on Patient-led health	30	Patient-led health and user inclusion
16	19 September 2023	Webinar on Self-Management in Health	30	Self-management in health
17	27 September 2023	Webinar on Psychological Safety	30	Psychological safety in health

Finally, document analysis provided a behind-the-scenes look at the company and gave me access to information I did not ask about in the interviews or observe during the observations. While I could identify and review discrete documents such as pitch decks and policy papers as bounded units, I monitored Alfa's website and social media presence throughout the fieldwork period, instead of treating them as a fixed, countable archive. Using these four methods increased my chances of answering the research questions. To understand how RI practices look in a business setting like mine, I could not rely solely on interviews. Interviews alone risk capturing only what participants choose, or are able, to say in the moment. Most importantly, by using observations as a complement, I could check what was said in the interviews, especially from the company itself, about its vision and objectives, while minimising my influence on the conversations. An autoethnographic diary helped me understand the application as a user and reflect on the phenomenon from that position.

Table 7. *My Methods*

Method	Why	How	Time
Semi-structured interviews – As the main method (N=31)	To enable context-rich personal accounts from the users themselves. Also, to learn from the case company's employees on how they talk about RI in practice.	Digitally through Zoom, Teams and Google Meet.	Approx. 18 hours
Non-participant observations (N=17)	To gain insight into everyday practices, interactions, and organisational routines without influencing the setting. This helped contextualise interview data.	Digitally (e.g., video calls and screen-sharing sessions), with notes taken during the meetings.	Approx. 10 hours
Reflexive diary (N=53)	To capture my own reflections over time, offering longitudinal insight into my experiences, thoughts, and engagement with innovation practices.	Manually and Digitally (e.g., handwritten notes, screenshots, and notes in a phone app).	
Document analysis (N=22)	To understand how RI is represented in internal and external communications, such as policy documents, strategy papers, and marketing materials.	Company materials including pitch decks, internal presentations, policy documents, email correspondence, marketing materials, and public-facing website content.	

4.3 Selection of Participants

In selecting participants, I combined purposive and theoretical sampling. Initially, I sampled purposively: all participants had either taken part in a pilot study with Alfa's application or been involved in its development, and thus had direct experience of the phenomenon under study. As the analysis

progressed and categories began to emerge, I sampled theoretically, which Charmaz (2013) describes as a core, generative practice in grounded theory. For example, after interviews with pilot users, I returned to Alfa and interviewed the CEO, a collaborating professor, and the creative designer to develop emerging themes around user inclusion and the relationship between technology and people. By the later interviews with pilot users in August 2022, new accounts mainly confirmed and refined existing categories instead of bringing up new ones, which I took as a sign of theoretical saturation (Charmaz, 2006). The final interviews with Alfa's team then served to develop these categories further from the organisation's side. Moreover, I chose to study a single company in depth. In line with my interpretive and relational stance, this choice prioritises contextual richness over statistical generalisability, and supports the grounded theory approach I have adopted. As Flyvbjerg (2006) argues, a single, in-depth case can contribute to theory development in its own right. My aim is therefore not to produce universally representative findings, but to contribute to broader theoretical conversations on RI, which future comparative studies may also build on.

The pilot users worked at five organisations that took part in Alfa's pilot studies, referred to here by the pseudonyms Beta, Gamma, Delta, Epsilon, and Zeta (see Table 5). These organisations had chosen to take part in Alfa's pilots, which may mean that they were more positive toward such tools than organisations in general. I contacted the pilot users by email and invited them to take part in an interview. Those who agreed were interviewed individually. Participation was voluntary and separate from taking part in the pilot itself. In total, I interviewed 27 pilot users across these organisations and four people connected to Alfa, for a total of 31 interviews. Many interviewees held managerial or specialist positions, which matters for a study of user inclusion, since employees in other roles may be less visible in the material, and the findings should be read with this in mind. Some interviewees, such as Mona, were both users of the application and managers in their organisations, which gave them insight into how results were received at the organisational level. I did not collect demographic information such as age or gender, since the analysis focuses on practices and configurations, not on individual characteristics.

4.4 Data Analysis

Because I collected my material over an extended period with different participants, it can be described as messy (cf. Langley, 1999). My research

strategy was to build theory using grounded theory (cf. Suddaby, 2006). Glaser and Strauss (1967) developed this approach, disputing positivism and instead drawing on a pragmatist tradition that rejected the notion that scientific truth stems from an external reality independent of ongoing individual interpretation (Suddaby, 2006). In grounded theory, "grounded" refers to the theory being grounded in actors' behaviour and actions. The approach also has a pragmatic core. Although methodologists have since refined grounded theory, and how-to manuals have multiplied, the approach was grounded in practicality from the beginning. More specifically, it was designed to help researchers examine social processes. Instead of studying a descriptive problem, it studies a concept, or, as Glaser and Strauss (1967) described it, the core category. Grounded theory is thus a practical method for analysing meanings and concepts in real settings. In developing new theories, attention must be paid to what is really going on and the interpretations by the actors (Glaser & Strauss, 1967). It is about grounding theory in practice: getting out into the empirical field to observe what is *happening*. Furthermore, researchers such as Eisenhardt (1989) emphasise the importance of reducing the tendency to test theoretically based arguments and instead focus organisational research on building new theories from empirical material.

When interpreting the material, I used a set of coding processes, including initial, focused, and theoretical coding (cf. Charmaz, 2006, 2013). This method is one of the main methodological choices within grounded theory. While Glaser (2001, 2007) has attracted "classical" grounded theorists and Corbin and Strauss (2008) offer a more constraining approach, I chose to follow Charmaz (2006). This choice came naturally to me, as she has diverged from the objectivist-realist and positivist paradigms. Instead, she offers an interpretivist approach that values individuals' storytelling. This means I recognised that theory is developed together with the participants and shaped by my own interpretation of the material. I do not believe that theory can be neutral and merely discovered. As Charmaz (2006) argues, researchers construct grounded theories through their own involvement and interactions with people, perspectives, and research practices, so the resulting theory is an interpretation, not an objective picture of reality. The main takeaway from Charmaz's (2006) approach is thus the relationship between the participants and me, the researcher. This allows for an analysis built "together" with my participants.

In the first part of the coding process, I stayed as close as possible to the material itself. I focused on coding my field notes from my initial observations of Alfa's meetings with their users. The initial meetings I

observed with Alfa concerned the pilot study in which the users were to be involved. Following Charmaz's (2006) suggestions to stay close to the material, I constantly reminded myself not to look for predetermined categories. Looking back at my field notes, I tried to describe the action in situ and focus on the ongoing action. As part of this initial coding process, I also combined these notes with early interview transcripts. Next, I moved into focused coding, refining codes, concepts, categories, and core themes. This process was highly iterative as I compared codes to codes, codes to categories, and codes to data, in accordance with Charmaz (2006). This constant comparison process used what Charmaz (2006) calls constant comparative methods. Finally, through theoretical coding, I related the focused codes to one another to develop the theoretical categories shown in Table 11. When it comes to the theoretical literature review, Charmaz (2013) argues that the literature review does not end once data analysis is complete: throughout the research process, existing scholarship can serve as an ongoing point of comparison, helping to show how one's emerging theory extends, complicates, or challenges established ideas in the field. I have adhered to the fundamentals of grounded theory, including starting with a broad research focus, conducting simultaneous data collection and analysis, engaging with the literature iteratively rather than as a fixed first step, and keeping memos, partly through my reflexive diary (Qureshi & Ünlü, 2020).

I used NVivo to organise and analyse the data. NVivo helps the researcher analyse large amounts of text. It is designed to help qualitative researchers visualise data (Patton, 2002). It is a valuable tool for researchers constructing codes, themes, and categories (Alam, 2021). Using NVivo gave me flexibility in how I categorised my text. As Alam (2021) notes, beyond simply speeding up what would otherwise be hours of manual coding, the software makes it easier to spot recurring patterns and weigh different pieces of information against each other, leading to conclusions better grounded in the material as a whole. It also handles large volumes of material well, whether that is interview transcripts, survey responses, field notes, or published documents, and its visual outputs make it easier to present and explore how different concepts relate to one another.

I experienced similar capacities and found that having everything gathered in one place was valuable for my overall research. However, before transferring the transcripts into NVivo, I transcribed them verbatim in Microsoft Word. The interviews were conducted and transcribed in Swedish. I translated the quotes used in this thesis into English myself, aiming to preserve the meaning and tone of what participants said, not a word-for-word rendering. Where an expression had no direct English

equivalent, I chose the closest idiomatic phrasing and checked it against the original transcript. This mattered especially for the concept of responsibility, since the Swedish word ansvar covers both responsibility and accountability. I therefore interpreted participants' uses of the word in context. I believe this allowed me to stay close to the material and develop a deeper familiarity with it. Although authors such as Halcomb and Davidson (2006) question whether transcribing all audio-recorded interview data verbatim is necessary, I treated this transcription as part of the analysis process (Wellard & McKenna, 2001). Moreover, Saldaña's (2021) work helped me understand the functions of codes by providing a thorough description and recommended applications for coding and analysing qualitative data. Learning to code well is a core skill for any qualitative researcher, since the quality of the research ultimately rests on the quality of the coding (Strauss, 1987). Saldaña's (2021) argument about coding spoke to me because it shows how coding functions as a heuristic: codes make meaning through exploratory problem-solving without a specific formula to follow. In other words, codes do not simply describe data passively, they set something in motion, pointing toward further ideas and connections (Fuller & Goriunova, 2014, as cited in Saldaña, 2021). To me, this is a good analogy for understanding why the first coding cycle is rarely executed perfectly. Saldaña (2021) describes this as a heuristic fluidity, meaning it is a positive thing that we do not merely discover through mechanistic validation. I concur, as the analysis deepened after I iterated back and forth through the process.

The non-participant observations I carried out were *digitally* mediated. As mentioned above, this aspect can be challenging if one does not acknowledge early in the process that time and place must be scrutinised in such a context. Because the meeting is digital, it takes place across multiple physical locations depending on participants' locations. I knew most participants worked from home rather than in an office. In this context, I followed Czarniawska (2007), who argues that we need to consider more carefully where we direct our attention in the empirical material we collect. Following Czarniawska (2007), I take seriously the methodological challenge of studying the same phenomenon as it appears differently across settings and moments. For me, this meant that when I took notes during the observations, I tried to capture not only what was being said, but also how artefacts, such as digital presentations and the application itself, were used. This strategy helped me trace how RI was enacted not only through dialogue with users but also through the artefacts involved.

In practice, I divided my notes into emic and etic note-taking, with the former capturing people's actual words. The latter focused on what I understood and interpreted. I used my laptop to take notes, and although I managed to write down much of what the participants said, I found it hard to capture everything. Unlike the interviews, I chose not to record audio during the observations. Hence, I needed to rewrite the notes after each occasion. In the rewriting process, I mainly focused on making my notes more understandable and drawing connections to previous findings and observations. I took it as an opportunity to connect the material to theories I had read about in the RI topic. Because the analysis was iterative, I went back and forth a lot in my notes, finding new connections and patterns over time. Another challenge for me was not focusing too much on what does not happen. Since the concept of RI has four predetermined dimensions in the most cited sources, I was initially tempted to look for such patterns. But for my study, and to answer my research questions, I wanted to focus on what is happening rather than become frustrated by what is not being said or done in line with earlier theories' predictions.

In qualitative research, observation, interviews, and fieldwork have traditionally been the predominant methods. However, in today's digital communication environment, there is growing recognition of the importance of analysing documents and texts (Patton, 2002). I deemed it necessary to gain an overall understanding of how the case company presented itself in writing and how it discussed its innovation processes internally and externally. Researching a company means immersing myself in these materials when I can, especially since my research questions are empirically driven. It was also interesting to see, in the analysis, how they discussed their users' engagement in the pilot studies and in the application's development. I followed their social media posts (LinkedIn, Instagram, Twitter), blog posts, internal emails, website updates, planning documents, and beta versions of the application. Over time, I interpreted this as the case company becoming more inclined to share material with me and seek my input. As part of their innovation process, they invite researchers such as me and others to give feedback on their material. I therefore reminded myself of the risks of fieldwork, in which researchers may also end up over-identifying with the field through their participation (Patton, 2002). There seems to be a balancing act between immersing in the setting and observing from a bird's-eye view.

Taken together, the analytical practices described in this section, constant comparison and an ongoing engagement with the literature, gradually changed the overall logic of the study. Although the study began

inductively, the analysis increasingly followed an abductive logic, moving iteratively between empirical material and theory instead of treating them as sequential stages. The empirical chapters (5 and 6) therefore integrate theoretical engagement directly into the presentation of findings, instead of separating raw findings from a subsequent discussion. This reflects Charmaz's (2013) view that theoretical comparison is not a discrete step but continues throughout analysis. Each analytical claim in Chapters 5 and 6 is grounded in specific empirical material, such as quotes, vignettes, paraphrased participant accounts, or observed instances, with theory introduced to interpret that material, not to substitute for it. Where accounts diverged, for instance between Alfa's representatives and users about the leaderboard, I did not treat one account as more true than the other, but analysed the divergence itself as informative. Several findings were not anticipated by the theoretical starting point, including how gamification reshaped what responsibility meant for users, and how so-called barriers turned out to be effects of visibility, timing, and missing feedback.

4.5 My Philosophy of Social Science: The Assumptions

> The primary ontological units are not "things" but phenomena - dynamic topological reconfigurings/entanglements/relationalities/(re)ar-ticulations of the world. And the primary semantic units are not "words" but material-discursive practices through which (ontic and semantic) boundaries are constituted. This dynamism is agency. Agency is not an attribute but the ongoing reconfigurings of the world. The universe is agential intra-activity in its becoming. (Barad, 2007, p. 139)

To situate my methodological choices within a coherent philosophical framework, I first need to reflect on what we mean by science. By tracing the ontological and epistemological foundations that inform this inquiry, the rationale behind my research design becomes clearer. At the start, I found it essential to consider the history and philosophy of science and social science, science as a social organisation, business studies as a science, and, finally, the objectives and practices of research in management science. Smith (2022) traces how the field's attention has shifted over time: where organisational researchers once focused mainly on explaining what happens inside formal, relatively stable structures such as employers, volunteer bodies, or civic institutions, more recent scholarship has increasingly turned toward organising that resists that kind of formal shape altogether, work that is loosely bounded, fluid, emergent, only partially organised, or organised in ways that depart from bureaucratic norms.

Early in my research process, I also learned that while foundational knowledge of a variety of paradigms is helpful, my philosophical commitments, together with my research questions, ultimately shape my methodological choices. To me, this has meant being confident in my positioning. My starting point was interpretivist: I was drawn to research that focuses on meaning rather than on a reality "out there" waiting to be found, an orientation that naturally favours qualitative analysis (Myers, 2009). Over the course of the PhD, however, my position moved toward a relational, posthumanist ontology. From this perspective, meaning is not produced by language and human consciousness alone, but emerges through material-discursive practices in which humans and non-humans are entangled (Barad, 2007). I therefore retain an interpretive sensibility in my methods, attending closely to how participants make sense of their experiences, while treating RI as something enacted in practice rather than constructed in language alone.

Denzin's (2014) account of lives and stories aligns with my understanding of science and truth. Denzin (2014) describes lives and experiences as represented through stories that are themselves performances. He compares this to pentimento, where scraping paint off an old picture reveals what was once hidden beneath it. In the same way, something new is always coming into view in the telling of a life, unsettling what previously seemed certain. There is, in this view, no single truth in the account of a life, only multiple traces of what has been, what could have been, and what now is, and the texts and the performances cannot be neatly separated.

When I say I believe we can capture participants' ideas in our research, I also find it essential to acknowledge that language itself may not offer unmediated access to a person's inner life. Denzin (2014) makes a related point: language, whether spoken or written, is never stable or settled; it always carries traces of other signs and meanings, shifting rather than holding still. To me, this aligns with the idea that my participants' answers can never be unambiguous. However, I believe that, through the (auto)biographical method of a diary, I can organise and bring the material closer to unpack ambiguous signs and statements.

Furthermore, an essential aspect of my position is a relational epistemology. As I have mentioned above, research for me is dialogical and relational. In accordance with Gherardi (2019), I view sociomateriality and practices as a relational epistemology: practice, on this view, is what allows doing and knowing to remain inseparable, with the knowing subject and the known

object taking shape together, through the interaction itself, rather than existing as two separate things beforehand. As an observer, I am thus not positioned outside the world I observe. Instead, I co-create with other humans and non-humans and am part of this ongoing intra-activity. Hence, relationality does go hand in hand with sociomateriality, as both represent the entanglement of the social and the material. My own research on RI and a digital health application is another example, where sociomaterial practices are inseparable. Relational ontologies therefore apply to RI practices that include digital health applications. I also believe Mol's (2002) methods have inspired me, as her philosophical foundation is built on ontologies in which everyday sociomaterial practices matter. Her account of the logic of care and the problem of patient choice (Mol, 2008) can also be read as a philosophical tale about ontology. In her 2002 publication, she elaborates on certain diseases in the context of sociomaterial practices. Mol's (2002) account of the various ways a disease can be enacted, such as through patients' pain when walking, angiographic images, and microscope slides in pathology, inspired me to not understand objects as the central, fixed points around which different perspectives simply gather: once the practices through which objects are actually handled are brought into view rather than set aside, reality itself stops being singular and starts to multiply (Mol, 2002).

The relational approach to materiality can be traced back, for instance, to Barad (2003) and is also closely linked to Latour's (2005) ideas. I mention these researchers to clarify the sources of my understanding of relational thinking. Conversations about the Cartesian distinction between subject and object led me to reject such pre-given dualisms. Smith (2022) captures this well: rather than existing as fixed, self-contained entities, things take shape dynamically, emerging in different forms depending on the relations they are caught up in. Relationality, on this view, is not a matter of viewing or representing one and the same underlying thing from different angles; it means recognising that an ongoing stream of relations brings "things" into being at all, out of a much wider field of what could otherwise have emerged. These ideas naturally influence how I view organisations and organising. Ontologically, I argue that organisations are brought into being through their ongoing performance.

Regarding my view of space, we constitute it through our everyday practices. Hence, I have a performative and reflexive view of space. This view of space is worth mentioning, as I am a management and organisation scholar and have always found the narratives of various spacing practices relevant to most conversations on organising. For example, consider the

various spacing practices of organisational agents in day-to-day conversations and interactions. Thinking about space, I feel, is thus an important factor in my research on grasping the phenomenon of RI practices in firms, as multiple agents speak or act in the name of the organisation. These agents are heterogeneous and act at different locations and times. This suggests that the organisation is built through spatio-temporal processes, and that organisational interactions create the space. As with most philosophical questions in the social sciences, I do not have the correct answer, I can only take a side.

Finally, a word on the feminist dimension of my epistemology. This dimension informs how I approach knowledge, voice, and care in this thesis. It does not involve a gender analysis of the empirical material, which lies outside the scope of the study. Feminist writings on technoscience have helped me understand care and digital health in this research process. I have done so by incorporating feminist perspectives on care into research on RI. Feminist readings on materialism and ethics, for instance, have been helpful. Care, care ethics, and social justice are themes that go beyond human care and related philosophical angles. By turning to literature on feminist perspectives of care, we can, for instance, learn that "transforming purported facts and objects into matters of care by thinking with and for neglected labors and marginalized experiences is a way to remain in touch with problems erased or silenced by thriving technoscientific mobilisations" (Puig de la Bellacasa, 2017, p. 108). In fact, I find it relevant to study digital technologies through a care lens. Drawing on Haraway's (2016) relational ontology, I understand inclusion seen through a care lens as a relation, including relations between humans and non-humans. Seeing inclusion through a care lens means understanding it as a relation, including relations between humans and non-humans. In other words, user inclusion, user dialogue and the notion of care all cohere. As feminist epistemologists have long argued (Haraway, 1988), making the sciences more inclusive requires more than including more women in certain positions. It requires fundamentally changing the philosophy and epistemology of the social sciences. In dialogue, we can learn how the other person relates to the world. Haraway's (2016) image of the string figure, or cat's cradle, captures the irregular and unexpected connections and turns that a relationship can take: "String figures can be played by many, on all sorts of limbs, as long as the rhythm of accepting and giving is sustained" (Haraway, 2016, p. 10).

4.5.1 My Ontological Assumptions: On Self-Reflexivity

Given the reflexive nature of my study, I present my ontological assumptions in an essay format below. I do this as a methodological gesture, not merely as a stylistic choice. The box serves as a reflexive pause, it is a space within my thesis where I can depart from the procedural flow of methods. In other words, I use this reflection to highlight the importance of self-reflexivity and to invite readers to contemplate how ontology actively shapes research design, data interpretation, and theoretical contributions. This ontological transparency complements the autoethnographic and sociomaterial sensibilities embedded throughout my thesis.

On Self-Reflexivity

My research is not separate from how I view the world. As I see it, we all carry a set of assumptions, often unspoken, about what reality is, how knowledge is formed, and the role theory plays in our research. These ontological assumptions shape not only what we study, but also how we go about studying it. That is why it is essential to make these foundations visible and to reflect on them critically. Doing so allows us to approach our research with greater awareness and a stronger sense of responsibility.

My Broader Worldview

In my research, I aim to understand the everyday activities of sociotechnical systems, and the stream of research on sociomaterial practices (Orlikowski, 2007) inspires me to look beyond normative frameworks of RI (cf. von Schomberg, 2013). I have a relational view of innovation, and I find Callon's (1999, as cited in Gherardi, 2012) account compelling: innovation, in his view, is never a single, pre-existing thing waiting to be discovered, but something that gradually emerges as previously unconnected agents, knowledge, and goods are drawn together into relationships of interdependence. In this sense, innovation is marked by its alchemy: the way it combines heterogeneous ingredients across institutions, forging complex and unusual relations between the market, law, science, and technology. I view responsibility as a sociomaterial practice. I argue that responsibility becomes a distributed, relational practice rather than a purely human-centred ethical obligation. I emphasise the entanglement of human and non-human actors in shaping actions and outcomes. While traditional notions of

responsibility recognise agency as solely human, I view it as co-constituted through intra-actions with tools, systems, and environments. That said, if I were to categorise myself, I would be a posthumanist.

This worldview has shaped what I consider real or worth studying in business administration. As Alvesson and Sandberg (2024) say, after all, our presuppositions of reality underlie all research. My ontological stance shifted during my Master's studies, particularly through a course that reframed entrepreneurship as an identity shaped by neoliberal self-management rather than a set of practical skills, a shift that later informed how I approached questions of individual versus distributed responsibility in this thesis. It has led me to ponder whose voices are heard in innovation processes and whose are excluded. I am interested in the relational webs that constitute innovation and responsibility. In this sense, my broader worldview is one of becoming-with, as Haraway (2016) terms it: a commitment to staying with the trouble of complexity, ambiguity, and entanglement.

Naturally, this worldview influences my perspective on organisations, people, and knowledge. Organisations are continually evolving, shaped by relational assemblages. They are contested and negotiated, and I do not see them as bound by hierarchical structures but rather as a dynamic space where practices can unfold. The assumption of *homo economicus*, for instance, can be challenged. I resist the notion that the rational and autonomous individual dominates much of traditional management thinking. I do not believe that an individual possesses agency; instead, agency emerges in relation. When I think about it, my understanding of relationships and context shapes my view of leadership and RI. My perspective on knowledge has also shifted. Knowledge forms through daily practices and is shaped by the environment we are in. It can change at any time and is not static. I adhere to Gherardi's (2012) concept of knowing-in-practice, which means that knowledge emerges from action and is not separate from it.

My Conceptual Lenses

If I were to describe my conceptual approach visually, I would liken it to a web rather than a ladder. I think of it this way: the theories that I draw on, such as sociomateriality and posthumanism, do not build upward in a linear fashion. Instead, they stretch outward and, in this sense, connect actors, practices, and technologies in new ways that resist neat categorisation. The

metaphor broadens how I approach theory. If the ladder signals progress and hierarchy, the web symbolises a dynamic mesh of relations, tensions, and connections. Just as the sociotechnical systems I study are flexible and alive, a web is flexible and constantly changing. I came to consider a metaphorical approach, inspired by Jermier and Forbes (2011). They argue that metaphors are foundational to how we conceptualise organisations; they are thus more than illustrative. Thanks to their work, I was encouraged to use and treat metaphors as a tool for explaining how I reason and inquire; one could call it an epistemological tool.

Theories, Models, and Paradigms I Favour

Unlike a spider's web, which reaches a finished, bounded shape once spun, the web invoked here has no fixed edge: it is continuously spun, re-spun, and extended, with new strands added and old ones abandoned as my thinking and the empirical material develop. There is no point at which the web is complete. At the centre of my conceptual web are three interwoven strands: sociomateriality, posthumanism, and feminist epistemology. These are not separate or sequential lenses, but overlapping and entangled ways of seeing and thinking. Sociomateriality (Latour, 2005; Orlikowski & Scott, 2008) helps me understand how the social and material co-constitute each other. It challenges the separation between humans and technologies, emphasising their mutual shaping. Posthumanism (Barad, 2007; Haraway, 2016) allows me to decentre the human and consider agency as distributed across human and non-human actors. Feminist epistemology (Gherardi, 2009; Haraway, 1988) foregrounds the situated, partial, and political nature of knowledge, reminding me to ask: Who is speaking? From where? For whom? These paradigms resonate with and inform a relational ontology and a practice-based view of knowledge, which moves beyond traditional positivist paradigms and extends interpretivist ones. They enable me to engage with complexity, trace entanglements, and remain attentive to the ethical and political dimensions of research. Importantly, they also provide a language and framework for thinking about knowledge production as an embodied, material, and situated practice, something that is done, not just discovered. This has been particularly helpful in my efforts to understand how responsibility is enacted in innovation processes, not as a fixed principle but as something that emerges through ongoing, situated practices.

Being clear about what I do not study is just as important as explaining what I do. It is not about setting up rigid boundaries, but about being honest and deliberate with the scope of my work. It is also a practical thing. When

someone challenges my choices, I need to be able to say, “That’s outside the scope of my study,” not to dodge critique, but to stay true to the philosophical ground I am working from. My research is situated within a posthumanist paradigm, which entails specific exclusions. I do not view innovation or responsibility through the lens of individual agency as the primary force behind change. Also, as a conscious choice, I do not use models that try to predict results in a “linear” way, instead, I view knowledge as shaped by time and context. I want to mention, though, that such approaches are not flawed, they simply draw on different commitments than the ones I bring to this work.

So what does it mean, in practice, to say that I am working from a posthumanist perspective? For me, understanding the world means seeing it as a web of connections between people, technologies, institutions, and the environments we move through. Agency is not something individuals simply have. It takes shape through such connections and interactions. I do not view knowledge as a fixed thing that can just be transferred. Rather, it occurs in practice, shaped by the specific situations we are in. And when it comes to ethics, it is not just about personal responsibility. It is about the relationships and conditions that make specific actions possible, and others not. This also means that I must remain attentive to how power circulates through these relations, and how certain voices or perspectives may be systematically excluded or marginalised. Of course, this orientation has not emerged in a vacuum. I have been part of an academic environment that embraces posthumanist and practice-based thinking. The pre-framing of my research, what I consider real, relevant, and worth studying, has been shaped by that environment. At the same time, I have brought my questions, experiences, and curiosities into that space. A dynamic interplay exists between what I have inherited from my scholarly context and what I have developed through my engagement.

The way I see things, what Alvesson and Sandberg (2024) might call my “pre-pattern”, is shaped both by the intellectual traditions I have encountered and by the kinds of questions that seem to stick with me. My posthumanist stance is not just about theory; it is also about ethics and politics. It reflects how I want to relate to the world, and what I hope my research can contribute. Being upfront about these boundaries does not narrow my work; it strengthens it. It helps me build a solid foundation for dialogue, especially with those who come from very different starting points. And when someone asks why I did not take a more positivist route, or why I am not focusing on individual decision-makers, I will be able to

answer clearly: because that is not the kind of world I think we live in, and it is not the kind of knowledge I am trying to create.

My Research Focus and Questions

The questions that guide my research are driven not by a desire to simplify or predict, but by curiosity about how things come to matter in practice, and how responsibility and innovation are enacted, negotiated, and sometimes resisted in everyday organisational life. I study how RI is practised in the digital health sector, with a particular focus on user inclusion. I am not interested in evaluating whether firms meet normative RI criteria; instead, I aim to understand how sociomaterial practices shape responsibility and how responsibility emerges through relationships among people, technologies, institutions, and discourses. The kinds of questions I find compelling are open-ended and situated. For example: How are users imagined, included, or excluded in innovation processes? What sociomaterial arrangements shape the enactment of responsibility? How do metaphors, routines, and technologies co-produce what counts as "responsible" innovation? Orlikowski and Scott (2008), Latour (2005), and Barad (2003) have all influenced how I see the world. I view it as a complex web of relationships rather than separate entities. Barad's (2003) concept of posthumanist performativity has particularly influenced my understanding of agency. It is not something individuals have on their own; it emerges through what she calls "intra-actions." And if agency works that way, then responsibility does too; it is not a fixed trait, but something that takes shape through those same entangled processes.

These ontological and epistemological commitments shape my methodological choices. I work from a practice-based, posthumanist, and feminist epistemology, which leads me to favour qualitative, interpretative methods that keep me close to the messiness of practice. I use interviews, observations, document analysis, and a reflexive diary, not to extract data, but to engage with the situated enactments of innovation and responsibility. Law's (2004) work on the messiness of method has helped me embrace the idea that research is not about tidying up reality, but about tracing how realities are produced. One way these ideas show up in my work is through my study of a digital health start-up. The company often talks about ethical innovation and user inclusion, but I am interested in how it puts these values into practice. How are users talked about in meetings? Whose feedback is taken seriously? How do technical limitations shape what counts as an ethical decision? These are not questions that can be answered with metrics.

They require paying attention to the small, often-overlooked details of how innovation happens day to day. In my observations, I have noticed that "the user" is not a fixed figure; they are framed differently depending on the context: sometimes as a data point, sometimes as a risk, and perhaps as a partner. These shifts matter because they, in turn, shape who gets to be part of the process, who decides whose voices are heard, and the kinds of futures imagined. I also draw on feminist epistemology, as presented by Haraway (1988), Hekman (2010), and Gherardi (2009), to remain attentive to questions of voice, power, and positionality. Haraway's idea of situated knowledge is especially important to me. It reminds me that all knowledge is partial, and that it matters who is speaking, from where, and for whom.

Metaphors have also become something that inspires me. Inspired by Thibodeau and Boroditsky (2011), I now see them as tools that shape how we reason and even make sense of organisations. Also, Örtenblad (2024) suggests that metaphors have generative potential in organisational studies, opening new ways of knowing. Braidotti's (2013) nomadic ethics has helped me think about my position less as a fixed stance and more as an ongoing orientation, remaining responsive to where my thinking is pulled.

Cozza et al. (2025) discuss the notion of *response-ability* in research practices, and that idea resonates with me. It speaks to the responsibility researchers hold toward the entangled worlds they study, and to the ethical engagement required when navigating complexity. Ultimately, I interpret my research as not solely concerned with understanding how RI is practised. It also seeks to contribute to a broader dialogue about what it means to conduct research responsibly. This involves a commitment to reflexivity, transparency, and an openness to complexity. It means acknowledging that knowledge is always partial, situated, and entangled with the world it attempts to understand.

Implications for Research Practice

I believe that the assumptions I bring to my research, rooted in relational ontology, posthumanism, and feminist epistemology, both enable and constrain the kinds of knowledge I can produce. The assumptions are not neutral, as they influence what I notice, how I interpret it, and what I deem worthy of study. Recognising this is not a limitation but a strength. It allows me to be deliberate, reflexive, and transparent about who I am as a researcher and the contributions I aim to make. One of the most generative aspects of this approach is that it creates space for complexity and ambiguity. By

working from a relational ontology, I can attend to the entangled nature of innovation and responsibility. I am not looking for linear causality or universal truths. Instead, I am interested in how things come to matter in specific contexts, how responsibility is enacted through sociomaterial practices, and how technologies co-shape ethical outcomes alongside organisational actors and practices. This allows me to produce situated, nuanced knowledge that is attentive to power and positionality.

At the same time, these assumptions also limit certain kinds of knowledge. I do not aim for generalisability in the traditional sense. This means my work may not resonate with audiences who expect clear-cut answers or replicable models. But this is a trade-off rather than a flaw. As Law (2004) argues, the world is messy, and our methods should engage with that messiness rather than smoothing it over. My approach lets me stay with the trouble, borrowing Haraway's (2016) phrase, and trace how knowledge, ethics, and innovation are co-produced in practice. These assumptions also affect my understanding of validity. In a positivist paradigm, validity is often tied to objectivity and replicability. However, from a feminist and posthumanist perspective, validity is about trustworthiness, reflexivity, and ethical engagement. It is about being transparent about my positionality, how my presence and perspective shape my research, and how I engage with participants and materials. Cozza and Gherardi (2023) describe this as an ethico-onto-epistemological stance that recognises knowing, being, and doing as always entangled. From this perspective, validity is not about detachment, but rather about accountability.

Furthermore, generalisability in my work is not about statistical representativeness, but about transferability. I aim to produce insights that resonate beyond the specific case, not because they are universally true, but because they open up new ways of thinking or seeing. This is where metaphors, narratives, and thick descriptions become essential. As Thibodeau and Boroditsky (2011) show, metaphors influence how we reason and perceive the world. In my research, I use the metaphor of a web to describe the entangled nature of innovation practices. This metaphor is not just illustrative; it is epistemological in that it helps me, and hopefully my future readers, make sense of complexity in ways abstract models cannot. In terms of impact, my assumptions push me to think beyond instrumental or policy-driven outcomes. I am not offering a toolkit for RI. Instead, I hope to contribute to a broader conversation about what it means to innovate responsibly and how responsibility is enacted. This impact is slower, more subtle, and more complex to measure, but it can still be transformative. As Braidotti (2013) says, ethical research is not just about

outcomes, but about how we relate to the world and others in the process of inquiry.

Being aware of my assumptions has also improved my research practice in very concrete ways. It has made me more reflexive, not just about what I study, but about how I study it. I pay attention to how my own position shapes my questions, how my methods include or exclude certain voices, and how my writing frames my worldview. This reflexivity helps me stay accountable to the people and practices I study, as well as to the ethical commitments I have made. It has also made me more open to collaboration and dialogue. Because I am clear about where I stand, I can engage more meaningfully with others who come from different paradigms. I do not expect everyone to share my assumptions, but making them explicit creates space for richer and more honest conversations. As Cozza et al. (2025) suggest, research is not just about producing knowledge; it is also about cultivating response-ability, a capacity to respond ethically and attentively to the worlds we study.

In sum, the assumptions I bring to my research are not just theoretical, they shape every aspect of my practice, from the questions I ask to the way I write. They enable me to engage deeply with complexity, to produce situated and ethically engaged knowledge, and to contribute to conversations that matter. At the same time, they require me to be honest about the limits of my work and to be accountable for the choices I make. And that, to me, is what responsible research looks like.

Then what?

This ontological stance, relational, posthumanist, and feminist in orientation, shapes not only what I study but how I study it and why it matters. It has taught me to treat complexity and partiality as conditions of rigorous research, not obstacles to it, and it continues to guide how I engage with participants, materials, and the wider RI literature throughout this thesis.

4.6 On Research Ethics

Linked to the discussion above, my view of the philosophy of social science centres on ethics and quality. Viewing the world through an interpretive and relational lens shapes my ethical accountability. For example, this epistemological and ontological view naturally raises the question of how I view my relationship to the individuals I have observed and interviewed. I therefore reflect on the co-production of the empirical material and my views as a researcher, alongside those of those I researched. This perspective aligns with discussions on the ethics of co-production, where participants are understood as active contributors to knowledge rather than passive subjects, raising questions of representation, ownership, and power. Early in the research process, I got acquainted with the Swedish Research Council (Vetenskapsrådet, 2024). The Council's materials taught me the key principles of a good research process. I learnt that, as a researcher, I have specific responsibilities. At the same time, research ethics is not always clear-cut. As Fanelli (2011) argues, many ethical challenges in research emerge in "grey areas" where formal rules provide limited guidance and require situated judgement by the researcher. While gathering my material, I needed to consider the research personnel and the stakeholders involved. The Swedish Research Council describes ethical considerations in research as largely a matter of balancing legitimate interests: pursuing knowledge on the one hand, and protecting participants' integrity and preventing harm on the other. Handling integrity-sensitive material also raises questions about what researchers can promise participants and who owns the research material (Vetenskapsrådet, 2024).

In accordance with the Swedish Ethical Review Act and the guidance of the Swedish Ethical Review Authority, this study was assessed as not requiring formal ethical review, since it did not involve the processing of sensitive personal data concerning health. The research did not involve medical intervention, the collection of clinical health data, or the processing of sensitive personal data as defined by the Swedish Ethical Review Act. Instead, the study focused on participants' experiences of organisational practices and the use of digital tools in workplace settings related to digital health innovation. All participants received a detailed Participant Information Form and provided informed consent before participating. Beyond formal consent procedures, my study has also drawn on an understanding of ethics as an ongoing dialogue with participants, rather than a one-time approval, in line with Mustajoki and Mustajoki (2017). Participants were clearly informed that participation was voluntary, that they could withdraw at any time without consequence, and how data would be handled and stored. Participants received no compensation for taking part in

the interviews. Although participants discussed experiences related to well-being, stress, or discomfort, I treated these accounts as experiential and contextual rather than as medical or diagnostic data. These situations illustrate how ethical considerations can arise in practice even when data do not formally qualify as sensitive, reflecting the grey areas Fanelli (2011) discusses. I conducted no health assessments of my own. The stress tests Alfa used in its pilot studies were not part of my research material, and I did not have access to participants' results. The only results I saw were my own, as a user of the application. I also did not use Alfa's usage statistics. The study focuses on how participation was experienced and enacted, and I neither sought access to individual-level data nor would it have been ethically appropriate to do so. No diagnoses were sought or recorded, and no individual-level health data were analysed. I pseudonymised all data, stored them securely in accordance with GDPR and institutional guidelines, and handled them with particular care to minimise re-identification risk. The pseudonyms were chosen to protect participants' identities and do not reflect their actual names, backgrounds, or ethnicity. Job titles are reported to give context to participants' accounts, while the organisations are pseudonymised and not described in ways that would make them identifiable.

Participants were provided with contact details for the university's data protection officer and the researcher responsible for the study should they have any concerns or complaints regarding the study. To operationalise these principles, I drew on the Code of Conduct for Research Integrity developed by All European Academies (ALLEA, 2023). The ALLEA Code provides a widely recognised and practically oriented framework for ethical research and serves as the ethical foundation for European research funding. It articulates four core principles: reliability, honesty, respect, and accountability, which guided the design, conduct, and reporting of this study. The following paragraphs reflect on how these principles shaped the research to safeguard research quality, ensure ethical integrity, and respect participants' rights and dignity. Drawing on ALLEA (2023), these four principles can be understood as follows: reliability concerns the overall quality of the research, reflected in how it was designed, carried out, analysed, and resourced. Honesty concerns how the research was developed, conducted, reviewed, and communicated, in a way that stays transparent, fair, complete, and free from bias. Respect concerns how the research engages with everyone and everything it touches: colleagues, participants, subjects, wider society, ecosystems, cultural heritage, and the environment. Accountability, finally, concerns responsibility across the entire lifecycle of the research, from initial idea through to publication, including its

management, the training and supervision it involves, and its broader societal impact.

To begin with, my research environment was conducive to the research I was to carry out. The research department I belong to allowed me to work independently in accordance with good research practices, and I did not experience any undue pressure. Receiving guidance on creating a data management plan helped me identify appropriate infrastructure to protect the data I collected. The University offered a cloud-based storage solution, which has been vital for secure data management and for ensuring traceability and accountability of the material. This knowledge also made me aware of the duration and preservation timelines for the research material, ensuring appropriate stewardship. My data management was informed by the FAIR principles (Findable, Accessible, Interoperable, and Reusable), balanced against confidentiality: given the NDA and participants' right to confidentiality, the material is stored securely and is not openly shared (ALLEA, 2023).

Continuous training and supervision have been valuable in building my understanding of how to construct an appropriate research design. Starting this research project taught me the value of rigorous supervision in conducting an ethically sound study. I received regular support from my supervisors in the initial phases of the study. Initially, I did not know how to apply codes and regulations, and this support included guidance on how to prepare the study, what types of invitation letters I could prepare for the companies I would contact and for other research participants, including those I would interview. I therefore created the following forms: an Invitation to Participate in the research project, a Participant Information Form, and an Informed Consent Form. More senior researchers in my department and other team members mentored me as I structured my initial research activities.

To build a strong methodological foundation, I took doctoral courses in qualitative, ethnographic, and quantitative methods. The quantitative course broadened my understanding of methodological alternatives and helped me choose a qualitative approach, while the qualitative and ethnographic courses provided the basis for my research design. A course on research data management helped me plan how to store and protect my material, and a reading course in feminist care ethics shaped how I engage with participants and their accounts with respect and care. In the spirit of transparency, I have also clearly reported my use of external services, such as NVivo for analysis and Microsoft Word for transcription. A professional editor also language-

edited the entire manuscript. In addition, I used two AI-based tools: Grammarly and Microsoft Copilot, for language editing. The analysis, interpretations, and arguments are my own. The methodology courses I have taken have been aimed at students in business studies. This has been valuable, not least because good research, as ALLEA (2023) reminds us, depends on researchers genuinely mastering the knowledge, methods, and ethical practices particular to their own field. Moreover, in accordance with ALLEA (2023), I carefully considered that my research project crossed professional boundaries, as the case company and the application users work for different organisations, and the users also use the application outside office hours. In this context, I ensured research integrity standards by clearly stating when they participated in my research specifically and when they were only part of my case company's pilot studies.

Another aspect I considered in the initial phase of my case company, Alfa, was creating a non-disclosure agreement (NDA) between Alfa and the University. On 25 January 2022, I, as the researcher, the CEO of the case company, and the Dean of my university signed the NDA. Under the terms of this agreement, Alfa consented to my access to and use of internal company material, including documents and email correspondence, for research purposes. Internal emails served as background for understanding Alfa's processes, and no email content is quoted or attributed to individuals in the thesis. The agreement gave Alfa the opportunity to object to the publication of information it had marked as confidential, but not to approve or change my analysis or findings. In addition, I contacted the Information Security Coordinator and the Data Protection Officer at my University in February 2022. They informed me that, when processing personal data, the GDPR requires providing certain information to the individual(s) whose data the University handles, i.e., the data subject(s). I added this information accordingly to the Participant Information Form.

Furthermore, after speaking with the Information Security Coordinator and the data protection officer, we did not deem it necessary to enter into a GDPR contract with the case organisation. This is because I do not act as a data processor on Alfa's behalf, rather, I process the personal data for my own research, for which the University is responsible. The case company was not interested in conducting the research together; if it had been, it might have raised questions about joint responsibility for personal data and would have required an agreement. The University could have regulated personal data processing through a data-sharing agreement. Still, it was not deemed necessary, as every personal data controller must comply with the GDPR. Beyond ethical considerations during data collection and analysis, the

research process also raises questions about publication ethics and authorship. As the literature highlights, ethical challenges do not end with collecting empirical material but extend to how research is written, attributed, and disseminated (Helgesson & Eriksson, 2015). In interpretive and co-productive studies such as this one, where empirical material is shaped through interaction with participants and organisational actors, questions of ownership and representation become particularly relevant. For instance, the distinction between my analytical contributions and the insights generated through interactions with participants requires careful consideration. Because some findings critique aspects of Alfa's pilots, I present Alfa's perspectives alongside users' accounts and analyse tensions as effects of configurations, not failings of individual actors. The company also remains anonymous throughout.

These issues are further reflected in guidelines such as the Vancouver recommendations, which outline authorship criteria and emphasise accountability in communicating research (International Committee of Medical Journal Editors [ICMJE], n.d.). While this dissertation is single-authored, the broader research process has involved multiple contributors, including participants and collaborators in related publications. This raises considerations regarding the reuse of empirical material, authorship attribution, and the boundaries of acceptable publication practices, sometimes discussed in terms of "salami slicing." Where this thesis builds on co-authored work, such as Tavakoli Hagström and Othman (2025), I indicate this in the text. While formal guidelines exist, applying them often requires interpretation and contextual judgement, reinforcing ethical grey areas in research practice (Fanelli, 2011).

Finally, a note on accountability and taking responsibility for my own research, independently. It is difficult to take accountability for the study when it falls into someone else's hands and is viewed through their lens. This is a philosophical point, but it matters because I have made clear that I have a relational ontology. Therefore, I want to emphasise the importance of taking responsibility for those parts I can, namely by informing research participants and engaging in a conversation about the study, their rights, and its purpose (Mustajoki & Mustajoki, 2017). I have also told them about the research timeline and related questions, such as how the material will be used now and in the future. My research comes to life when readers engage with it, whether in print or on a screen, which highlights the distributed nature of responsibility in knowledge production. I hope this chapter has made my efforts toward reliability and accountability visible. As noted earlier, taking full accountability for one's own research from idea to

publication includes overall management and supervision, as well as consideration of the broader societal impacts (ALLEA, 2023; Shamoo & Resnik, 2009). My thesis topic, RI, involves anticipating the possible future effects of innovations. I see accountability similarly from a researcher's perspective. I have therefore kept in mind, for instance, informing all my participants about the opportunity to receive my thesis upon its finalisation, in line with broader principles of transparency and respect in research communication (ENAI, n.d.; Vetenskapsrådet, 2024). During the research process, I also shared the study's findings with Alfa.

We also discussed, as part of the interviews, how we can make research such as my own more accessible to the public. One thing I reflected on afterwards is the iterative process that has characterised my research. From the beginning, when I started talking to Alfa and the application's users, I had a slightly different purpose for the study, reflected in the research questions. My study has evolved, and I take responsibility for what I knew at the time. If I had known then what direction my topic would take, I would have shared it accordingly. This topic is hard to reason about because my study is iterative. During initial conversations with the case company, I outlined what I wanted from the study, and that has evolved over time. To clarify, as shown in Table 4, my focus in the first year was stakeholder management in RI from a managerial perspective, which later shifted to an interest in user inclusion in RI. These initial interests laid the foundation for building my current interest in how de facto RI is translated in practice. Methodologically, the empirical work included non-participant observations, semi-structured interviews, an ongoing diary of my use of the application, and document analysis, with several of these running concurrently rather than in strict sequence. Summing up the conversation about accountability, it is a pillar and perspective that must be discussed in relation to one’s process, whether iterative or linear.

4.7 A Mobile Application for Sustainable Health and Profitability

To better understand my empirical company, Alfa, and the context in which it operates, I will continue the chapter by briefly introducing the intricate web of digital health applications in Sweden. A narrative of empirical inquiry can help us uncover the less-travelled pathways within this evolving digital health ecosystem. Larsson and Teigland (2020, p. 1) note:

> "Increased availability" and "individualization" are two of the most common demands from consumers in this day and age. This is a development that has gained a substantial foothold on the contemporary consumer market, whether the services lie in finance, insurance, retail, and/or transportation. The Internet, smart-phones, and other technologies sprung from the digital age have helped people gain better insight into and awareness of what they expect from a service provider. To this extent, the welfare sector, just like other industries, also benefits from new technologies and digital innovations, as it seeks to drastically improve our everyday lives and help us create more sustainable societies.

Digital welfare relies on a variety of concepts and components, with the Internet as its backbone. Smartphones, in particular, have played a significant role in advancing the field (Nylén & Holmström, 2015). Yet digital health platforms occupy a distinctive structural position relative to platforms in other sectors: they must integrate with an existing, largely physical healthcare system, rarely benefit from strong network effects, and operate under comparatively tight regulation, all of which slow the pace of digital transformation relative to industries such as retail or transportation (Holgersson et al., 2024). Let us turn to the firm I have collaborated with in my study, Alfa. It operates in a context where the nation-state has traditionally been seen as the provider of well-being, a role now being disrupted by globalised digitalisation (Larsson & Teigland, 2020). Sweden is often described as one of Europe's most digitalised countries (Larsson & Teigland, 2020). At the same time, Sweden's health care is often considered high quality, yet costs are among the highest in the Organisation for Economic Co-operation and Development (OECD). Moreover, in Sweden, health spending per capita is among the highest in Europe (OECD/European Observatory on Health Systems and Policies, 2019, p. 4). At the same time, patients' experiences of access to care, such as waiting times, compare less favourably (OECD/European Observatory on Health Systems and Policies, 2019). It is therefore even more interesting and pertinent to study a start-up such as Alfa, as insights from this context may be relevant to how digital health develops in other countries facing similar cost and quality pressures (OECD/European Observatory on Health Systems and Policies, 2019).

Alongside rapid developments in the private health sector, smartphone apps are now being introduced in the public primary health system, marking a form of disruption. Whereas health data have rarely been collected in real time, such collection is now driving advances in personalisation through analytical tools such as AI. People are increasingly consumers of personalised digital health technologies, which provide access to private health data for their own benefit and for the benefit of a larger population. Advances continue to emerge across fields such as wearables and genomics,

but these often remain siloed. Realising personalised, predictive, and preventative healthcare depends on integrating multiple data sources, such as medical history, genomics, behavioural data, and real-time device data, across large populations, with results fed back to individuals (Larsson & Teigland, 2020). In line with Flores et al. (2013), such applications can be described as predictive, preventive, personalised, and participatory. Some digital health applications in this space respond with automated advice or intervention when they identify specific risk conditions (Larsson & Teigland, 2020). As the empirical chapters of this thesis show, Alfa's users did not experience this kind of risk-triggered guidance in practice.

Beyond digital applications such as Alfa's, digital users track a variety of behavioural data. The same users may also have applications for logging exercise, nutrition and diet, and similar activities. As Larsson and Teigland (2020, p. 102) state, "As more people start using these applications in their daily lives, and as the applications continue evolving to become more user-friendly, the information gathered through them will become more valuable". A related market is that of wearable MedTech devices, which are also characterised by rapid innovation and development. Users of digital health applications are often described as gaining empowerment by offering their own data and receiving benefits in return, although, as discussed in Section 3.2, such exchanges also raise concerns about surveillance and privacy. Users may become independent of their regular health providers by using third-party applications instead. Like Alfa, most providers in this field are private firms. However, because Alfa's application is typically offered through employers, users' access depends less on their own finances than on whether their workplace provides it.

4.8 How It All Works

Now that we have examined the broader context in which Alfa operates, it is time to introduce the company. In doing so, I refer to Alfa's staff by title and have amended some details to protect their privacy. To protect Alfa's anonymity, the thesis does not include screenshots of the application. In this thesis, the innovation refers to both Alfa's application and the pilot processes through which it was developed with users. To begin, Alfa's application serves as a proactive digital health coach, helping users manage their health and stress. Unlike digital health, which defines the research setting, this thesis does not define well-being in advance. Because Alfa and its users use the concept, I follow how they understood and enacted it in practice. Digital health firms often engage users through self-leadership to

create more sustainable health outcomes. If I were to describe the "central nervous system" of Alfa, it would be the automated feedback generated from users' data, which Alfa describes as drawing on machine learning and generative AI to surface patterns across responses. I choose to use that analogy, inspired by Larsson and Teigland (2020, p. 112), who conclude that "technological development is pointing in the direction of ever more complex systems where AI will become the central nervous system." However, as the empirical chapters of this thesis show, users did not necessarily experience this system as offering expert-level guidance, the interpretive work of making sense of the data it produced frequently fell to users themselves. Alfa describes their aim and purpose similarly and highlights the potential productivity that may result from working on one's well-being. Interestingly, Alfa is registered as an AB (Swedish limited company) in the industry branch "Data, IT and Telecommunications", illustrating how firms focusing on digital health may be officially registered within the wider IT sector. Regarding the UN's SDGs for 2030, Alfa states that it supports SDG 3 (Good Health and Well-being) and SDG 8 (Decent Work and Economic Growth).

To better understand Alfa and its products and services, it is essential to note that it now has both private users and users introduced to the application by their employer. When I first started collaborating with Alfa, they only offered their services to users through their employers. Naturally, this means my study has excluded material and information from private users, as well as Alfa's overall aims and developments in this area. I collaborated with them during a phase when they initiated pilot studies with users from a handful of companies. The pilot studies aimed to work with users to better anticipate their impacts and reflect on the application's purpose and overall motivations. As part of the pilot studies, Alfa sought to include users' ideas and experiences in future developments and encouraged responses and reflection throughout the process. Interestingly, although Alfa did not explicitly draw on or apply the AIRR framework (Stilgoe et al., 2013), the stated purpose of these pilot studies echoed several of its core dimensions (anticipation, inclusion, reflexivity, and responsiveness), without being consciously modelled on it. This resemblance was not a criterion in selecting Alfa as a case, rather, it became one of the earliest empirical signals of the phenomenon this thesis investigates: that dimensions associated with RI can be enacted informally, in practice, without deliberate reference to a governing framework.

To start understanding the firm and immerse myself in it, I followed these pilot studies closely as a non-participant observer. It was an interesting time,

as the COVID-19 pandemic was still affecting how firms operated. Coming into their field, I quickly learned that Alfa's organisational processes operated at high speed, were rapidly changing, and had shifted toward online meetings with clients and users, as described in Section 4.2. The users participated in these studies across several phases, with one study ending and another starting; for me, this became an iterative process of following both the users and Alfa's work process. During the pilot studies, users took part in a variety of meetings initiated by Alfa. These included introductory meetings, where Alfa addressed questions, and onboarding meetings, where users received practical information on operating the application. These were followed by sessions in which users reflected on their use of Alfa, and Alfa shared overall results and well-being status across teams. Alfa held simultaneous meetings with managers and HR staff to discuss usage levels and overall engagement across teams. At the beginning and end of each study, users completed a stress test to assess their stress levels, using data from the preceding months. As the pilot studies concluded, scheduled meetings focused on evaluation and closure.

Moreover, users were continuously encouraged to reflect on their well-being and usage, along with their colleagues, friends, and family outside of work. Users were also encouraged to submit feedback during the pilot studies, either directly in the application or via email to Alfa. In practice, Alfa approaches companies across a variety of fields. Users of the application are thus introduced to it by their own manager and sometimes by someone from the Human Resources department. While users are introduced to Alfa through their workplace, the idea is that they use it both at work and outside. By default, the application sends push notifications to users three times a day, and users can customise the frequency to suit their preferences. These notifications encourage the user to reflect on several health categories, which, according to Alfa, should lead to better overall mental health and influence their work role, for instance, by fostering better cooperation, increased psychological safety, and ultimately improving their effectiveness in their daily work duties. The categories concern, but are not limited to, mental energy and cognitive ability. The application engages the user with questions, makes statements about mental health topics, and prompts them to respond accordingly. The long-term functions are visualised in a balanced scorecard format. In addition, users can read how their well-being status is calculated. The application is meant to serve as a coach in the user’s daily life. Still, Alfa also promotes improved work performance through increased self-awareness, empowerment, engagement, and more efficient teamwork. This means that, beyond benefits to the user in terms of improved mental well-being, the application's visualisations and data provide employers and

management with reports on overall well-being at the group level; individual users' data are not shared with the employer. Alfa's team of 8–10 people is supported by affiliated researchers and an advisory board (see Table 3). The affiliated researchers, including professors, assistant professors, and postdocs, conduct research in digital health, psychometrics, and AI. In addition, Alfa has several resellers and partners who collaborate with them; these partners operate, for instance, in psychology, organisational psychology, and health and stress consultancy.

4.9 Presenting My Findings

It can be challenging to sustain and appreciate the closeness and distance between everyone involved in the study. This became especially apparent when writing the analytical chapters, where I first used my participants' statements. While trying to stay reflexive and reflect on the decisions I have made about how to present the material, Bourdieu's (1999) account of the researcher's balancing act between closeness and distance resonated with me, and I found it genuinely soothing to read. He describes how the analyst must present enough for the reader to understand the interviewee's position without reducing them to a specimen on display, while getting close enough to their perspective without collapsing into it, a balance achieved not by distancing oneself, but by letting the underlying critical reflection feel natural and self-evident in the writing itself. Admittedly, I am no exception when it comes to feeling pressure to balance immersion in the field with avoiding reducing the individuals I study to a display case. Therefore, I have chosen to present my empirical material through a narrative approach, using short narrative vignettes. The vignettes condense participants' accounts into short narrative scenes, so some details are narrative renderings of what participants described, not events I observed. The quotes they contain are participants' own words. The quotes presented were selected because they expressed patterns that recurred across the material, or because they showed contrasting experiences. I have also included accounts that complicate the main argument, such as Carla's and Elena's experiences of trust and Carlos's enthusiasm for the leaderboard. This echoes Kociatkiewicz and Kostera (2019), who see social science writing itself as a way of telling stories. Their broader argument goes further still: they push back against what they see as a decline in liveliness across contemporary management journal writing, arguing that both narrative and more conventional academic reasoning have a role to play in showing why the social sciences benefit from a genuine variety of ways of constructing and communicating knowledge. This study draws on in-depth fieldwork at the case company,

during which I engaged with the organisation through interviews, observations, document analysis, and diary writing. For me, knowledge creation means presenting material in a way that lets the receiver absorb subtle insights and nuances, while my own interpretations remain visible. Consider Burrell's (1997) critique of linearity in academic writing: linearity can kill not only the happiness and joy in reading scholarly materials but, in fact, it can also kill learning. Trustworthy quality is not necessarily equivalent to sorting everything out in the mere pursuit of fitting it all into a Procrustean bed of format and style (Kociatkiewicz & Kostera, 2019). The longitudinal nature of the fieldwork allowed me to follow developments over time and reflect on how RI principles were enacted in practice. Presenting my findings and analysis in a personal and unexpected way also lets me push back against narrow conventions of academic writing.

This concludes Part 2. In the following chapters, it is finally time to invite you, the reader, to meet some of Alfa's users and explore their experiences of using the application during Alfa's pilot studies. We will also get a glimpse of the other side of the company: key representatives from Alfa and its associated researchers. What has driven me and kept me curious throughout the analysis is the desire to understand what RI looks like in practice, and how it is enacted, strained, and negotiated in everyday organisational life. As I bring these insights into the analysis, I acknowledge that my choices and worldview have shaped how I speak about the empirical material, and that my accounts of the practices I observed are inevitably shaped by my own perspective. Accordingly, the empirical chapters use vignettes and synthesis tables to make visible how configurations emerge in practice and how they can be reconfigured.

PART 3: ENACTING RESPONSIBLE INNOVATION

CHAPTER 5. Analysis: Enacting Responsible Innovation Through Sociomaterial Practices in Digital Health

This chapter addresses my first research question: *How does a digital health start-up enact de facto Responsible Innovation, i.e., Responsible Innovation practised without being explicitly named or formally adopted, in its everyday innovation practices?* While RI provides the thesis's overarching theoretical framework, this chapter's analysis starts from empirical practices and examines how responsibility is enacted in situ. Here, I use sociomaterial perspectives as an analytical lens to understand how space, time, and technology shape responsibility, not as a theory that explains responsibility. The chapter proceeds by examining three configurations of practice: enacting responsibility through sociomaterial configurations (Section 5.1), negotiating openness through sociomaterial arrangements (Section 5.2), and gamification as a sociomaterial practice of responsibility (Section 5.3). Section 5.4 then brings these strands together. Across these three strands, I analyse how responsibility materialises in organisational life not as a formal framework or set of principles, but as a situated and performative practice. This approach enables a more grounded understanding of how de facto RI unfolds in practice, complementing normative and procedural models of the concept. While questions of inclusion inevitably surface throughout the chapter, the primary analytical focus remains on how responsibility is enacted, not on who is included.

A note on terms: I use "enactments" for the forms responsibility takes in practice, "mechanisms" for the recurring ways in which inclusion is configured, and "sociomaterial configurations" for the arrangements of people, technologies, spaces, and times through which both emerge (cf. Suchman, 2007). Chapters 5 and 6 are analytical chapters that build on the relational and sociomaterial ontology developed earlier in the thesis. This chapter uses this orientation to analyse how responsibility is enacted in practice. Chapter 6 applies the same analytical orientation to user inclusion, addressing the second research question by examining how sociomaterial

configurations shape possibilities for user inclusion and how these possibilities become entangled with ethical tensions and practices of care.

5.1 Enacting Responsibility Through Sociomaterial Configurations

This first section (5.1) explores how responsibility takes shape in practice, not as a principle applied in advance but as something enacted through the ongoing entanglement of people, artefacts, and spaces. In my analysis, I examine responsibility as enacted through users' everyday engagements with Alfa's pilot study, treating these empirical accounts as analytically primary. Throughout the analysis, I distinguish between how participants themselves understood responsibility and my own analytical reading of how it was enacted. The quotes show the former, while the interpretations that follow them show the latter. Sociomaterial perspectives sharpen and situate the interpretation instead of predefining it, providing a vocabulary for analysing how responsibility is enacted in practice (see, e.g., Barad, 2007; Gherardi, 2012; Orlikowski, 2007).

To make visible how responsibility is enacted in practice, I begin with a short vignette, "the quiet contribution", drawn from an interview with Juan, who is one of the users participating in Alfa's pilot study. The vignette is not presented as an illustrative anecdote, I use it as an empirical starting point for analysing how responsibility takes shape through everyday engagements with the Alfa app.

Vignette: The Quiet Contribution (3 June 2022)

In an interview, Juan reflects on his participation in Alfa's pilot study. "I do not want anything in return," he says, describing his engagement not as a transaction, but as a contribution to something larger. He willingly shares his data, motivated by a sense of collective responsibility and the hope that it might help others. His involvement is quiet, deliberate, and grounded in what I argue is a sense of trust in Alfa. "I believe in what they are doing," he adds. For Juan, responsibility is not about visibility. It is about purpose. His engagement illustrates one way relational care and altruism can shape RI processes, even when the structures for co-creation are still emerging and ongoing.

I read the vignette on Juan's thoughts not simply as individual motivation but as something that takes shape through the relational and material conditions of the pilot study in which he participated. In earlier work on user inclusion in digital health innovation, Othman and I showed that users often framed participation not primarily as individual benefit-seeking, but as a relational contribution shaped by trust in the organisation, the framing of the innovation as research, and the material conditions under which participation took place (Tavakoli Hagström & Othman, 2025). Juan's account echoes this pattern, but it becomes more visible through his situated engagement with the pilot, where he enacts responsibility through everyday, repeated acts of responding, not formal moments of co-creation. Responsibility, in my analysis, is not something Juan simply "has"; it emerges through his ongoing entanglement with Alfa's application and the temporal rhythms of participation. The app's interfaces, the cadence of its prompts, and Alfa's emphasis on collective well-being form a background that makes his orientation toward contribution intelligible not as a pre-given stance, but as a lived and situated enactment. I interpret Juan's account as showing how responsibility comes into being through small, repeated, and often mundane practices of responding, sharing, and reflecting. Practice-based perspectives on care and responsibility help articulate this dynamic. But the analytical point emerges from how these gestures unfold in Juan's everyday engagement with the app. He told me in the interview:

> I do not do this for myself, even though it feels good. It is more about contributing to research and providing a foundation for future work. It differs from using an application designed to promote my own health. The purpose here is not to promote my health, but to contribute to future development so others can feel even better. I do not need feedback or follow-up on this, as it is a different horizon than if it were solely about me and my health. (Juan, user)

Interestingly, I initially read the RI practices that Juan participated in as closely reflecting Alfa's stated mission. As the fieldwork unfolded, however, a more textured and complex picture emerged. Responsibility did not appear as the "neat" or unified phenomenon I initially imagined. Instead, it came across as multiple, shifting, and often ambivalent, coming together differently as relational entanglements changed. I observe that for some participants, like Juan, contributing their data became a meaningful way to participate in something beyond themselves. Others framed their engagement in terms of fulfilment and hope for improved future outcomes. I view all these stories as illustrating how responsibility can be enacted as a form of collective orientation, distributed across people, technologies, and

work rhythms. Gherardi and Laasch's (2022) work on responsibility as lived and situated practice helps articulate this interpretation.

5.1.1 Contrasting Enactments: Caution, Hesitation, Protection

In my fieldwork, Juan's orientation toward contribution sits alongside other, more ambivalent enactments and understandings. I interpret these accounts not as contradictions to Juan's experience, but as illustrations of how responsibility takes different shapes as the sociomaterial arrangements around it change. In my analysis, responsibility is shaped by position, interdependence, and shared practices, which helps explain why other users, such as Jorge and Martina, engage with the application differently depending on workplace dynamics and situational conditions. For them, responsibility took on a quieter, more cautious tone. Their caution or hesitation towards the pilot study is not a deficit of individual responsibility, but an enactment conditioned by structural, temporal, and interpersonal configurations. The multiplicity observed in users' practices reflects responsibility as an ongoing, distributed accomplishment, not a fixed individual trait. Jorge, for instance, problematised the epistemic expectations placed upon him, a sense that he was expected to interpret, understand, and act on health-related information from digital health tools without having the necessary expertise. As he explained, his hesitation did not stem from unwillingness but from recognising the interpretive burden of making sense of data that felt opaque or potentially misleading. In my analysis, responsibility here was enacted as care for one's own limits, a form of self-protection against drawing incorrect conclusions.

Martina highlighted how physical and social settings shaped her willingness to respond to Alfa's prompts and notifications. Her engagement fluctuated depending on who was nearby, whether her supervisors were present, and how visible her interactions with the application felt in the specific moment. Therefore, I argue that responsibility is shaped through spatial atmospheres and organisational proximities, not through individual intent alone. Practice-based perspectives help articulate how such engagement is relational and embodied, and how action remains situated within specific contexts (see, e.g., Gherardi, 2012; Suchman, 2007). For Martina, responding to the notifications was not simply about contributing, but about navigating the risks of visibility and potential scrutiny.

Juan's, Jorge's, and Martina's accounts thus show that responsibility emerges not only as contribution but also as boundary work, involving decisions about what should remain private and how dignity and autonomy

are maintained in uncertain settings. These contrasting enactments do not cancel one another out. Instead, they demonstrate that responsibility is not a singular phenomenon but shifts shape as configurations change (Mol, 2002). In some contexts, responsibility is oriented outward toward collective benefit; in others, it turns inward and is enacted through careful withdrawal or selective sharing. I therefore argue that both modes emerge through entanglements of material artefacts, workplace dynamics, spatial configurations, and affective atmospheres, which help explain why responsibility appears situational and unstable, not coherent or linear. In this case, the Alfa application is part of the entanglement through which these different elements come together.

Seen in this light, de facto RI materialises through situated, relational, and embodied practice, not through normative guidance or linear implementation models. Responsibility becomes something done, felt, and negotiated in practice. Read alongside RI scholarship that often assumes willing contribution and mutual responsiveness (Stilgoe et al., 2013), an assumption already questioned by Bergen (2017), my analysis shows how such assumptions are challenged when responsibility is enacted under changing and uneven conditions. Along these lines, I now examine how openness itself is negotiated through sociomaterial arrangements.

5.2 Negotiating Openness Through Sociomaterial Arrangements

In this section (5.2), I use "openness" to describe how users decide whether to speak, share, or remain silent within the sociomaterial conditions they encounter. Rather than treating openness as a normative ideal or a stable personal trait, I think of it as a situated effect of relations among technologies, bodies, and spaces. Accordingly, I examine how openness is not simply invited but negotiated through sociomaterial arrangements of technology, space, and relational dynamics. This means I treat privacy concerns, psychological safety, and interpretive burdens as situated effects of entanglement between, for instance, material artefacts and workplace spatialities, which helps clarify how action and meaning emerge through everyday sociomaterial relations. While these dynamics connect to broader questions of inclusion, this section focuses on how openness becomes both possible and constrained through everyday arrangements. This notion of openness connects to the transparency and mutual responsiveness that RI frameworks presuppose (von Schomberg, 2013), and which Blok and Lemmens (2015) question in business settings (see Section 2.2).

In the interviews, I observed that issues of privacy, visibility, and psychological safety surfaced repeatedly, though in different ways for different people. I found that these issues did not operate as linear barriers but as a more complex combination of relational elements shaping how responsibility could be expressed in practice. In previous work, Othman and I showed that concerns about privacy, visibility, and psychological safety were rarely articulated as explicit objections to participation; instead, they surfaced as situational hesitations shaped by workplace relations, organisational hierarchies, and how digital tools rendered users visible to others (Tavakoli Hagström & Othman, 2025). The interviews in this study show a similar pattern, but also make visible how users negotiate these concerns moment by moment as they decide when to speak, when to remain silent, and how to calibrate their participation in practice. To illustrate how such situational negotiations of openness unfold in practice, I introduce a vignette drawn from an interview with Julia, another participant in Alfa's pilot study. The vignette foregrounds how responsibility can be enacted through careful boundary-setting rather than open contribution when participation occurs under conditions of proximity, hierarchy, and uncertain visibility.

❧ Vignette: The Shared Space (1 June 2022)

Julia scrolls through the application's dashboard, aware that her responses are part of a small pilot group. "One could try to figure out the results," she says, noting how the limited number of participants makes anonymity feel fragile. Her supervisor is not present, but others are. "There is an imbalance in what I want to share," she explains. The digital space is not neutral but rather relational, shaped by proximity, hierarchy, and visibility. Though the application is designed to invite openness, the sociomaterial conditions of the workplace complicate that invitation. Julia's hesitation points toward a form of responsibility attuned not to contribution but to careful self-protection in the face of uncertain visibility.

Julia's experience makes visible how openness is not a neutral invitation but a situated negotiation of visibility and hierarchy. Rather than assuming that users will willingly disclose, contribute, and co-create when invited to participate, this moment shows how spatial and technological arrangements mediate the conditions under which responsibility can be expressed in practice. From this perspective, Julia's hesitation is not a failure of

participation but a response to how the possibility for inclusion is configured in that situation.

At the same time, other users I spoke with, such as Carla and Elena, described experiences of psychological safety and trust during the pilot study. Carla felt confident that her shared data would be used for research and future development, and Elena reached out to Alfa on her own initiative to offer feedback. These contrasting experiences show that openness is not simply a matter of individual disposition, but is shaped by the relational and material contexts in which innovation is enacted. This variation speaks to critiques in RI scholarship that caution against assuming homogeneous stakeholder participation or stable conditions for mutual responsiveness (Blok & Lemmens, 2015; Brand & Blok, 2019). Returning to Julia, she noted that the material space she was in, when she was about to share her ideas with Alfa, affected her willingness and ability to share her thoughts. She further described how the application's digital nature allowed others to ponder results and draw assumptions about her. I argue that this highlights how visibility can become a source of vulnerability in digital participation. Therefore, spatial and organisational arrangements are not neutral backdrops, they can shape how risk, exposure, and responsibility are experienced in practice. She explained to me:

> I was not always comfortable presenting my results in those meetings. We were so few in the pilot that it felt possible to guess who had said what. There is an imbalance in what I want to share when close colleagues are sitting right there. (Julia, user)

She also noted that although her own supervisor was absent, other colleagues' supervisors were present during the pilot, which, she felt, shaped the atmosphere of the space:

> My immediate supervisor has not been present, but the immediate supervisors of others have participated. However, we have not had many dialogues or reflections between us as colleagues. (Julia, user)

This shows how proximity and hierarchy shape what becomes sayable in practice. Julia's description points to a tension between psychological safety and visibility, in which the presence of hierarchical actors, such as supervisors, can inhibit open dialogue. Although Alfa promotes openness, the conditions under which openness is enacted, where and when

participation takes place, shape how users actually engage. Here, organisational arrangements become part of participation's materiality. The presence of colleagues and supervisors actively shapes how responsibility is negotiated in practice. Research on organisational practice helps articulate how such phenomena emerge through the entanglement of material and social resources rather than as isolated events (Gherardi, 2012). At the same time, work on psychological safety helps situate why these configurations matter, as perceptions of interpersonal risk can significantly affect participation and voice in organisational settings (Edmondson, 1999). To illustrate how these dynamics also surfaced in my own engagement with the technology, I include a brief reflexive diary extract:

Diary extract (15 August 2023):

I sat on the bus today and observed something about my usage. I know the idea of Alfa is to start talking about everyday experiences, and I am aware of the purpose and benefits of raising these conversations, but I did not act on it today. When I sat on the bus, I got a notification from the application that it was time to answer again, it was about how I had slept and what my status was. Believe it or not, when the notification popped up and I was about to start answering, I found myself lowering the screen's brightness so it would be less visible to others around me. Why? Because I felt embarrassed about two things.

First, I wanted to jot down some brief thoughts on my experience with it and my overall impressions. It made me feel shy, as if I had become vulnerable doing so. Second, when I was about to enter the answers into the application, something inside me was triggered. Before I entered any answer, a thought passed through my mind: namely that I had better move my body in a way that the people around me could not see my answers. The next second, I found myself lowering the screen's brightness.

I interpret this moment of hesitation, even from my position as a researcher familiar with the study's aims, as showing how visibility and context shape participation. It shows that privacy is not a fixed state but an ongoing, performative negotiation, in which people adjust what they reveal based on social proximity and perceived judgement. This illustrates how privacy and visibility are negotiated in situ, shaped by context, proximity, and material conditions. In this case, the bus, the screen, the app, and the surrounding passengers co-produced a moment of embodied vulnerability for me, demonstrating how RI involves not only design but also lived experience.

While my hesitation occurred in a transient public setting, I observed similar dynamics intensify in workplace contexts, where data circulated differently, and organisational hierarchies and expectations came into play. In these settings, concerns about anonymity, distrust, and interpretive risk become especially pronounced, as the next subsection explores.

5.2.1 Anonymity, Distrust, and Organisational Atmospheres

I read my conversation with Mona, who, as Chief HR and Sustainability Officer, saw how the pilot's results were received in her organisation, as illustrating how questions of anonymity and trust surface in everyday practice:

> There's a sensitivity in analysing these kinds of results. Questions like "Who is bringing down the score?" inevitably arise. Even though the responses were completely anonymous, some comments still reflected distrust, for example, "I hope this is anonymous; otherwise, it will be like 'I will come and clear out your desk.'" (Mona, user)

In my analysis, Mona's reflections reveal more than scepticism toward digital tools, they show how the workplace context, rather than the application alone, can make anonymity fragile and trust contested. Even when an application like Alfa is designed to protect privacy, users remain alert to the interpretive risks that accompany data shared within their organisation. I interpret these reactions as showing how openness becomes a contingent and precarious accomplishment, shaped by hierarchy and the possibility of misrecognition. From this perspective, Mona's account complicates common RI assumptions that inclusion and transparency naturally foster trust (see e.g., Stilgoe et al., 2013; von Schomberg, 2013). Instead, her reflections point to a form of cautious participation in which users weigh the consequences of being visible within organisational power relations. In my analysis, this suggests that designing for RI requires attention to the affective and atmospheric conditions through which anonymity is felt and enacted. Responsibility and anonymity are thus enacted differently across practices and contexts. Psychological safety also emerged as a key theme in my observation sessions. In Alfa's own framing, the application's impact extends beyond individual benefit to generating value for the wider organisation and contributing to collective well-being. Research that conceptualises innovation as relational infrastructure helps to situate this aspiration (see, e.g., Marent & Henwood, 2023).

However, interviews like the one with Mona above show that these ambitions are not always realised in practice. While Alfa aims to amplify organisational support as part of its responsibility practices, users remain acutely aware of how supervisors or colleagues may interpret their responses. This tension reflects the fragility of psychological safety in hierarchical or ambiguous environments, where visibility can inhibit participation rather than encourage it (Edmondson, 1999). The organisational dynamic was further emphasised in a webinar on patient-led health and user inclusion that Alfa hosted (Observation 15), where Gonzalo, Alfa's CEO, described how Alfa contributes to what he called "Health 3.0." I interpret this as an organisational imaginary that positions firms as enablers of user agency. At the same time, everyday experiences show how organisational atmospheres can constrain openness, making such imaginaries more delicate and porous than anticipated.

In sum, these dynamics show that openness in RI is shaped by anonymity, trust, and organisational atmospheres. Yet openness may also depend on something else: whether participants feel aligned around a shared purpose. This shifts the analytical focus from individual willingness to speak toward the collective conditions that make speaking meaningful in the first place, the question to which the next subsection turns.

5.2.2 Co-Constructing Purpose and Conditions for Speaking

Sofia reflected that her engagement with Alfa would have been stronger if the pilot study had fostered a stronger sense of collective orientation among those involved. Instead of thinking of the pilot primarily as an individual activity, she imagined it as something that could have been achieved through shared reflections from the beginning:

> At the start, we had a presentation on what this is and its purpose. But if we had instead broadened it and started with a workshop on "What is important to us?", it might have worked better. We also did not have much internal discussion about it. To anchor it internally, we might have needed to ask questions like: "Why are we part of this?" We probably touched on it a little, but a clearer reflection on "What do we want?" and "What do we want to evaluate in this?" could have set a clearer direction. That might also have helped us define what to focus on, perhaps by establishing user experience criteria from the outset. (Sofia, user)

I contend that Sofia's account points to responsibility as something she was prepared to take up, but only when purpose was jointly articulated rather than assumed. What she asks for is not more information about the app, but

a shared orientation that could stabilise what participation was *for*, and how speaking up might matter. Responsibility here is relational as it depends on whether participants recognise themselves as part of a collective process rather than isolated users responding individually to prompts. Crucially, Sofia's reflection also highlights what did not materialise. Although the Alfa application was framed as a collective initiative, participants engaged with it at different times, in different places, and through separate everyday routines. Without shared moments of coming together, opportunities to align expectations and articulate common concerns remained limited. In my analysis, this absence matters because, without collective grounding, individual users bear the burden of making sense of the pilot's purpose. This dynamic becomes clearer when Sofia's account is read alongside other participants' experiences. One participant, Davide, described actively seeking dialogue by using the app's built-in chat function, asking questions and attempting to engage with Alfa directly. However, this attempt was met with silence: "There was no one behind the application who could respond or even acknowledge the message… I got no feedback, so there was no point in giving more" (Davide, user).

Sofia's and Davide's accounts suggest that the issue was not a lack of willingness to engage. Rather, in my analysis, responsibility was configured asymmetrically. Users were encouraged to reflect, respond, and contribute, yet encountered no clear relational counterpart to receive, acknowledge, or act upon their engagement. Under such conditions, I argue that participation becomes uncertain. Speaking up entails effort and exposure, while the possibility that one's contribution matters remains unclear. Without collective grounding and responsive relations, responsibility increasingly becomes an individualised task. Users are left to interpret the app's data, its purpose, and its relevance on their own, without shared reference points or reassurance that their interpretations will be met. The next subsection (5.2.3) takes up exactly these shifts, where responsibility becomes cognitively and interpretively burdensome, through a focused analysis of Jorge's reflections.

5.2.3 Interpretive Burden and Boundary-Setting

While Jorge's earlier reflections in Section 5.1.1 highlighted responsibility as self-protection and caution, his ideas here reveal a different facet of openness: what I describe as the interpretive burden placed on users in digital health contexts. I use the term interpretive labour, in Section 5.4, to emphasise that making sense of the data required effort from users, effort that was largely unacknowledged. Whereas many users framed responsibility in terms of relational care, collective well-being, or personal

integrity, Jorge focused on the cognitive work of interpreting health data and the risks of making sense of information without expert guidance. In my analysis, Jorge's account shows how responsibility can shift from empowering to overwhelming when users are expected to understand and act on complex health information without sufficient contextual support. This shift, from relational to interpretive responsibility, highlights the risk of transferring diagnostic authority to users. As Jorge describes, delegating meaning-making to individuals can feel worrying and difficult to judge, particularly when data lacks clear explanation or interpretive framing. Analyses of self-tracking and data interpretation help articulate these concerns by showing how users are positioned as interpreters of ambiguous metrics and indicators (see e.g., Lupton, 2016). In this configuration, responsibility is not enacted evenly. Instead, it emerges through the entanglement of the user, the mobile phone, the data, and the absence of expert mediation, producing uneven distributions of interpretive effort and ethical burden (Barad, 2007). Rather than viewing responsibility as a stable attribute, my analysis suggests that Jorge's account illustrates one instance of responsibility being enacted differently across contexts and available interpretive resources. This multiplicity is not a matter of perspective but of practice, where different configurations make different forms of responsibility possible or strained (Mol, 2002). Although Jorge's example below concerns his smartwatch and not Alfa's application, it shows how he approached health data more generally, and why he valued clearer guidance:

> I have my smartwatch, and that one can also create a lot of bloody statistics, but I do not really know… I am not a doctor, so there is a risk of drawing incorrect conclusions. … You get all these statistics, and it is still up to you to figure out what they mean. They're just numbers, no expert is telling you what to do. If you Google symptoms, it can exaggerate things and make you worry unnecessarily. That is why it helps when the app gives clearer suggestions, like: "You seem to feel bad, try this." (Jorge, user)

While Jorge problematises the interpretive burden placed on users, Manuel introduces another facet of responsibility, one grounded in autonomy and privacy, but also in the right to disengage. His experience foregrounds integrity not only in deciding whether to take part in the pilot study, but also in maintaining boundaries around what to disclose, particularly regarding other colleagues and the workplace dynamics. Although the pilot study was promoted as an optional activity, Manuel and his colleagues received emails from the HR department in their company, which stated that not too many users in the team had chosen to participate and that they were encouraged to do so:

> I did not talk to colleagues [about the decision to use Alfa] because I thought that my manager should make her own decision. I had some things to do anyway, so I was kind of busy at the time. I believe everyone should decide for themselves whether to use the application. But then we received emails from HR saying that many people skipped participating. But I haven't spoken to anyone about it. And I have chosen that on purpose, not to affect anyone or to put my nose in the company's business. It is up to them to decide their policy, what they want to do, and so on. But I, as an individual, have the right to decide, yes or no? (Manuel, user)

In my analysis, Manuel's account shows responsibility enacted as the right to disengage. Although participation was formally voluntary, HR emails introduced subtle pressure to take part, and Manuel responded by keeping his decision to himself so as not to influence others. Responsibility here takes the form of protecting both his own autonomy and that of his colleagues, highlighting how the voluntary character of participation can itself be negotiated within organisational relations.

Overall, I interpret the material discussed throughout Section 5.2 as showing that openness in RI is a situated accomplishment, emerging through the entanglement of spatial configurations, patterns of visibility, social pressures, and expectations. These dynamics demonstrate that barriers to openness are relational and embodied rather than merely technical or procedural. In fact, the accounts in this section show that de facto RI is enacted through the continual negotiation of these sociomaterial conditions, where users calibrate what they can voice, what they must withhold, and how they position themselves within organisational power relations. Having examined how openness is enacted and constrained in these encounters, the next section turns to gamification as a sociomaterial practice of responsibility.

5.3 Gamification as a Sociomaterial Practice of Responsibility

In this final analytical strand of Chapter 5, I examine how gamified design features, such as leaderboards, point systems, and behavioural nudges, help reconfigure the enactment of responsibility within Alfa's pilot studies. I approach these features not as neutral tools but as material-discursive arrangements that shape what forms of engagement become thinkable and doable. In my analysis, gamification is performative: it helps configure action, nudges users toward particular orientations, and enacts subtle forms of governance alongside how users respond to, resist, or accommodate its invitations. This performative dynamic becomes visible in how users engage

with gamified cues and how these cues come to structure everyday participation.

Through this lens, responsibility becomes something enacted through gamified features, whether by embracing competitive elements, negotiating the visibility produced by leaderboards, or resisting constant optimisation. I analyse how gamification assembles relational dynamics and organisational expectations that can shift the purpose of engagement from care and contribution toward competition and performance. These shifts raise questions about autonomy, integrity, and the ethical architecture of RI, particularly when behavioural steering is noticed within a setting framed as voluntary inclusion. To make these dynamics visible in practice, I begin with a short reflexive diary extract, followed by a vignette drawn from an interview with Carlos, a user. The diary extract foregrounds the organisational conditions and temporal pressures through which RI is taken up and prioritised in everyday work, while the vignette functions as an analytical starting point for examining how gamified design features reconfigure responsibility at the level of lived experience. Together, they show how gamification shifts engagement from care-oriented participation toward competitive performance, through subtle sociomaterial cues embedded in everyday interaction.

Diary extract (25 June 2023)*:*

Today I kept thinking about all the organisational things surrounding RI. Things like who thinks it matters, who has the energy for it, and what kind of leadership makes it possible. It is funny in a way, everyone talks about RI as if it is this big and clear idea, but it really depends on how people act at work, and maybe what gets priority?

I also notice fast decisions and quick wins (showing progress) in a very entrepreneurial vibe. Where does care fit into that? What kind of leadership keeps space for something slower and for reflection and honesty(?), without it being swallowed by optimisation and deadlines. It should not just look good on paper. Anyway, I think I am still figuring it all out.

❧ Vignette: The Leaderboard Moment (20 May 2022)

Carlos glances down at the notification. Another prompt. Another point. He has been answering every question, every day, watching his name rise and fall on the leaderboard beside a colleague's. "You know, one always wants to be number one," he laughs, half-serious. The leaderboard glows on his screen, a quiet pull toward staying ahead. The manager had warned them: This is not meant to be a competition. Yet here he is, refreshing, comparing, responding again. What began as a well-being tool now feels like something else entirely.

Carlos's experience with the leaderboard feature offers an interesting perspective on the ethical complexities of gamification in digital health. I argue that his narrative illustrates how design elements that appear harmless, such as point systems and rankings, can shift what inclusion means, from a practice of care toward a competitive pursuit. This moment shows how gamified technologies blur the line between wellness practice and competitive performance. This helps explain how optimisation and surveillance become folded into everyday engagement (Lupton, 2016). In this context, gamification becomes more than a motivational tool: a place where responsibility meets governance, visibility, and, to some extent, emotional labour.

> You know, one always wants to be number one. One wants the gold medal, it is always what you aim for. And then I can say that I have answered basically all the questions [in the application] every day, but I cannot say… Like my colleague, I have been at the top all the time and competed, sometimes, there has been a bug with the pop-up notifications. Work-wise, I have put more effort into this app than you should. If you miss any questions, you are no longer on the top list. That was what the Alfa manager warned us about at the beginning, he said it cannot become a competition. [...] Anyhow, at least I won the top list! (Carlos, user)

Despite Alfa's warnings that the application should not become a competitive tool, the leaderboard appeared to foster a culture of comparison and performance. While Carlos embraced the gamified features and described the leaderboard as motivating, other users, such as Nina and Hugo, felt uncomfortable and raised concerns. Nina questioned the promise of anonymity when names still appeared on the app's toplist, and Hugo noted that the point system created pressure and distracted users from Alfa's intended purpose. In my analysis, these contrasting reactions show that

gamification does not affect all users equally: it can fuel enthusiastic engagement for some while undermining trust and psychological safety for others.

Design choices associated with gamification can therefore be entangled with behaviour in ethically ambiguous ways. Analyses of gamified systems help articulate how such designs may lead individuals to act in ways they might not have chosen independently of the system (Ruggiu et al., 2022). Carlos's efforts to stay atop the leaderboard exemplify how public performance displays can subtly but powerfully reorient inclusion. In workplace settings, such displays can compromise autonomy and privacy in ways users may not anticipate (Mavroeidi et al., 2020). In this sense, the leaderboard transforms a personal well-being tool into a workplace metric, shifting the application's purpose and generating new forms of pressure for users. From the perspective of RI's inclusion ambitions, the Alfa case also reveals notable limitations. Although Carlos was an active participant in the pilot, his role resembled that of the involved rather than the innovative user (see Table 2): a user following instructions rather than a co-creator shaping the technology. I argue that this highlights a tension between idealised visions of user inclusion and the more limited, often reactive roles users occupy in practice (Iakovleva et al., 2021). While RI frameworks emphasise inclusion as a means of shaping innovation trajectories (Stilgoe et al., 2013), the leaderboard design was implemented without user deliberation, revealing a fragility of inclusive intentions and ambitions in a start-up context.

During one meeting, Gonzalo, Alfa's CEO, explained that Alfa had experimented with several forms of gamification but chose to retain only the toplist. He clarified that the points did not represent well-being but simply the frequency of reporting, used to identify the most active users in a given week. He described this as a motivational booster, similar to step-tracking applications, but acknowledged that competition could distort honest responses. "This [the pilot study] builds on the idea that we give honest answers," he reminded the users during a pilot-study follow-up meeting I observed (Observation 8). Yet providing honest answers was still hard for some users. Nina appreciated the idea of anonymity, especially given that the application traced well-being both at work and in leisure time, but she described a moment of dissonance:

> Something I noticed, at least, was that HR had said this would be anonymous, but you could still see some names at the top of their responses. Then I felt it wasn't anonymous because you could see which people had responded the most, and it became a stress-thing… I think it is wrong to

> display names if they are supposed to be anonymous. I cannot put those pieces together. (Nina, user)

Nina's discomfort highlights a core contradiction in the leaderboard configuration. In my analysis, the visualisation of names produces visibility even when anonymity is promised. I argue that this mismatch shows that anonymity is not a stable property but an effect of how interfaces, workplace relations, and user expectations are staged together (Orlikowski, 2007). Anonymity and visibility are thus produced through the interface itself, shaping whether users feel safe or pressured in practice. In other words, design choices already carry assumptions about trust and responsibility. Similar dynamics have been discussed in relation to datafication and workplace visibility, where metrics intended to support reflection can also intensify comparison and exposure (see e.g., Lupton, 2016; Mavroeidi et al., 2020). In this case, publicly displaying participation metrics destabilised users' sense of psychological safety, creating pressure and unintended comparisons that complicated the apparent voluntariness of user inclusion.

What stood out in meetings with Alfa's representatives was that, apart from the CEO's brief acknowledgement that competition could distort honest responses, they rarely voiced these concerns explicitly. Instead, discussions focused on the technical logic of the point system rather than on how the system might feel intrusive or competitive in practice. I interpret this silence as a form of subtle governance, in which users adapt their actions in response to the system. Such adaptation and accommodation emerge through repeated user–technology interactions and do not require conscious deliberation, echoing accounts of how governance is enacted through everyday practices rather than formal directives (cf. Orlikowski, 2007). At the same time, Alfa consistently emphasised psychological safety as central to its organisational narrative, framing it as foundational to proactive care, stress prevention, and responsible work cultures. Research on psychological safety helps articulate why such assurances are fragile, as feelings of safety depend on perceptions of interpersonal risk and visibility (Edmondson, 1999), precisely what the leaderboard unsettled.

Interestingly, the ideal of "leaving gossip behind" was emphasised as a key individual-level virtue within Alfa's organisational narrative. Yet the application's presence in everyday work routines, particularly through pop-up notifications and competitive elements, appeared to create tension between this aspiration and how engagement unfolded in practice. When participation became visible and comparable, reflective engagement risked giving way to performance-oriented behaviour. Analyses of gamification and digital work have shown how such configurations can activate

competitive identities and orient action toward display rather than reflection (Symon & Pritchard, 2015; Till, 2014). This dynamic becomes clear in Hugo's account:

> Some competitive people became triggered by the point system, and then they missed the purpose a little. Others felt that if they had missed a few questions, there was no point in continuing because they were no longer in the hunt for points. Many of our colleagues are already hardworking, competitive individuals, and then you want high points to be good. It became a bustle to get good points rather than thinking through the questions and the purpose. (Hugo, user)

I read Hugo's account as suggesting that the leaderboard became a site where competitive identities were activated and sustained, and where the original purpose of reflection was overshadowed by the pursuit of points. Responsibility was thus configured as performance rather than reflective care, reorienting how users negotiated what could be shared, how to share it, and for whom. This reconfiguration illustrates how gamification can normalise self-presentation as a measure of engagement, redirecting attention from intrinsic well-being to visible performance. Critical work on self-tracking helps articulate the affective pressures generated by such configurations, as users become responsible not only for their well-being but also for maintaining the appearance of engagement (Lupton, 2016).

Mona voiced similar concerns, but from the perspective of the innovation process itself. Her enthusiasm for participating in a research project, rather than simply trialling an app, illustrates how framing matters for RI. She saw the pilot as meaningful when connected to broader societal value, yet noted how the introduction of a competition undermined this orientation:

> I should mention that one factor contributing to fewer responses was that he [Alfa's CEO] introduced a competition to see who had the highest response rate. It was not clear to us and was not in the mini-pilot. His idea was to motivate people by showing that "[colleague] was high up," but everyone reacted: "What is this? Is it visible what we have answered?" So it backfired. If he had asked me, I would have said directly that it is not the right way to motivate people. (Mona, user)

I interpret Mona's critique as revealing how technologies and users become mutually adjusted in practice, sometimes away from the originally intended aims. In my analysis, this adjustment shifts engagement from cooperative inquiry toward competitive optimisation. Gamification thus does not merely motivate and encourage the users. It also serves a normative function by

shaping what it means to be a "responsible" participant. In turn, doing things quickly and visibly can stand in the way of being truly responsible. I argue that these insights show how gamification operates as behavioural steering in this setting.

In this setting, continual self-optimisation risked becoming normalised through everyday interaction with metrics, rankings, and visibility. Rather than fostering care-oriented responsibility and supporting users in taking care of themselves, the gamified system redistributes agency toward numbers and scores, turning well-being into something that must be performed. Participation thus becomes another metric to be managed. Read alongside critical work on self-tracking, these dynamics raise questions about transparency and consent within RI, not about whether gamification should be rejected outright, but whether its design and implementation can meet the normative commitments RI purports to uphold (Lupton, 2016).

In sum, the findings in Section 5.3 show that gamification reconfigures how responsibility is enacted, and thus how RI is practically realised, within everyday organisational practices. Rather than supporting quiet, purpose-oriented engagement, gamified features can push users toward visible and competitive forms of performance. As a result, trust and psychological safety are affected. Leaderboards and point systems do not merely motivate; they recompose relations among users, data, interfaces, and organisational expectations, sometimes fuelling engagement and at other times tilting practice toward surveillance, pressure, and strategic self-presentation (see e.g., Lupton, 2016; Symon & Pritchard, 2015).

5.4 Bringing Chapter 5 Together

The analyses across this chapter show that de facto RI is enacted not through formal frameworks or procedural ideals, but through the ongoing arrangements that contour everyday practice. Responsibility becomes something done, shaped by spatial proximities, temporal rhythms, technological cues, and shifting affective atmospheres. This practice-based account complements normative and procedural models of RI by showing how responsibility materialises through entangled doings, not predefined principles (cf. Mol, 2002; Orlikowski, 2015).

In answer to the first research question, the chapter has identified four distinct, sometimes competing enactments of de facto RI. The first is quiet contribution, in which users such as Juan share their data as a contribution

to others (Section 5.1). The second is boundary-setting, in which users such as Julia, Martina, and Manuel protect their privacy, dignity, and autonomy (Sections 5.1.1 and 5.2). The third is interpretive labour, in which users such as Jorge carry the burden of making sense of health data without expert support (Section 5.2.3). The fourth is gamified performance, in which users such as Carlos experience responsibility reconfigured as visible competition (Section 5.3). These enactments are analytical categories that capture the range of ways responsibility was enacted in the material, not claims about how common each was. Nor are they types of people: the same user could enact several of them, depending on the situation. Calling gamified performance an enactment of responsibility does not mean that it is responsible in a normative sense. It names how the leaderboard reconfigured responsibility, in this case toward visible competition. The participants quoted illustrate patterns that recurred across the interviews, observations, diary, and documents, not isolated cases. Although these enactments emerged mainly from users' accounts, they reflect how the start-up enacts RI. From a relational perspective, a firm's responsibility is not confined to what its staff do, but is enacted through the relations it creates with users, through pilots, prompts, dashboards, and meetings. This also broadens whose responsibility counts in RI. RI frameworks usually address the responsibility of innovators toward society, whereas this thesis shows that users, too, take on responsibility, sometimes in ways that shift burdens onto them, as with interpretive labour.

Across the sociomaterial enactments traced in this chapter, responsibility appears not as an attribute actors possess but as an ongoing accomplishment shaped through space, time, technology, and relations. These same configurations also set the conditions under which users can, or cannot, participate meaningfully in innovation processes. Chapter 6 therefore shifts the analytical lens from responsibility-as-enactment to inclusion-as-possibility, conceptualising inclusion as a relational, dynamic, and affective practice produced through the very arrangements that shape responsibility.

CHAPTER 6. Analysis: *Inclusion as Relation*: Care, Ethical Tensions, and Framework Limits

6.1 Introduction

Chapter 6 builds directly on the relational and sociomaterial insights developed in Chapter 5 by turning to the second research question: *How do sociomaterial practices in a digital health start-up configure possibilities for user inclusion in Responsible Innovation?* Whereas the previous chapter examined how responsibility is performed through everyday entanglements of space, time, and technology, this chapter explores how those same entanglements shape who can participate, when, and on what terms. By possibilities for inclusion, I mean the forms of participation that become available, comfortable, or risky for users in a given situation.

In my analysis, inclusion requires ongoing work and unfolds through relationships rather than being achieved through single moments or formal procedures. It takes shape through everyday gestures and interactions as much as through organised settings such as workshops. Care here refers to practices of attending and responding enacted by different actors, including Alfa's staff, managers in the pilot organisations, and users themselves. From this perspective, care becomes central to how inclusion is enacted in practice, understood as relational, material, and situated rather than abstract or procedural (Mol, 2008; Puig de la Bellacasa, 2017; Tronto, 1993). Dominant RI frameworks, particularly AIRR's dimensions of anticipation, inclusion, reflexivity, and responsiveness (Stilgoe et al., 2013), acknowledge care as an important concern but often treat it as a general orientation rather than a practice (Boenink & Kudina, 2020). In light of my material, this risks obscuring how care is actually done, by whom, and under what conditions in specific organisational settings. By reframing inclusion through a care-oriented lens, the analysis foregrounds the embodied, affective, and ethical conditions that make inclusion possible or prevent it, showing how it is governed by everyday arrangements rather than by formal commitments alone. The subsections below develop this argument in two steps. Section 6.1.1 offers an empirical reframing of conditions often

described as “barriers” to inclusion, showing how issues such as psychological safety, epistemic burden, visibility, and trust emerge as relational effects of specific sociomaterial configurations rather than as individual shortcomings. Section 6.1.2 then builds on these empirical insights to advance the theoretical frame, conceptualising inclusion as a form of relational governance and clarifying how a care-centred, practice-based approach extends existing RI frameworks such as AIRR.

The chapter unfolds through a series of interlinked analytical strands. This section (6.1) reframes so-called barriers as relational effects and conceptualises inclusion as relational governance. Section 6.2 examines the spatial and temporal configurations through which ethical dilemmas of inclusion arise. Sections 6.3 and 6.4 turn to technological mediation, first analysing how the Alfa application reconfigures responsibility and then the ethical ambiguity built into its design, as Alfa’s representatives acknowledge. Section 6.5 traces how organisational narratives of well-being, performance, and social value shape who can speak, withdraw, or influence design decisions. Section 6.6 engages the limits of the AIRR framework, proposing a relational, care-centred understanding of governance that acknowledges multiplicity. Section 6.7 examines how different arrangements expand or contract the possibilities for inclusion in practice, and Section 6.8 draws these insights together by conceptualising inclusion as a relational configuration. Finally, Section 6.9 synthesises the chapter’s contributions, and Section 6.10 opens toward the concluding chapter.

My own reading of Alfa shifted alongside this analytical trajectory. Initial optimism, shaped by the company’s SDG-aligned mission and participatory rhetoric, gave way to a more ambivalent understanding as I engaged closely with users’ experiences. Moments of tension around topics such as gamification, emotional effort, and the performativity of well-being proved to be important signals; they revealed how inclusion is practised, who benefits from it, and what it costs users. This reflexive turn has been valuable in understanding what is going on. Having outlined inclusion as a sociotechnical and distributed phenomenon, the next step is to examine how these arrangements produce the emergent tensions that shape what forms of inclusion are possible.

6.1.1 Reframing “Barriers” as Relational Effects

Put simply, this chapter argues that what are often called “barriers” to inclusion are not personal shortcomings, but reasonable responses to how

everyday situations are set up. Whether users speak, stay quiet, or pull back depends on what feels safe, visible, or risky in practice. In other words, rather than treating psychological safety, epistemic burden, visibility, or trust as discrete barriers to inclusion, I approach them as relational effects generated through specific configurations of technologies, spaces, time, and affective atmospheres. In digital health settings such as Alfa's workplace pilots, features like notifications three times a day by default, gamified comparisons, and dashboards do not simply invite or hinder inclusion, they participate in shaping the conditions under which users can speak and share, or remain silent. What appears as hesitation or discomfort is therefore not a failure of individual responsibility but an ethical-material response to how inclusion is enacted in practice and to the situation users find themselves in (cf. Orlikowski, 2007). One could argue that such hesitation simply reflects stigma around mental well-being or individual personality. These may play a part, but the material shows that users' willingness to share varied with setting, timing, and visibility, pointing to the role of configurations rather than individual traits or stigma alone. I view inclusion as always bound up with care and relationships, and as shaped, sometimes constrained, by how technologies, organisations, and users become entangled in everyday practice.

A relational reading of these dynamics makes visible the ethical tensions that traverse practices of user inclusion. I use the term tensions descriptively, for the competing pressures participants faced, not in the sense of paradox theory. One tension emerges between autonomy and surveillance, where the same self-tracking functions and behavioural nudges entangled with reflection also contribute to a heightened sense of being monitored, particularly in workplace settings where the employer introduces participation and reinforces it through collective metrics. A second tension concerns the slippage between care and control: organisational narratives of well-being and support can take on a disciplinary tone when design features such as leaderboards, streaks, or performance visualisations privilege optimisation over situated care. A third tension arises between inclusion and exposure, as opportunities to participate come with increased visibility, redistributing vulnerability unevenly across roles and teams. In such contexts, "being included" may translate into being placed under heightened managerial or peer scrutiny (Lupton, 2016; Symon & Pritchard, 2015).

Throughout this chapter, I analyse these tensions as relational-ethical dilemmas rather than individual shortcomings. Psychological safety, for instance, is shaped not only by personal courage but by spatial atmospheres (who is nearby), digital conventions (camera-on norms), temporal rhythms

(when prompts arrive), and representational choices (how collective health is displayed). Epistemic burden arises through interface design and organisational expectations around self-management. Specific design features, such as leaderboards, produce visibility rather than users' preferences alone. Trust, finally, is not a stable trait but something that must be continually built through how data use is explained, negotiated, and materially supported. Analyses of digital work and self-tracking help articulate how these conditions are enacted through interfaces, routines, and expectations rather than being located within individual users (see, e.g., Lupton, 2016; Symon & Pritchard, 2015).

6.1.2 Inclusion as Relational Governance

This section takes the patterns identified above and asks what they mean for how inclusion should be understood in RI. By governance, I refer not only to formal institutions and policies, but also to the everyday arrangements through which organisations steer what users can do, such as routines, narratives, and interface design. I argue that inclusion is not a checklist or a single moment, but something organisations shape through how they organise time, technology, and relationships. Responsibility and inclusion take different shapes across sites and moments, and what counts as "being included" for users, managers, and developers is enacted differently depending on the situation. This points to ontological multiplicity rather than a single, stable form of inclusion. Rather than treating these differences as variations in perspective, I understand them as effects of how responsibility and inclusion are enacted in practice (Mol, 2002). At the same time, engaging with ideas from care ethics allows the analysis to move beyond AIRR's procedural emphasis on whether inclusion has "happened" and toward questions of what concrete practices care for users' data, time, and bodies require here and now. From this perspective, inclusion is not a discrete stage or metric to be ticked off, but a continual negotiation of values, attentiveness, and accountability across heterogeneous actors and artefacts (cf. Puig de la Bellacasa, 2017; Tronto, 1993).

This reframing also clarifies the limits of the AIRR framework in fast-moving entrepreneurial contexts. Start-ups often enact RI "in the wild" (Randles et al., 2024), where formal foresight and staged participation give way to iterative pilots, shifting narratives about what the product is for, and market-shaped pressures. Rather than indicting such contexts for "failing" to live up to AIRR ideals, I ask what forms of responsibility become possible when technological mediation and organisational temporality are treated as conditions for inclusion. My contribution here is therefore not to abandon

AIRR, but to expand it with a relational, care-centred account that is attentive to affect, multiplicity, and the material practices through which responsibility and inclusion are enacted.

6.2 Relational Configurations and Ethical Dilemmas

To trace the ethical tensions identified in Section 6.1, particularly those between autonomy and surveillance, care and control, and inclusion and exposure, I focus on what happens when people's everyday ways of taking responsibility meet organisational expectations, and on how technology participates in shaping their actions. In doing so, I read individual stories not as isolated cases but as showing how responsibility, and the forms of inclusion that come with it, are created by how technologies, spaces, routines, timings, and everyday practices line up and work together. Rather than treating RI as a framework that gets applied, I analyse it as a practice that gets done. In my analysis, responsibility and inclusion materialise through the ongoing relations between people, devices, and organisational narratives. This shifts attention away from fixed perspectives on an object and toward the practices through which different versions of responsibility and inclusion are enacted in everyday work. Practice-based and sociomaterial perspectives help articulate this move by foregrounding how ethics and organisation are woven into practical doings (see e.g., Gherardi, 2012; Orlikowski, 2015). I draw on Barad's (2007) concept of phenomena to name this dynamic, using it to capture how responsibility and inclusion do not pre-exist participation but take shape through the specific material-discursive arrangements of the pilot, including invitations, interfaces, and organisational narratives. This lets responsibility be analysed as an enacted outcome rather than an individual disposition. Consider a remark by Elena, a user: "*If you are invited into a pilot, you have a responsibility to be generous in return and help improve it.*" Taken at face value, generosity might appear as a personal disposition. I argue, however, that generosity takes shape through the pilot's configuration: the initial invitation, the tempo of iterative feedback, and the narrative of collective stewardship together make reciprocity feel appropriate and, at times, obligatory.

In Carla's account, inclusion is closely tied to scientific legitimacy. When Carla explains her inclusion as "*helping science gain more data for the future,*" she draws on cues associated with research institutions and evidence to frame her involvement as a contribution to the greater good. From my perspective, trust here is not simply an internal feeling but something

produced through institutional arrangements, including official documents, dashboards, and organisational affiliations, which together make the pilot appear credible. Practice-based analyses help illuminate how such trust is enacted and stabilised through everyday interactions with artefacts (Orlikowski, 2007). At the same time, the same application is enacted in multiple ways, one day as a wellness tool, another as research infrastructure, with each version reshaping what responsibility and inclusion come to require (Mol, 2002). While AIRR frames inclusion and responsiveness as governance ideals (Stilgoe et al., 2013), the empirical material here shows how fragile these ideals are in practice, depending on the specific alignments that hold sway at a given moment. This interpretation can be read alongside Young's (2011) social connection model, which argues that responsibility cannot be reduced to individual choice or willingness but must be understood through the structural and relational conditions that shape what actors can do. I see how moments of hesitation, disengagement, or selective involvement are not failures of responsibility. They reflect the sociomaterial configurations that position users. Inclusion thus emerges as a distributed and structurally mediated accomplishment rather than a simple matter of participation.

Another configuration I observed concerns how users translated their experiences into public education. Interviewees described "flagging" well-being issues so that experiences become understandable "at a basic level where everyone can understand." In these moments, care travels: situated experiences are translated into simplified stories that circulate more widely. This translation has limits: when experiences are reduced to general messages or statistics, important nuances can be lost, and some voices come to stand in for others. Work on care ethics helps articulate this tension by highlighting what gets silenced when technoscientific stories circulate (Puig de la Bellacasa, 2017) and how care can unravel when simplification moves too far from lived practice (Mol, 2008). The analytical question here becomes who shapes the story, what is left out, and who bears the risks of being made visible or invisible.

Framing inclusion in the pilot as "research" further reconfigures voice and responsibility. The research framing promised users a shift from subjects to co-shapers, along with a promise of impact. At the same time, in the meetings I observed, product roadmaps, fundraising cycles, and technical dependencies appeared to constrain responsiveness. Reading through AIRR (Stilgoe et al., 2013), inclusion may be achieved insofar as voices are gathered, but responsiveness can stall when organisations cannot act on what they hear, producing what I call symbolic inclusion, akin to what

Thapa and Iakovleva (2026) describe as symbolic participation, where users are given a voice without assurance that it will shape outcomes. In my analysis, this configuration makes visible how participation can open at the level of expression while remaining closed at the level of response. Maintaining responsiveness under such conditions becomes a form of ethical labour, particularly in entrepreneurial settings characterised by speed, uncertainty, and resource constraints. This analytical point can be situated alongside calls to "open up" rather than "close down" problem framings in innovation governance (Stirling, 2008). Much of this becomes visible only when attending to mundane micro-practices, such as the small, moment-to-moment adjustments through which bodies and devices manage exposure and inclusion. These practices, lowering screen brightness, responding later, re-interpreting a feature after an update, matter. Practice-based accounts help make sense of them as sociomaterial routines through which everyday organising is enacted and sedimented through interfaces and rhythms (Orlikowski, 2007, 2015). Read alongside relational accounts of material-discursive entanglement, these moments also enact the boundaries of what feels possible or doable in particular situations (Barad, 2007).

Diary extract (28 July 2023):

When I started using the Alfa app a few months ago, I had certain expectations based on its features and functionalities. But as time went on, I realised that my social environment plays a huge role in how I interact with the app. At first, I thought of it as more of a static tool, something that would stay the same. However, as I chatted with colleagues and friends, my perception and usage of the app began to shift. What I mean is that my social environment added new layers to how I use the app. Talking with friends about their experiences opened my eyes to features I had not explored. Yes, I did show the app to some people around me. Their feedback and insights highlighted aspects I had overlooked or hadn't utilised frequently. This exchange of ideas not only expanded my understanding but also made using the app more enjoyable.

So, my social environment (including interactions, shared knowledge, and collective experiences) has shaped how I relate to the app. My expectations and habits were influenced not just by the app's features but also by the social context in which I used it. This dynamic interaction has led to a more evolving relationship with it. Overall, my relationship with the app has been more dynamic than I expected, and my social environment is constantly shaping it. This ongoing interaction has not

only helped me understand the app better but also made me appreciate how social context can influence our use of technology. Also, I have noticed that the app's updates and new features have also contributed to changing my experience. Every time the app gets an update, it feels like I am discovering it all over again. These updates often include improvements and new features I had not anticipated, making them more exciting.

The way I use the app has evolved as my needs and interests have changed over time. Initially, I used it for basic tasks, but as I became more familiar with its capabilities, I started exploring more advanced features. Another interesting aspect is how the app has integrated into my daily routine. What started as occasional use has now become a regular part of my day. This integration has been influenced by both the app's utility and the social interactions surrounding it.

Placed here, the diary does not merely illustrate, but performs the argument that inclusion is co-produced by bodies, devices, and social relations. My growing engagement was not simply a matter of individual motivation: conversations with friends and colleagues, and the app's updates, gradually drew me further in. Just as hesitancy and silence can be understood as effects of configurations, not deficits of individual users (Lupton, 2016; Symon & Pritchard, 2015), so can engagement. The analytical question therefore shifts from why users do or do not engage to what arrangements make meaningful and sustainable inclusion possible.

From an ethical perspective, the dilemmas observed here are not signs of failure but signals of how different configurations create different pressures. Contribution can turn into hidden labour, scientific legitimacy can include some while excluding others, and research-framed inclusion can invite voices while still containing them. Rather than eliminating these dynamics, the task becomes making them governable. This raises questions about what forms of attentiveness, accountability, and responsibility are needed to keep inclusion-as-relation credible in practice (Barad, 2007; Puig de la Bellacasa, 2017). These tensions show how responsibility and inclusion are continually shaped by the configurations people find themselves in. To explore this further, the next subsection turns to spatial settings and shows how place, visibility, and embodied exposure become active elements in enacting responsibility.

6.2.1 Spatiality and Exposure

In my analysis, space is not neutral, it is co-produced with action and shapes what forms of inclusion feel possible or risky. Following the performative view of space set out in Section 4.5, space is here understood as constituted through everyday practices. Digitalisation can open new pathways for involvement in health (Thapa & Iakovleva, 2023), but in my material it also multiplied boundary spaces, such as open offices, corridors, and buses, where use becomes visible and observed. These spaces function as active sites of negotiation. The Alfa application is enacted differently across settings, empowering in quieter corners while becoming exposed in more public or shared environments, such as during a crowded commute. Users' reported hesitancy to engage in visible settings is therefore not mere reluctance. It appears as a situated judgement about exposure, shaped by who might be watching, what might be inferred, and how bodies are made legible in the moment. This means that the same artefact can afford self-care in one setting and surveillance in another. Rather than trying to remove these tensions, RI research may benefit from staying with them and designing spatially sensitive practices. From my data, this could include privacy-aware notifications, norms that remove the obligation to respond immediately, and ways of talking about the application that make it legitimate to pause or withhold engagement when visibility feels risky. Analyses of digital work and connectivity help articulate how expectations of being contactable, responsive, and well are enacted through interfaces and organisational expectations (Symon & Pritchard, 2015). Critical accounts of self-tracking also warn that such enactments can crystallise norms in which users feel obliged to appear visibly well and available, particularly when the workplace becomes the audience for self-tracking data (Lupton, 2016). The analytical point here, however, is not to change the user but to rework the situation. Reading hesitancy as a signal, rather than a failure, draws attention to how spatial arrangements may be placing too much pressure on people.

6.2.2 Temporal Rhythm and Nudging

The spatial tensions shown above indicate that inclusion is shaped by more than design ideals, it is produced through the situations in which the application is lived. Time adds another crucial dimension. I now explore how temporal rhythms and nudging routines join the user's workday and further configure how responsibility and responsiveness are enacted. I use nudging in a broad sense, for gentle steering through design, not in the specific sense of nudge theory in behavioural economics. Alfa's default three-times-daily prompts become entangled with a rhythm that takes shape in the workday. Alfa's CEO, Gonzalo, often spoke about the importance of

rhythm and responsiveness in the pilot, which I interpret analytically as an emphasis on "cadence." This is not trivial, as it materialises assumptions about productivity and, importantly, responsiveness. In my analysis, this rhythm shapes governance work by influencing when and how people respond and ultimately take responsibility. In practice, it sometimes fits well with the user's schedules and moods and at other times clashes with them, arriving as a helpful check-in in one moment and as an interruption in the next.

Analyses of digital work and connectivity help articulate how such rhythms can enact expectations of availability and wellness (see e.g., Symon & Pritchard, 2015). From a practice-based perspective, regular prompts and recurring rhythms can also function as organisational norms and routines through the coupling of technological devices and everyday work practices (Orlikowski, 2007, 2015). Critical accounts of self-tracking further provide language for understanding how nudging does not coerce directly, but steers conduct over time, shaping how people come to see themselves and what is expected of them (Lupton, 2016). In an entrepreneurial setting, this steering can internalise expectations of the "good employee" as always available and continually self-optimising. My interpretation is that none of this disqualifies nudging as care, rather, it requires attentiveness to when care begins to slide into control, and for whom. Design changes are therefore not minor add-ons but part of the ethical work of reshaping how the application fits into people's days. This may include making the existing option to adjust notification frequency more visible, or adding snooze windows as forms of temporal discretion, creating interaction patterns in which the system waits for the user rather than the user waiting for the system, and establishing team-level norms that reduce pressure to respond immediately. Read in relation to AIRR, such adjustments help keep inclusion and responsiveness workable in practice rather than merely symbolic (Stilgoe et al., 2013).

The point I am making here is that space and time are not external to RI processes. They are part of how RI is made through where (space) and when (time) the application is used. Spatial exposure and temporal nudging articulate what becomes possible and comfortable for different users at different moments. The next section turns to technological mediation as an active force reshaping who has autonomy and who bears responsibility, examining how the application reconfigures autonomy, inclusion, and care in users' everyday experiences.

6.3 Technological Mediation: How the Alfa Application Reconfigures Responsibility and Inclusion

Following the analysis of spatial and temporal configurations discussed in Section 6.2, I now turn to technological mediation, namely the app's prompts, dashboards, and rhythms through which responsibility and inclusion are actively reconfigured in practice. In my analysis, the application does not function as a neutral conduit, as in a channel that simply passes information along without shaping action or meaning. Instead, it helps compose organisational life, as features and settings already intervene in how responsibility and inclusion are enacted. The effects at issue here, autonomy, exposure, and care, do not pre-exist use, they emerge through specific material-discursive arrangements. From a practice-based perspective, technologies and practices are mutually constitutive, meaning that what the application makes visible, actionable, or salient is produced through ongoing use rather than determined in advance (see Orlikowski, 2007). In this sense, we should expect more than one "app" in practice: the artefact is enacted differently across sites, moments, and relations, producing multiple versions of responsibility rather than a single, stable one (Mol, 2002).

First, my analysis points to a persistent tension between autonomy and surveillance in this case. On the surface, prompts and visualisations cultivate autonomy by supporting users, encouraging self-regulation, and offering language for naming one's affective state. Yet several users described feeling watched, especially when responding in shared settings or when unsure who might ultimately have access to their data. While the Alfa app's design supports self-care, it also makes users' actions visible to organisational audiences. Some users experienced this visibility as supportive, while others saw it as subtle control. Critical accounts of self-tracking help articulate how surveillance can enter through design under the register of optimisation and care (see Lupton, 2016). This tension does not emerge only after deployment. From a practice-based lens, interface design and the routines that grow around it produce visibility and legibility (Orlikowski, 2007). Looking at Lana's experience makes this tension tangible. Her account shows how empowerment gives way to uncertainty when organisational clarity is missing:

> I did it for… for my own employer, as you're required to support them. I did not attend the onboarding… but I listened afterwards and read something back then. Still, I have wondered what one should do with it as a next step… it becomes essential that it is a company policy, almost "we should use it for

> this" or "do you feel that you have a co-worker that may need help and could use this tool?" (Lana, user)

I argue that Lana's hesitancy is not resistance but a relational response to missing feedback channels, unclear data pathways, and ambiguous organisational purposes. Her account shows how autonomy becomes fragile when the infrastructural conditions that let users act meaningfully are unsettled. Under such conditions, participation may appear formally voluntary while still generating affective pressure to engage. Research on self-tracking helps us understand how this dynamic produces unease and self-doubt, particularly when responsibility is individualised without corresponding organisational support (Lupton, 2016).

The second tension I have observed is *inclusion* and *exposure.* RI discourse often treats inclusion as an unquestioned good in terms of more voices, which leads to better, more ethical outcomes. My empirical material is more ambivalent, however. Users were indeed invited to participate, provide feedback, and co-shape features, but these acts took place in non-neutral spaces (open-plan offices, Zoom grids, shared channels), where being heard also meant being seen. In my analysis, space is active, which helps explain why the same inclusion feels different across settings: the arrangement itself does the work. In this sense, inclusion is not simply procedural, it is spatial, embodied, and affective, and must be treated as such in design and governance. Marc, from Alfa's advisory board, articulated an aspirational version of distributed care during onboarding:

> We see pretty clear tendencies here: younger people and single parents tend to appreciate this. I see this as a way to have digital coffee talks… even if we are sitting at home or at a customer's location. Then we create a better partnership… the whole group taking responsibility together; it is not a burden but the opposite: support for dialogue in the group. (Marc, advisory board, Alfa)

Marc's framing seeks to shift responsibility from managerial oversight to collective stewardship. Yet users' immediate reactions, asking who will carry responsibility when well-being graphs become visible, reveal how easily collective care can be reframed as peer surveillance, suggesting that when visibility increases, blame can travel with it, especially where dashboards can be misread as performance instruments.

Finally, a third, and perhaps more emotionally dense, tension runs between *care* and *control.* Alfa explicitly frames the application as care, a companion for stress management and psychological safety, and several users

experienced it precisely in those terms. Yet the same cadence that feels soothing can also feel like steering. In my material, users oscillate between feeling held by the rhythm and driven by it, between empowerment and pressure through the imperative to be well. This tension becomes visible when being well shifts from support to expectation. Being responsive, available, and well becomes something that must be demonstrated in practice, not simply felt. Analyses of self-tracking and digital work help articulate how care can slide into moral obligation and identity work under conditions of continuous monitoring (see, e.g., Lupton, 2016; Symon & Pritchard, 2015). In my analysis, however, care is not reducible to metric compliance but operates as a situated, attentive, and adjustable relation, one that governance mechanisms can easily distort. Care can operate as a form of governance, but not all forms of governance are caring. The challenge, therefore, is to prevent practices of care from slipping subtly into a form of control. Read alongside practice-based accounts of care as something that must be continually adjusted to situation and need (Mol, 2008), this task becomes central to how responsibility is enacted rather than prescribed. In design terms, this might mean foregrounding user-set cadences and pause windows, limiting metric proliferation in favour of narrative reflection, and enabling context notes that shift interpretation from personal deficit to situated reality. In my material, I see how responsiveness sits at the heart of these tensions not as an abstract capacity, but as a timed practice. This is why Valeria's critique becomes so instructive. For her, the issue was neither the concept of inclusion nor the application itself, but the architecture of inclusion:

> It comes down to interacting with the users. Right now, you are interviewing me, but if you were not, this should be their [Alfa's] responsibility… the best approach would be a check-in midway through the process, while people are still engaged and everything is fresh in their minds. Otherwise, it's easy to think, "Wait, what did I feel about this?" If resources are limited, they could instead ask questions directly in the app… occasional quick questions like "How do you feel about this so far?" or "Do you feel like you have gained something from this?" (Valeria, user)

Her account does not simply request "more feedback," but calls for temporal alignment, for responsiveness to be enacted while the experience is still fresh. This is very close to Stirling's (2008) proposal to "open up" innovation processes by attuning governance to timing, plurality, and adaptiveness, rather than collecting input only at the beginning and end of a cycle. Timing is also central in Thapa and Iakovleva's (2026) study, which shows how the stage at which users are included shapes what their input can change. My findings add that timing matters not only across stages of the

innovation process, but also within the everyday rhythms of a pilot.

Together, these tensions are not problems to fix but clues to how technology shapes responsibility in entrepreneurial settings. The same application can support autonomy in one moment and feel like soft surveillance in another, it can enable inclusion in one situation and create exposure in the next; it can offer care here and exercise control elsewhere. What it does depends on who is using it, where they are, and when the prompts arrive during the day. This is precisely what Mol's (2002) multiplicity alerts us to: there is no single "app," but a set of different apps being enacted across practices; and it is why a sociomaterial lens matters, because it prevents relegating the technological to background tools and keeps attention on how arrangements make possibilities liveable or not. In this light, opening up should be understood less as a procedural gesture and more as a governance stance shaped through everyday practice. In my analysis, mid-cycle conversations of the kind Valeria identified, micro-prompts that ask "how is this working for you right now?" rather than only "how are you?", and explicit response-ability arrangements that specify who is expected to respond, to what, and within what time frame, are not neutral design choices. Rather, they materially configure what forms of inclusion and responsibility become possible in practice. From a relational perspective, this implies that autonomy, privacy, and care cannot be treated as individual attributes or add-ons. If autonomy is relational, privacy must be built into how people work together, rather than something users must continually request. If inclusion is embodied, we must recognise choosing not to share as a legitimate ethical response when visibility feels risky. And if care is to resist becoming control, metrics must support people's situated accounts rather than stand in for them (cf. Mol, 2008; Puig de la Bellacasa, 2017).

What follows for organisations, then, is not another checklist, but an ongoing commitment to situated reflexivity. This involves close attention to how data moves through the system, who sees what, when, and for what purpose, and to how prompts, dashboards, and rhythms are experienced across different roles and schedules. It also requires responsiveness to the feedback users actually provide, so that participation does not become merely symbolic. Importantly, these adjustments do not aim to eliminate tension altogether. Rather, they keep space for inclusion open, allowing different ways of participating to coexist without automatically defaulting to the most controlling or disciplinary interpretation (Stirling, 2008). With this framing in place, Section 6.4 turns to the other side of this relation: the ethical ambiguity built into Alfa's design choices, as acknowledged by Alfa's own representatives.

6.4 Ethical Ambiguity in Alfa's Design Choices

If Section 6.3 showed how users experienced the tensions produced by prompts, dashboards, and rhythms, this section turns to the other side of the relation: how Alfa's own representatives understood the limits of their design, and the normative assumptions built into it. In my analysis, Alfa's application does not simply transmit information, it actively shapes what counts as well-being, engagement, and care, and, with that, how responsibility is understood and taken up in practice. My empirical material shows how responsibility and inclusion emerge through specific arrangements of technologies, organisational routines, and discursive framings. In this sense, the application actively helps produce norms, behaviours, and subject positions, shaping what users feel able, obliged, or hesitant to do (Orlikowski, 2007). This is not only a theoretical claim. Alfa's representatives themselves articulated the ethical ambiguity of technological mediation. Marc, for example, described ethical stewardship as the corollary of eliciting sensitive self-reports: do not raise what you cannot responsibly hold and follow through:

> Number one, it must be genuine… Two, integrity, that you do not misuse the answers… Number three: there is a way to solve the problems you observe… if you raise sensitive questions, you have to take it all the way so you ensure appropriate follow-up and support. (Marc, advisory board, Alfa)

Gonzalo marked the limits of responsible personalisation, cautioning against use by people under high strain:

> One should not use Alfa if… stress is high and close to burnout… There are sensitive individuals… this works very well for a normal population. (Gonzalo, CEO, Alfa)

Gonzalo's caution reflects responsible restraint, yet it also draws a boundary around who the application is for, raising the question of how users close to burnout are identified, and by whom. Read through the empirical material, these acknowledgements show that responsibility here is not something one actor simply "has," but something that must be handled in practice. Interface choices and system adjustments are therefore not incidental UX decisions. They function as performative interventions. Notifications do not merely remind; they rearrange attention and time, punctuating the day with moments of reflection and reporting and shaping when and how users come to know and narrate their well-being. Visualisations do not simply display, they frame and value particular states, making some trajectories actionable

while leaving others obscure. As the system is described as learning from user input, its suggestions and personalisations are intended to initiate a loop in which the application and user behaviour co-shape one another. In my analysis, this loop produces a form of situated action in which improvisation and contingency cannot be reduced to plan-then-execute models (see Suchman, 2007). Technological mediation, then, does not merely support responsibility but actively shapes it.

The ethical ambiguity of this mediation becomes especially visible when we ask what counts as well-being and engagement in practice. Decisions about what is measured, how data are visualised, when prompts appear, and which patterns are nudged are not neutral; they carry normative assumptions about care, responsiveness, and appropriate conduct. In this case, regular check-ins and expectations of emotional transparency enact a moral economy of wellness that privileges visibility, responsiveness, and self-regulation. For some users, this configuration feels empowering; for others, it feels like exposure, obligation, or a form of soft governance (cf. Lupton, 2016; Orlikowski, 2007). Importantly, this ambivalence is not a design flaw but a feature of how responsibility is enacted through sociomaterial arrangements. The application does not operate as a single, stable object. It takes on different meanings and functions across practices, complicating questions of accountability. Responsibility, in this sense, is less about identifying a single culpable actor and more about attending to how conditions of possibility are configured and reconfigured so that care can be sustained (Mol, 2002, 2008). In short, technological mediation is centrally ethical: the application participates in composing what inclusion can feel like and what forms it can take. Section 6.5 turns to organisational narratives and governance, examining how stories, metaphors, and routines stabilise or unsettle these conditions and shape which sociomaterial possibilities for user inclusion are authorised, resourced, and sustained.

6.5 Organisational Narratives and Governance

While sociomaterial practices open up multiple possible ways for users to be included, organisational narratives and governance practices play a decisive role in determining which of these possibilities are stabilised as legitimate in practice. In my analysis, stories, metaphors, roadmaps, and meeting routines do not merely accompany technological development at Alfa. They function as governance devices that allocate attention, define purpose, and shape expectations about how users ought to engage, including who speaks, when, and at what cost (cf. Orlikowski, 2007). Alfa's discourse

around responsibility and inclusion is strongly aspirational and future-oriented. In pitch decks, onboarding talks, and internal presentations, the application is described as a companion or a coach, and on its website, Alfa invites users to see it as a "smart and good friend," even their "best friend for sustainable health" (my translation). Framing the application as a friend casts data sharing as confiding rather than reporting, a framing that sits uneasily with users' experiences of unanswered feedback and uncertain visibility. Such metaphors are not neutral (cf. Jasanoff & Kim, 2009). They humanise the artefact, soften concerns about surveillance, and position Alfa as a steward of well-being rather than as a provider of productivity tools. In doing so, these narratives shape how responsibility is imagined and distributed across users, teams, managers, and technological systems, as well as what counts as "good" participation and successful outcomes, such as visible engagement, smooth user journeys, and compelling proof points. In my analysis, these narratives guide action by giving responsibility a particular tone and direction, while remaining ambiguous about how to enact responsibility and inclusion in concrete situations.

Across my interviews with Alfa's team and the meetings I observed, responsibility meant different things: user inclusion, data ethics, psychological safety, or a morally distinctive way of positioning the company. While this flexibility can be strategically useful in entrepreneurial settings, it becomes fragile when accountability is required (Stirling, 2008). Under such conditions, what I call organisational responsiveness, building on AIRR's dimension of responsiveness (Stilgoe et al., 2013), that is, whether and how user feedback is acknowledged and acted upon, risks becoming selective: feedback may be acknowledged in principle, but acted upon only when it aligns with existing priorities, roadmaps, or commercial pressures. This mechanism emerged both from users' accounts of unanswered feedback, such as Davide's, and from the observed follow-up meetings in which user feedback was reviewed (see Table 6).

Alfa's business model also shaped inclusion, since the organisations buying the application were not the same as the people using it. Governance at Alfa reflects its start-up identity by being informal, decentralised, and narrative-driven. Rather than relying on explicit RI policies or stage-gated deliberation structures, responsibility is dispersed through culture, mission talk, and self-descriptions of being user-centred. This form of governance cuts both ways. It enables rapid iteration and situational care, but it also redistributes ethical labour unevenly. Individuals closest to users often interpret concerns, raise tensions, and support participation, while others remain oriented toward technical or commercial tasks. Responsibility thus

becomes difficult to trace, unevenly distributed, and hard to evaluate (Mol, 2002; Puig de la Bellacasa, 2017). Moments of hesitation, discomfort, or resistance puncture the dominant organisational story and make visible how governance is experienced in practice. Users express unease about emotional visibility, and managers such as Mona describe how dashboards can be read as performance tools, prompting questions such as "Who is bringing down the score?" Rather than treating these moments as noise or disruption, I interpret them as analytically important signals of where responsibility and inclusion become strained (cf. Lupton, 2016). They show that inclusion is not only a procedural ambition, but an embodied and affective experience that carries costs as well as opportunities.

In some situations, meaningful participation involves the ability to pause, withhold, or not engage at all. For inclusion to remain safe and sustainable, this possibility must be supported not only through technological design, but also through organisational narratives and routines that recognise withdrawal as a legitimate ethical stance rather than a failure of engagement. What matters, then, is not whether the organisation "has" responsibility in the abstract, but how it narrates, organises, and resources the practices through which responsibility is enacted. Organisational stories and governance arrangements shape whether inclusion is experienced as empowering or exposing, caring or controlling, optional or obligatory. A summary of how design choices and governance practices interact to configure possibilities for user inclusion is provided in Table 9 (Section 6.7).

6.6 Rethinking Governance: Multiplicity and the Limits of AIRR

The preceding sections show that inclusion takes shape through concrete arrangements of space, time, interfaces, and organisational narratives rather than through abstract commitments. This makes me question how well AIRR, when applied as a linear, step-by-step model, can capture forms of inclusion when they are constantly shifting and shaped by tensions and changing relations. From this starting point, I revisit AIRR to examine what it can and cannot explain in light of the empirical complexity traced in Sections 6.2 to 6.5. AIRR has been invaluable for naming orientations and legitimising the importance of inclusion within RI. Read against the grain of spatial exposure, temporal nudging, and technological mediation, however, AIRR risks flattening the situated, embodied, and affective ways responsibility is done in practice when it is operationalised as a linear, stage-like checklist. In my material, inclusion is not a single step to tick off, it is

something people do together, and it is closely tied to how visible or vulnerable they feel. Reflexivity is not confined to internal reflection but is enacted through concrete tools such as prompts and dashboards. Responsiveness, similarly, is not a general capacity but depends on timing. It works when it arrives while experiences are still fresh, as Valeria stressed; when it comes too late, it becomes symbolic governance rather than meaningful engagement. What follows is therefore not a rejection of AIRR, but a reframing in which I treat it as a starting vocabulary that needs to be expanded to account for multiplicity, technological mediation, and care.

6.6.1 Multiplicity Is Not Just Perspective: It Is Ontology

Within this case, I did not find a single, stable "responsibility" waiting to be correctly identified. Instead, responsibility took shape differently across spaces, roles, interfaces, and tempos: the generous contributor, the cautious protector of privacy, the anxious respondent under managerial gaze, the advisory board member who insists on taking it "all the way," the manager who reads graphs as obligations. These are not simply different perspectives on one underlying object, they are different versions of responsibility performed in practice. Because of this, coherence, when it appears, is not something given by a framework but something worked out through coordination, and sometimes refusal. When AIRR is treated as a universal template, it cannot hold this ontological multiplicity. When AIRR is treated instead as a prompt for coordinating practices, it becomes possible to respond to this multiplicity rather than flatten it. Two things in my material show that these are different versions of responsibility, not just different opinions about it. First, the same person could act responsibly in different ways depending on the situation, as my own hesitation on the bus shows. Second, each version was tied to something concrete in the situation, such as the leaderboard, the shared office, or the dashboard.

This understanding of multiplicity can be articulated through Mol's (2002) argument that a body can be multiple without falling apart into separate, unrelated versions, since one phenomenon takes different forms depending on the practice that enacts it. Read in this way, multiplicity is not noise that AIRR should smooth out, but the reality that AIRR could be reworked with. This ontological stance also pushes governance beyond compliance. If responsibility is multiple and enacted, then governance must concern itself with which enactments are authorised, resourced, and stabilised, and which are disqualified or left to wither. In many senses, I argue that this is a political question, shaped by how power and care structure the very possibility of being responsibly included. It also resists the comfort of

assuming that consensus is always achievable or even desirable. In my material, when users hesitate in exposed spaces, this is not a mistake or something that needs fixing, it is an ethical choice shaped by the situation. Sometimes being silent is a form of care, and choosing not to respond can itself be a responsible act. This does not mean that all silence is a deliberate ethical choice. Sometimes it may simply reflect a lack of time or interest, as Manuel noted when he said he was busy. The point is that withdrawal should not automatically be read as failure. Rethinking governance, then, means protecting the conditions that make these forms of responsibility possible, for instance, by creating mid-cycle check-ins rather than relying solely on end-point evaluations.

6.6.2 Scaling Responsibility in Digital Health Innovations

Multiplicity does not play out on an equal field. In entrepreneurial settings, some versions of responsibility scale easily because they match what the organisation already tracks, such as metrics, roadmaps, and investor expectations (Bacq & Aguilera, 2022; Brand & Blok, 2019). Other versions remain local and harder to notice: the quiet discomfort, the hesitation, the refusal, or the careful boundary-setting that users feel in their bodies but that rarely shows up on a dashboard. At Alfa, the forms of responsibility that travel well fit the app's data structures and the pitch decks and presentations used for internal and investor communication. The ones that show up as unease, resistance, or withholding tend to fade into the background because they are difficult to measure, display, or reward. Mol's (2002) hospital ethnography offers a helpful comparison: some versions of a disease can come to count for more in practice because they move smoothly through instruments, forms, and workflows. The same pattern appears here. Certain enactments of responsibility become dominant because they are easy for the system to read and circulate, while others remain fragile, situated, and harder to scale. To make this visible, Table 8 contrasts the versions of responsibility foregrounded with those backgrounded in the case.

Table 8. *Scaling Responsibility in Digital Health Innovation*

Dimension	**Foregrounded Responsibility (What gets amplified)**	**Backgrounded Responsibility (What gets pushed aside)**
Visibility: What is visible	Numbers about well-being, like stress scores and how often people use the app	How people feel: discomfort, mixed feelings, quietly checking out

Dimension	Foregrounded Responsibility (What gets amplified)	Backgrounded Responsibility (What gets pushed aside)
Actors: Who is involved	Developers, managers, and the users who speak up during the pilot	Quiet users, sceptical employees, people who chose not to join
Technological Affordances: What the technology does	Nudges, notifications, and dashboards	Users pushing back, avoiding the app, or finding their own workarounds
Governance Focus: Where governance attention goes	Following the rules, making things efficient, growing the programme	Building trust, caring for people, sharing responsibility across the team
Evaluation Criteria: How things get judged	Numbers you can count, usage statistics	What people say, their stories, how they feel
Institutional Support: What gets support	Funded, official, tied to business goals	Left without resources, informal, often ignored

As I understand it, this mapping illustrates not a moral problem but a question of scale. When responsibility becomes tied to what can be counted or compared, inclusion risks becoming performative. It tends to privilege what is visible, easily spoken about, or measurable, while pushing feelings, uncertainty, and acts of refusal to the margins. For RQ2, the implication is therefore clear: sociomaterial practices create many possible ways of being included, but organisational scaling and narrative choices shape which of those possibilities become safe and legitimate in practice. Rethinking governance is therefore not only about adding new procedures. It also requires redistributing visibility and support so that non-metric forms of responsibility, such as a team building trust, a manager protecting a user's right not to reply, and a designer removing a pressuring nudge, are counted as RI rather than dismissed as inefficiencies. In practice, this means pairing metrics with narrative accounts, resourcing privacy-protecting defaults, and institutionalising mid-cycle, user-timed responsiveness, so inclusion remains a living relation rather than a checkbox.

Looking at the chapter as a whole, the findings across Sections 6.2 to 6.6 reveal a consistent pattern: possibilities for user inclusion are shaped by the

entanglement of space, time, technology, narrative, and governance. Care appears not as a sentiment but as a situated practice: protecting discretion, pacing interactions, reducing exposure, and ensuring that users can participate without harm. AIRR offers useful orientations, but a governance approach that is relational, situated, and adjustable, one that accepts multiplicity and focuses on redesigning conditions instead of assigning blame, is better placed to keep these possibilities open and make inclusion meaningful, sustainable, and safe in entrepreneurial digital health settings. If multiplicity and scale shape which versions of responsibility move to the foreground, they also shape the everyday conditions that make participation possible. Section 6.7, therefore, translates these insights into a grounded mapping of the sociomaterial conditions that configure possibilities for inclusion in practice.

6.7 Configuring Conditions for Inclusion in Practice

Returning to RQ2, this section maps the concrete sociomaterial conditions that shape possibilities for inclusion in practice. Instead of seeing so-called barriers as user shortcomings, I understand them as configuration effects, the result of how space, time, interfaces, hierarchies, and organisational stories come together in specific moments of use. Seen this way, a constraint becomes a clue; it shows how inclusion is currently being done and what needs to be reconfigured for participation to remain meaningful, sustainable, and safe. Across the material, users navigated spatial exposure (open offices, commuting), visibility (dashboards, leaderboards), hierarchy (managerial presence), interface design (pop-ups, timing, visual cues), temporal rigidity (no mid-cycle check-ins), and epistemic burden (having to interpret affective or health data alone). These were not isolated obstacles. Each one appeared as a sociomaterial outcome, co-produced by artefacts, routines, atmospheres, and organisational expectations. To clarify these patterns, Table 9 summarises how these sociomaterial conditions shape possibilities for inclusion. It links each condition to its concrete effects and shows how inclusion can be reconfigured through both design choices (technological affordances) and governance choices (norms, guardrails, expectations). The levers listed below illustrate what became possible or difficult in this specific case, they are not offered as a generalisable governance checklist, but as examples of the kind of attentiveness particular configurations invite.

Table 9. *Sociomaterial Conditions Shaping Possibilities for Inclusion*

Socio-material condition	**Configuration effect on inclusion**	**Empirical cue**	**Possible design responses**	**Possible governance responses**
Spatial proximity and shared settings	People share less when they feel exposed; they hold back in visible spaces	"There is an imbalance in what I want to share when close colleagues are sitting right there" (Julia)	Options to respond privately and later, rather than in front of others	Treating private, off-camera reflection as legitimate; quiet channels for sensitive topics
Public metrics and legibility	Pressure builds; anonymity starts to feel fragile	Stress at seeing names on top-lists (Nina)	Possibilities such as showing results as avatars or group totals rather than names, or allowing people to opt out of rankings	Team-level results as a default view, with individual reporting treated as the exception rather than the norm
Managerial presence and hierarchy	People may answer less openly, fearing their well-being data will be used to judge them	"Who is bringing down the score?" (Mona)	Separating well-being feedback from performance dashboards where possible	Keeping well-being feedback separate from performance conversations where possible; peer-led reflection sessions; attentiveness to psychological safety
Prompt timing and UI grammar	Responding feels embarrassing or risky during commutes or meetings	Screen brightness lowered on the bus (Diary, 15 August 2023)	Building on existing frequency settings, letting users influence when prompts arrive, with options like do-not-disturb hours or quieter moments during meetings or commutes	Space for quiet hours during meetings or commutes; room to not respond without consequence

Socio-material condition	Configuration effect on inclusion	Empirical cue	Possible design responses	Possible governance responses
End-only evaluation	Feedback arrives too late to matter; insights lose their value	"A check-in midway through the process, while people are still engaged and everything is fresh in their minds" (Valeria)	Short check-ins partway through the process, not only at the start and end	Check-in points built into the pilot's rhythm; some shared sense of who responds, how fast, and how carefully
Ambiguous analytics	Anxiety about "reading" health data; users pull away from the tool	Uncertainty about what self-tracking metrics mean (Jorge)	Built-in explanations alongside the data, signals for uncertain results, and the option to ask an expert or see a written explanation alongside the numbers	Ways to get help when something feels concerning; some shared understanding of the limits of what the data can tell you

The patterns mapped in Table 9 show that inclusion is not simply a matter of inviting users into innovation processes, as it is co-produced through sociomaterial arrangements that make some forms of participation easier than others. One of the clearest examples of this comes from Valeria, whose call for a check-in midway through the pilot, while experiences are still fresh (see Section 6.3), highlights timing as a condition for liveable inclusion. When responsiveness arrives too late, inclusion risks becoming symbolic, retrospective, or diluted by the rhythms of everyday organisational life. This illustrates how conditions such as timing, visibility, and spatial exposure become configuration effects that shape what forms of participation are possible, a theme developed further in Section 6.8, where inclusion is re-examined as a relational configuration, not a static procedural step.

6.8 Inclusion as Relational Configuration

If Section 6.7 mapped the empirical contours of constraint, this section reframes inclusion not as a fixed status but as a relational-material configuration. Drawing on relational and sociomaterial perspectives, the relevant question is not who possesses inclusion, but how inclusion is relationally produced as people, devices, spaces, and stories come together

in practice. Neither the user, the app, nor the workspace pre-exists its relations; each becomes what it is through them (Barad, 2007). Thus, inclusion is enacted moment-by-moment as configurations cohere, clash, or fall apart. “Visibility,” for instance, is not a static property of an interface but something co-produced by leaderboard design, spatial proximity, and workplace norms around emotional transparency. Affective discomfort is not something that sits inside a user on its own, it is shaped by prompt timing, managerial presence, and expectations around what it means to be “well” at work. I argue that knowing and doing are inseparable in practice: inclusion is achieved collectively through bodies, artefacts, routines, and roles, not an abstract right guaranteed by checklists alone (see Gherardi, 2012).

Seen this way, users respond to configurations rather than abstract principles. When configurations shift, when prompts arrive at better moments, when visibility risks are reduced, when narratives make it acceptable to withhold, possibilities for participation shift too. What once looked like reluctance can instead be understood as care for oneself or the team; what seemed like a barrier can become an opening. This means users' appearance as informed, involved, or innovative participants cannot be treated as fixed traits. They are relational effects of the configurations described above. This does not make inclusion unobservable. Like care, inclusion is never finished, but it can be done with more or less attentiveness, judged within the situation, not against a fixed standard (Mol, 2008). Its quality is visible in concrete conditions: whether users can respond privately, whether prompts arrive at reasonable moments, whether feedback is acknowledged, and whether people can step back without penalty (see Table 9).

Moreover, user roles in innovation are dynamic and negotiated, not static categories. In Alfa’s pilots, many began as informed users exploring their well-being, some became involved as they reflected and offered feedback; and a few moved toward the innovative end, proposing ideas such as workshops or mid-pilot check-ins (Sofia, Valeria), even though these ideas were rarely taken up. These transitions were non-linear and sociomaterial. Visibility risks in open offices pulled some users back from involvement, while the prospect of being heard drew others toward proposing ideas. In other words, roles are configured by space, time, technology, and narrative, and shift as those configurations change (see Table 2, Section 2.6). A care-ethics lens clarifies why: becoming involved requires psychological safety; sustaining innovation requires trust that feedback will be acted on; stepping back can be an ethical stance of care for oneself or one’s team.

Treating these shifts as live role negotiations, rather than compliance with fixed participation tiers, keeps inclusion aligned with the realities of digital work and prevents misreading withholding as failure rather than situated responsibility (Mol, 2008; Puig de la Bellacasa, 2017; Tronto, 1993). These dynamic role shifts highlight that inclusion is neither a stable identity nor a discrete step, but an ongoing relational accomplishment, an insight that anchors the synthesis developed in Section 6.9.

6.9 Synthesis and Contribution Map

Returning to the purpose set out in Chapter 1, these findings show how a relational ontology of RI clarifies both how responsibility is enacted (RQ1) and how inclusion is configured (RQ2) through the same sociomaterial entanglements of space, time, technology, narrative, and governance. The dynamics traced across Sections 6.2 to 6.8 highlight that inclusion remained in motion throughout this case, shaped by shifting sociomaterial conditions. This chapter answered RQ2 by showing that entanglements of space, time, technology, narrative, and governance configure possibilities for user inclusion. The analysis also shows what worked: several users experienced trust and psychological safety, some contributed willingly and found meaning in doing so, and Alfa's pilots created real openings for users to share their experiences. Inclusion emerged as a relational, affective, situated practice rather than a discrete step to be completed. The "barriers" mapped in Section 6.7 proved to be configuration effects. Section 6.8 reframed inclusion as enacted and demonstrated how user roles move with changes in responsiveness, visibility, and trust. Together with Chapter 5, the analysis develops a relational account of RI, complementing and, where needed, complicating normative and procedural models by foregrounding sociomaterial mediation and care (Barad, 2007; Mol, 2002; Orlikowski, 2015; Stilgoe et al., 2013). The four enactments identified in Chapter 5 and the four mechanisms identified in this chapter are related but distinct. The enactments describe the forms responsibility took, while the mechanisms describe the conditions that shaped who could take part, and how. The same configurations, such as the leaderboard, appear in both, seen from two angles.

Seen from this perspective, the study contributes to RI scholarship in two key ways. First, it suggests a shift in how RI is studied: a relational approach invites researchers to trace configurations, timings, atmospheres, and relational entanglements, reframing what have conventionally been called "barriers" as configuration effects and recasting inclusion as a situated

relation rather than a procedural output. Second, it offers implications for how RI is governed. Narratives operate as a form of governance, shaping what becomes legitimate or possible. Responsiveness requires temporal attunement and the codification of response-ability. Privacy must be treated as a social condition, not an individual preference. And multiplicity calls for paired design and governance levers of the kind synthesised in Table 9.

To stabilise these claims and bridge to Chapter 7, I consolidate insights in two tables: Table 10 maps the empirical findings onto the two research questions and associated theoretical contributions, while Table 11 makes visible the coding logic underpinning the analytical synthesis. The fieldwork phase column shows when each code emerged, illustrating how codes and focused categories developed or stabilised as fieldwork progressed, consistent with the constant comparative method described in Section 4.4. Coding was therefore not a single pass but an iterative process. I present the coding logic as a table instead of a data structure figure, since a table allows the interpretive insights and fieldwork phases to be shown alongside the codes.

Table 10. *Advancing RI Theory Through Empirical Insights*

Research Question	**Empirical Findings from Alfa**	**Theoretical Contribution**	**Scientific Significance**
1. How does a digital health start-up enact de facto Responsible Innovation, i.e., Responsible Innovation practised without being explicitly named or formally adopted, in its everyday innovation practices?	• RI was enacted, not named, through iterative, relational engagement with users. • Responsibility took at least four distinct, co-existing forms: quiet contribution oriented toward collective benefit, cautious boundary-setting to protect privacy and dignity, interpretive labour placed on users making sense of their own health data, and performance shaped by gamification, none converging into a single, coherent version of "responsible" behaviour. • The app's design co-produced ethical enactments in everyday use (visibility, autonomy, care).	• Develops a relational account of RI grounded in practice. • Extends normative and procedural models, including AIRR, by highlighting performativity, situatedness, and multiplicity. • Shows responsibility as something done, not declared.	• Challenges applications of RI frameworks that assume linearity or consensus. • Offers a grounded complement for studying RI in digital and entrepreneurial contexts. • Suggests how ethics is co-produced by people, technologies, and routines.

Research Question	Empirical Findings from Alfa	Theoretical Contribution	Scientific Significance
2. How do sociomaterial practices in a digital health start-up configure possibilities for user inclusion in Responsible Innovation?	• User inclusion was configured by four sociomaterial mechanisms: spatial exposure, temporal nudging, technological mediation, and organisational responsiveness. • What RI literature often frames as individual "barriers" to inclusion (privacy concerns, low psychological safety, interpretive burden, and reluctance to speak) were relational effects of these configurations rather than individual deficits. • Power asymmetries and missing feedback loops limited meaningful co-creation.	• Brings care ethics to bear on user inclusion in business-based RI. • Conceptualises inclusion as relational, affective, and negotiated, not procedural. • Reveals inclusion as a dynamic sociomaterial configuration, sensitive to time, space, and technological mediation.	• Reframes inclusion in RI research as a context-dependent relation, not a normative checklist. • Provides actionable pathways for designing responsive, situated engagement in digital health start-ups. • Expands RI theory to account for affect, trust, and psychological safety.

Table 11. *Grounded Theory Coding Table with Analytical Insights and Fieldwork Phases*

First-Order Code (Example)	Focused Code	Theoretical Category	Interpretative Insights	Fieldwork Phase	Research Question Alignment
"I found myself lowering the screen's brightness… I felt embarrassed."	Navigating visibility and vulnerability	Privacy and Psychological Safety	*This moment of hesitation, despite being a researcher embedded in the study, illustrates how visibility, timing, and context together may contour user inclusion practices. The notification's arrival mid-commute suggests temporal nudging as much as spatial exposure.*	Post-pilot reflection (2023)	RQ1 & RQ2
"I do not do this for myself… It is more about contributing to research and providing a foundation for future work."	Contribution without reciprocity	Altruism and Motivation	*Juan's motivations position him as an agent of collective benefit rather than a passive recipient. Inclusion here is about purpose, not visibility.*	Early fieldwork (May to June 2022)	RQ1 & RQ2
"There is an imbalance in what I want to share when close colleagues are sitting right there"	Psychological safety and spatial dynamics	Privacy and Psychological Safety	*Physical proximity and workplace hierarchy shape openness. Inclusion is relational and spatial.*	Early fieldwork (May to June 2022)	RQ1 & RQ2

First-Order Code (Example)	Focused Code	Theoretical Category	Interpretative Insights	Fieldwork Phase	Research Question Alignment
"I did it for… for my own employer… Still, I have wondered what one should do with it as a next step."	Passive engagement and unclear purpose	User Engagement and Inclusion	*Engagement without feedback loops risks becoming symbolic. Inclusion must be iterative.*	Later fieldwork (August 2022)	RQ2
"Some competitive people became triggered by the point system… It became a bustle to get good points rather than thinking through the questions and the purpose."	Competitive triggers and loss of purpose	Integrity and Competition	*The point system can trigger competitive identities that override reflection. Gamification reorients participation from care toward performance.*	Early fieldwork (May to June 2022)	RQ1 & RQ2
"You know, one always wants to be number one…"	Competitive pressure and performative use	Integrity and Competition	*Leaderboards shift the app's purpose from care to competition. Responsibility becomes performative.*	Early fieldwork (May to June 2022)	RQ1 & RQ2
"If you raise sensitive questions, you have to take it all the way so you ensure appropriate follow-up and support."	Ethical responsibility and follow-through	Responsibility and Follow-through	*Responsibility is not just about data collection; it's about safeguarding users from unintended harm.*	Early fieldwork (May to June 2022)	RQ1 & RQ2

First-Order Code (Example)	Focused Code	Theoretical Category	Interpretative Insights	Fieldwork Phase	Research Question Alignment
"I hope this is anonymous; otherwise, it will be like 'I will come and clear out your desk.'"	Distrust in anonymity and data handling	Privacy and Psychological Safety	*Anonymity is fragile in small groups. Trust must be actively cultivated.*	Later fieldwork (August 2022)	RQ1 & RQ2
"I am not a doctor, so there is a risk of drawing incorrect conclusions."	Epistemic burden and interpretive risk	User Engagement and Inclusion	*Responsibility includes guiding users through data interpretation. Otherwise, autonomy becomes anxiety.*	Later fieldwork (August 2022)	RQ1 & RQ2
"I believe everyone should decide for themselves whether to use the application."	Autonomy and boundary-setting	Responsibility and Autonomy	*Responsibility also means respecting disengagement. Inclusion must allow for refusal.*	Later fieldwork (August 2022)	RQ1 & RQ2

These tables do not replace the narrative. They stabilise it by showing how the analysis moved iteratively between field material, theory, and interpretation. They also provide a conceptual bridge into Chapter 7, where I turn to the broader implications for scholarship and practice, designing for multiplicity, supporting timely responsiveness, and treating narrative as governance so that inclusion remains meaningful, sustainable, and safe in entrepreneurial digital health.

To conclude Chapters 5 and 6, Figure 4 presents a relational model of RI enactment that synthesises the findings of both chapters. Rather than depicting a conceptual framework or a linear process, the figure should be understood as a sociomaterial map of how RI is enacted in practice. It does not represent fixed entities, causal mechanisms, or sequential stages. Instead, it visualises the ongoing relations through which responsibility and inclusion take shape within the empirical setting. The model illustrates how contextual conditions, including user stress, well-being discourse,

workplace norms, organisational expectations, data imaginaries, and embodied histories, continually interact with the digital health intervention, comprising the Alfa app, its features and design choices, notification rhythms, dashboards, gamification, pilot-study routines, and organisational practices of care. As these relations unfold, they give rise to a variety of everyday enactments of RI, including responsibility-as-practice, quantified well-being, becoming a "good" employee, care translated into metrics, distributed agency, and, importantly, inclusion-as-relation.

At the centre of the model is the multiplicity of responsibility. This includes inclusion-as-relation as well as the tensions identified throughout the analysis: autonomy and surveillance, care and control, and inclusion and exposure. Positioning multiplicity at the centre emphasises that responsibility is not a singular principle, value, or outcome. Rather, responsibility is enacted differently across different sociomaterial arrangements and therefore takes multiple forms in practice. The tensions occupy a mediating position between multiplicity and everyday enactments because they both emerge from and shape how responsibility is performed. The model also highlights exclusions and absences, including structural stress, collective responsibility, resistance or refusal, alternative forms of care, ambiguity, and labour-related concerns. These are not external to the enactment of RI, nor are they merely unintended consequences. Rather, they are produced through the same relational processes that enable particular forms of responsibility and inclusion to stabilise.

The circular arrows highlight that RI unfolds as an ongoing and iterative ecology of relations rather than a linear sequence of steps or a procedural checklist. A visual model like this one necessarily risks stabilising what my thesis has argued is fluid, multiple, and always becoming. This risk is addressed deliberately in the figure's design rather than avoided by not visualising it altogether. Importantly, the arrows do not indicate temporal or causal sequence, they indicate that each element of the ecology remains open to reconfiguration by the others. Unlike a process model, the figure has no starting point and no endpoint. It is to be read as a map of standing relations rather than a pipeline. This is also why exclusions feed back into contextual conditions rather than resolving the loop, nothing in the model reaches closure, which is the point. In this sense, the model conceptualises RI as continuously enacted through the dynamic interplay of people, technologies, organisational arrangements, and broader discourses. It further suggests that inclusion is best understood not as a discrete method or stage within an innovation process, but as a sociomaterial relation that is continuously negotiated, enacted, and reconfigured in practice.

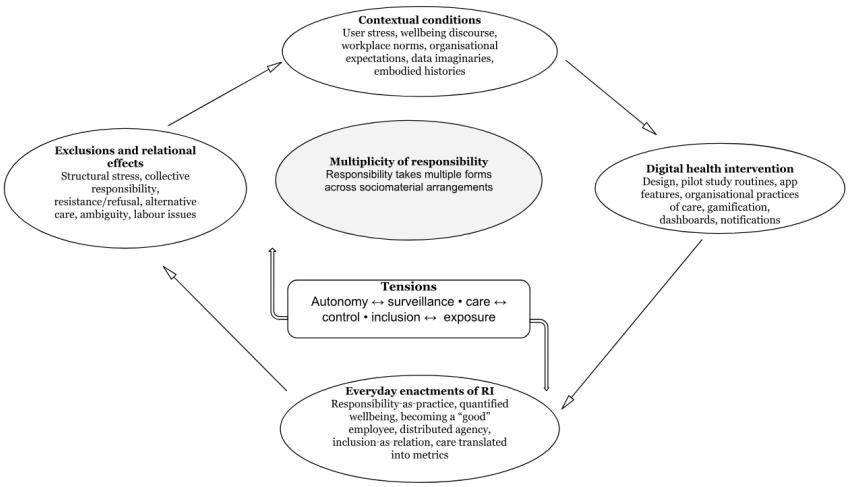

Figure 4. *Relational Ecology of Responsible Innovation.*

The outer loop illustrates the relational ecology through which RI is enacted, comprising contextual conditions, the digital health intervention, everyday enactments of RI, and exclusions. The inner constellation highlights the multiplicity of responsibility, including inclusion-as-relation, while tensions (autonomy ↔ surveillance; care ↔ control; inclusion ↔ exposure) mediate between multiplicity and everyday enactments.

6.10 Concluding the Analytical Arc: Opening to Chapter 7

Holding both research questions in view, the analyses in this chapter have shown that responsibility and inclusion are not applied from the outside but enacted from within, through patterned entanglements of space, time, technologies, stories, and governance. What began in Section 6.2 with the spatial and temporal configurations of inclusion became, in Sections 6.3 to 6.5, a reading of technological mediation and organisational narrative as actors that redistribute autonomy, visibility, and care. Sections 6.6 to 6.9 then offered a reworking of AIRR (Stilgoe et al., 2013) to live with multiplicity, a mapping of so-called barriers as configuration effects, and a recognition that user roles are dynamic, negotiated moment by moment as conditions change. In short, these findings give empirical substance to a

relational understanding of RI: not an external standard to achieve, but a situated, adjustable practice that must be designed, narrated, and governed so that different enactments of responsibility and inclusion remain liveable in entrepreneurial digital health.

Chapter 7 brings these insights to a coherent conclusion. It crystallises the theoretical contribution (a practice-based, relational account of RI that complements, and where necessary, complicates, AIRR), reflects on the implications for research and practice, and outlines a future research agenda attuned to multiplicity, care, and technological mediation. If Chapter 6 has traced how possibilities for inclusion are configured, Chapter 7 turns to what follows: how scholars and practitioners might work with multiplicity, not against it, so that inclusion remains meaningful, sustainable, and safe. RI, in this telling, is not a destination but a way of staying with the trouble (Haraway, 2016), designing, narrating, and governing with multiplicity, so that care remains possible in practice.

CHAPTER 7. Concluding Remarks and Suggested Future Research

7.1 Revisiting the Research Questions

This thesis set out from a relational, sociomaterial ontology, established in Chapters 1 and 2, which holds that responsibility is not a fixed property, but something enacted through practice. I want to emphasise that this ontology was a starting commitment, not a finding. What follows below is what this thesis actually discovered when that lens was brought to bear on a specific empirical case: the *particular* configurations, mechanisms, and versions of responsibility and inclusion that emerged at Alfa, none of which could have been read off the theory in advance.

RQ1: How does a digital health start-up enact de facto Responsible Innovation, i.e., Responsible Innovation practised without being explicitly named or formally adopted, in its everyday innovation practices?

Consistent with the thesis's ontological starting point, Alfa did not enact RI through formal frameworks or governance procedures. But that responsibility is practice-based, not framework-based, was the premise, not the discovery. The analysis found how this happened through a concrete set of everyday practices: responding to application prompts, interpreting dashboards, participating in pilot meetings, withholding responses in exposed settings, and continuously renegotiating what "engagement" meant over time. The theoretical framework did not specify any of these practices in advance. They emerged from the empirical material.

The sharper finding is this: responsibility did not converge into one coherent form. It took at least four distinct, coexisting shapes: quiet contribution oriented toward collective benefit, cautious boundary-setting to protect privacy and dignity, interpretive labour placed on users making sense of their own health data, and performance shaped by gamification and visibility. These four enactments emerged specifically from users' accounts; Chapter 6 extends this same multiplicity to organisational actors beyond the

user, including the advisory board member and the manager, showing that the ontological multiplicity of responsibility is not confined to any single role. These four enactments did not resolve into a single version of "responsible" behaviour. They persisted side by side, shifting with the relations between users, interfaces, organisational expectations, and time. This aligns with Mol's (2002) argument that different versions hang together through coordination instead of being coherent in advance. However, which versions appeared, and how they specifically failed to converge, is this thesis's own empirical contribution, not a restatement of Mol (2002).

The finding stated plainly: Alfa did not have RI. It continuously negotiated it through specific sociomaterial arrangements, and this thesis identifies what those arrangements are and the forms of responsibility they produce.

RQ2: How do sociomaterial practices in a digital health start-up configure possibilities for user inclusion in Responsible Innovation?

Again, that inclusion is relational and situated, not a discrete, achievable event, follows from the thesis's starting ontology. The empirical contribution is identifying *which* factors did the configuring, and *how*. Four specific mechanisms emerged from the material: spatial exposure (who was physically or virtually present when the application was used), temporal nudging (when and how frequently prompts arrived), technological mediation (dashboards, leaderboards, notifications), and organisational responsiveness (whether feedback was acknowledged or acted on). I use "mechanism" in a descriptive sense, for recurring ways in which inclusion was configured, not for causal mechanisms that produce predictable outcomes. Together, they configured inclusion by shaping what felt safe, visible, and worthwhile to share. These are not theoretical categories imported from Barad (2007) or Mol (2002), they are what the empirical material showed, specifically, at Alfa. These four are not the only possible mechanisms. Other settings may show others.

This produces the central claim of my thesis: what RI and adjacent literature often frame as "barriers" to inclusion (privacy concerns, low psychological safety, interpretive burden, reluctance to speak) are not individual deficits to be corrected. They are relational effects of the four configurations above. Hesitation and withholding were not failures of participation, they were ethically meaningful responses to specific, identifiable conditions: high visibility, high interpretive demand, and unclear organisational responsiveness. This challenges how RI research commonly frames such

phenomena, and it did not follow automatically from the thesis's ontological premise. It required the empirical work to surface it.

Put simply: sociomaterial practices do not just enable or constrain inclusion, they produce what inclusion concretely is, and my thesis identifies which arrangements did that work at Alfa, and how.

7.2 Theoretical Contributions to Responsible Innovation Research

Theoretically, I make several interrelated contributions to research on RI in management and organisation studies. Within industrial economics and organisation, the thesis contributes to understanding how firms organise innovation under commercial pressures, here by showing how responsibility is enacted in a start-up's everyday innovation work. First, the thesis advances a practice-based understanding of RI by showing how responsibility is enacted through everyday sociomaterial arrangements, not applied as a normative framework. While existing RI literature has made important contributions by articulating guiding principles and governance ideals, it often assumes that responsibility can be designed into innovation processes through anticipation, inclusion, reflexivity, and responsiveness (AIRR). This study accepts the value of these orientations but argues that their practical enactment is far more contingent, uneven, and situated than procedural models suggest. This move responds to long-standing critiques of governance approaches that treat ethics as detachable from everyday organising rather than as something accomplished in practice (Gherardi & Laasch, 2022).

By foregrounding everyday practices, such as responding to application prompts, interpreting data visualisations, adjusting behaviour in visible settings, or choosing not to engage, the thesis shows how responsibility materialises through what people and technologies do together. This shifts attention from whether RI principles are present in theory to how responsibility is performed, negotiated, and sometimes resisted in practice. In doing so, the thesis contributes to a growing body of work that treats ethics and responsibility not as abstract commitments but as ongoing accomplishments embedded in organisational life. This finding also extends and complicates Oftedal, Foss, and Iakovleva's (2019) account of RI in digital health start-ups. Their multi-case study of 14 Norwegian e-health firms found that start-ups display high intuitive awareness of RI principles, particularly inclusion, but low contextual and strategic awareness, with RI

activities frequently "bundled" with other activities on the path to commercialisation rather than pursued distinctly. My single-case findings support the bundling observation but add nuance to intuitive enactment. At Alfa, responsibility did not take one uniform intuitive form but fractured into at least four distinct, sometimes competing enactments: quiet contribution, boundary-setting, interpretive labour, and gamified performance. This suggests that what looks like low strategic awareness from the outside may in fact be several coexisting, situated versions of responsibility, which a broader multi-case design has less room to surface.

Second, the thesis contributes to RI theory by bringing ontological multiplicity into RI research as a central analytical lens. Drawing on Mol's (2002) work, the analysis suggests that responsibility is not a single object viewed from different perspectives, but a phenomenon enacted differently across practices. The generous contributor, the cautious protector of privacy, the anxious respondent under managerial gaze, the advisory board member who insists on taking it "all the way," and the manager who reads graphs as obligations are not merely subjective interpretations of responsibility, they are different versions of responsibility brought into being through specific configurations. This insight challenges the implicit assumption in much RI scholarship that responsibility can be coherently stabilised through governance frameworks. The findings show that coherence, when it appears, is not given by a framework but worked out through coordination, and sometimes refusal. When AIRR is treated as a universal template, it risks flattening this multiplicity. When treated instead as a vocabulary for coordinating practices, it becomes possible to respond to multiplicity rather than erase it. By framing multiplicity as ontological rather than perspectival, the thesis extends RI theory beyond debates about better implementation toward questions of how different enactments of responsibility are authorised, resourced, and scaled in practice.

Third, the thesis reconceptualises user inclusion as relational governance rather than a procedural step. Existing RI literature often treats inclusion as a matter of inviting stakeholders into innovation processes or ensuring representation. This study suggests that inclusion is better understood as a dynamic, affective, and embodied practice shaped by sociomaterial conditions. By integrating care ethics and sociomaterial perspectives, the thesis suggests that inclusion is enacted through attentiveness to users' time, vulnerability, interpretive capacity, and exposure. Care appears not as a sentiment or value statement, but as situated work: protecting discretion, pacing engagement, enabling withdrawal without penalty, and ensuring responsiveness while experiences are still fresh. This understanding of care

draws on care-ethical and feminist technoscience perspectives that treat responsibility as situated, affective, and materially mediated rather than abstract or procedural (Puig de la Bellacasa, 2017). In turn, the case contributes to care ethics by showing how care is shaped by the commercial and technological conditions of a start-up, where care must compete with speed, metrics, and growth. This reframing highlights ethical tensions at the heart of digital health innovations, including autonomy versus surveillance, care versus control, and inclusion versus exposure. Rather than treating these tensions as failures of RI, the thesis argues that they are signals of where governance work is needed. Inclusion-as-relation requires ongoing adjustment rather than closure. In this way, my thesis extends RI scholarship by offering a care-centred, relational account of governance that is sensitive to affect, materiality, and organisational temporality. This account also speaks to recent calls for "inclusive co-creation" in digital health innovation (Landers et al., 2024), which stress that meaningful stakeholder involvement must be continuous throughout the innovation cycle rather than limited to one-directional feedback. My findings suggest what such continuity demands in practice: not a single co-creation mechanism but ongoing, situated care work (protecting discretion, pacing engagement, enabling withdrawal) that existing accounts of co-creation do not yet specify. Beyond RI, the thesis also speaks to organisation studies on sociomateriality and digital work, by showing how workplace technologies shape what employees feel able to say, share, and withhold.

7.3 Methodological Contributions

Beyond its theoretical insights, my thesis also makes methodological contributions to the study of RI. First, it points towards the value of combining interviews, observations, document analysis, and reflexive diary writing to trace how responsibility and inclusion are enacted in practice. This multi-method approach makes it possible to capture dimensions of RI that interviews alone cannot access, such as embodied hesitation, spatial exposure, temporal rhythms, and affective atmospheres.

Second, the thesis illustrates the value of using vignettes as analytical entry points, foregrounding situated practices instead of abstract themes. Instead of serving as illustrative anecdotes, the vignettes function as sites where sociomaterial configurations can be examined in detail, allowing responsibility and inclusion to be analysed as they unfold in specific moments.

Third, the reflexive diary plays a methodological role in decentring the researcher as a detached observer and making visible how responsibility and inclusion are experienced from within sociomaterial arrangements. This reflexive engagement aligns with the thesis's relational ontology by treating knowledge production as an entangled process, not a neutral extraction of data. Overall, these methodological choices support an approach to RI research that attends to practice, multiplicity, and lived experience.

This design choice also complements prior firm-level RI research. Existing studies of RI in digital health start-ups, notably Oftedal, Foss, and Iakovleva's (2019) study of 14 firms based on a single interview of about one hour per firm, have prioritised breadth across firms over depth within any one. While this approach is valuable for establishing patterns across a sector, it offers less traction for capturing how responsibility is negotiated moment by moment inside a single organisation. The 20-month, multi-method engagement with Alfa in this thesis, comprising 31 interviews, 17 observations, 22 documents, and a reflexive diary, offers a complementary depth-oriented design, capable of tracing how RI unfolds, shifts, and sometimes contradicts itself over time within one setting.

7.4 Research Quality, Limitations, and Scope of the Study

Before turning to the limitations, it is worth addressing how the quality of this research was safeguarded. Following Lincoln and Guba's (1985) criteria for qualitative research, I consider four aspects. Although these criteria stem from naturalistic inquiry, I use them as a widely shared vocabulary for discussing quality, read in light of the relational and reflexive stance described in Section 4.5. Credibility was supported by prolonged engagement with Alfa over 20 months and by combining four sources of material (interviews, observations, documents, and a reflexive diary), which allowed claims to be checked across sources. Transferability was supported through rich descriptions of the case, its context, and participants' accounts, including vignettes and extended quotes, so that readers can judge how far the insights may apply to other settings. I supported dependability by documenting the research process: the coding steps described in Section 4.4, the analytical memos kept partly through my diary, and the coding logic shown in Table 11. I supported confirmability by grounding each analytical claim in empirical material and reflexively examining my position throughout. This last point also marks a limitation. As a researcher who used the application myself, followed the pilots closely, and was occasionally

invited by Alfa to give feedback, I was not a neutral observer. I addressed the risk of over-identifying with the field (Patton, 2002) through my non-participant role in meetings, by comparing accounts across sources, and by reflecting on my position in the diary and in supervision. My presence in the observed meetings, introduced in advance and with my camera on, may also have shaped what was said. Comparing these meetings with interviews and documents helped balance this effect. Similarly, Alfa's representatives had an interest in presenting the company favourably, particularly in webinars and pitch materials. I accounted for this by comparing their accounts with users' experiences. Some interviews also took place after participants' pilots had ended, so their accounts are partly retrospective. Observations made while the pilots were running helped balance this. Most interviews with pilot users lasted around half an hour and were conducted digitally, which limited the depth of individual accounts. This was balanced by the number of interviews and by combining them with observations, documents, and the diary. The study is shaped by deliberate choices about scope, context, and analytical focus. My choices define the very conditions under which the thesis's contributions should be understood.

First, the empirical material is grounded in a single, in-depth case of a digital health start-up operating in a Swedish context. This allows for a rich and fine-grained analysis of how RI is enacted in practice, but it also means that the findings are not intended to be statistically generalisable. Instead, the study aims for analytical transferability by developing concepts and insights that can inform understanding of RI practices in comparable settings, particularly entrepreneurial firms operating in digitally mediated, care-intensive domains. At the same time, Sweden's tax-funded health care and relatively strong employment protections may shape how employees experience workplace well-being tools, and the dynamics may differ in other welfare and labour regimes. This emphasis on depth and analytical transferability, rather than statistical generalisation, follows established arguments in qualitative case-based research (Flyvbjerg, 2006). The case is theoretically generative because Alfa's pilot phase made user inclusion unusually explicit in a workplace setting where health and work overlap, making the configuration of inclusion visible in a way that more settled organisations may not.

Second, the study focuses on de facto RI practices rather than on formal RI strategies or explicit adherence to established frameworks. This analytical choice means that the thesis does not assess whether Alfa "meets" RI criteria in a normative sense. Instead, it examines how responsibility and inclusion are enacted, negotiated, and strained in everyday practice. While this

approach enables a deeper understanding of lived RI, it necessarily leaves aside questions of formal policy compliance, certification, or benchmarking against institutional RI standards. The thesis does contain normative elements, such as the design and governance responses in Table 9. These are offered as situated examples from this case, not as universal criteria for RI. Nor does the thesis assess whether user inclusion improved Alfa's application or its commercial outcomes. At the same time, identifying practices as de facto RI does not mean labelling all organisational activity as responsible. The lens also made visible where responsibility was missing, for instance when the leaderboard was introduced without users being consulted, and these moments are analysed as limits, not as examples of RI.

Third, the study centres user inclusion as a heuristic lens for examining responsibility. This focus foregrounds users' experiences, practices, and negotiations, while other stakeholder groups, such as investors, regulators, or policymakers, are considered primarily insofar as they shape organisational narratives and constraints. This focus also means the study engages primarily with the inclusion dimension of the AIRR framework (Stilgoe et al., 2013), rather than offering separate, equal treatment of anticipation, reflexivity, and responsiveness as independent objects of analysis. This is a deliberate analytical choice, not an oversight: the thesis's central theoretical argument is that these dimensions are not cleanly separable in practice but entangled aspects of the same sociomaterial accomplishment. This entanglement is visible throughout the empirical chapters: anticipation surfaces in how Alfa's pilot studies were designed to anticipate user impact (Section 4.8), reflexivity is enacted through concrete tools such as prompts and dashboards, not isolated internal reflection (Section 6.6), and organisational responsiveness constitutes one of the four core mechanisms configuring inclusion identified in this study (Section 6.5 and Table 10). Rather than evaluating each AIRR dimension separately, this thesis uses inclusion as an entry point, or "agential cut" (Barad, 2007), through which the entangled character of all four dimensions becomes analytically visible. Thapa and Iakovleva (2026) place similar emphasis on inclusion as an entry point to the other AIRR dimensions.

Moreover, many of the interviewees held managerial or specialist positions, so the experiences of employees in other roles may be less visible in the material. Similarly, Alfa's perspective rests on four interviews, complemented by seventeen observations and the company's documents, which together give a fuller picture of the organisation's side than the interviews alone. Alfa's technical staff, such as its CTO, were not interviewed, so technical decision-making is visible mainly through

observed meetings and the accounts of the CEO and the creative designer. Finally, the material comes from people who took part in the pilots. Those who declined are visible only indirectly, for instance through HR's reminders to participate, which limits what the thesis can say about non-participation. The thesis also says less about Alfa's responsibility toward society at large, for instance regarding public health or working conditions beyond the pilot organisations. Future studies could productively extend the analysis by following responsibility across a broader set of actors and institutional interfaces.

Fourth, the relational ontology that underpins the thesis entails a particular understanding of knowledge production. Responsibility, inclusion, and care are treated as emergent and enacted rather than as fixed variables or attributes. As a result, the study does not aim to isolate causal relationships or predict outcomes. Readers approaching RI from a positivist or instrumental perspective may therefore find the conclusions less prescriptive than expected. This is a conscious trade-off that reflects the thesis's commitment to understanding complexity rather than simplifying it.

Fifth, the study's temporal scope captures RI practices during a specific phase of organisational development, characterised by pilot studies, rapid iteration, and entrepreneurial uncertainty. Responsibility and inclusion may take different forms as organisations scale, formalise governance structures, or enter new markets. Pilots are also a particular setting, temporary and explicitly framed as learning, so responsibility in Alfa's regular operations after the pilots may look different. The findings should therefore be read as situated insights into RI "in the making" rather than as definitive accounts of mature innovation systems. The fieldwork also took place as working life was returning after the COVID-19 pandemic, when many participants still worked from home, which may have shaped how space and visibility were experienced. Since the fieldwork, Alfa has also developed further, for instance by offering its application to private users (see Section 4.8). The findings thus capture a particular moment in the company's development, which is precisely what makes the dynamics of early-stage RI visible. These boundaries clarify what the thesis does and does not claim. They also point directly to productive avenues for future research.

Finally, although Alfa describes its application as incorporating generative AI functionality, my thesis does not analyse the AI system itself, its technical design, or its accuracy. The empirical focus is on how users, in practice, experienced (or did not experience) guidance, interpretation, and responsiveness around their data. Notably, how the technology was

characterised varied between actors: while Alfa's management presented the application as AI-driven, a researcher collaborating with Alfa described it otherwise, illustrating how labels such as "AI" can themselves function as cues for legitimacy in digital health innovation.

7.5 Directions for Future Research

Building on this study's findings and scope, several directions for future research emerge. These directions are not framed as gaps to be filled mechanically, but as opportunities to extend and deepen the relational understanding of RI developed in my thesis. One important direction concerns comparative research across different organisational, cultural, and regulatory contexts. Future studies could explore how responsibility and inclusion are enacted in digital health start-ups operating in different national settings, sectors, or institutional regimes, examining how sociomaterial configurations vary and how particular enactments of responsibility become stabilised, marginalised, or contested. Such comparative work could show how governance structures, labour relations, or welfare arrangements shape what forms of RI become possible and which versions of responsibility are authorised or silenced in practice.

A second promising direction involves longitudinal research that follows digital health innovations over time. This study captures RI practices during an early and dynamic phase of organisational development, characterised by pilot studies, experimentation, and entrepreneurial uncertainty. Longitudinal research could examine how organisations manage or reduce multiplicity as they scale, formalise governance structures, and increasingly rely on metrics, roadmaps, and investor communication. Such studies could investigate whether certain versions of responsibility become dominant because they are easier to measure, govern, or circulate, and how quieter enactments of care, hesitation, or refusal fare as innovation processes become stabilised. Addressing these questions would deepen understanding of the politics of scaling responsibility in market-oriented settings (Bacq & Aguilera, 2022).

Future research could also expand the range of actors through which responsibility is traced. While this thesis foregrounds users as central actors in RI, responsibility is enacted across broader networks that include designers, data scientists, HR professionals, managers, regulators, and investors. Multi-site ethnographic studies could follow how responsibility travels across organisational boundaries and how different actors negotiate

accountability, legitimacy, and care within interconnected innovation ecosystems. Such work would further illuminate how responsibility is distributed, delegated, and sometimes displaced across sociotechnical systems. Future work could also draw more explicitly on theories of power, for instance Foucauldian perspectives on surveillance and self-governance, to deepen the questions of visibility and control raised in this thesis.

A related direction concerns the disjuncture between Alfa's stated generative AI and predictive capabilities and users' lived experience of interpretive burden documented in this thesis. Future research could examine how users understand, trust, or resist such AI-driven features in practice, instead of treating this capability as a fixed technical given. More broadly, as AI increasingly reshapes how organisations know and act, relational approaches such as the one developed here may help scholars examine how responsibility is enacted when the boundaries between human and technological agency become harder to draw (Bailey et al., 2022; Santoni de Sio & Mecacci, 2021).

In addition, the methodological approach adopted in my work opens possibilities for further innovation in RI research. The use of vignettes, reflexive diaries, and practice-based analysis illustrates how responsibility can be studied beyond interviews and surveys. Future research could experiment with participatory methods, digital ethnography, or design-based interventions to engage more directly with the co-production of RI practices over time. These approaches may be particularly well suited to capturing affective, embodied, and temporal dimensions of responsibility that are often overlooked in more formal evaluations of innovation processes.

Finally, future theoretical work could further develop relational and care-centred approaches to innovation governance. Rather than refining procedural checklists or expanding normative criteria, such work could ask how governance might be reimagined to protect multiplicity, discretion, and ethical withdrawal. This includes exploring governance arrangements that legitimise silence, refusal, or slowing down as responsible acts, instead of treating them as failures of participation. Such a reorientation aligns with calls to understand governance as an ongoing practice of opening up, not closing down, possibilities for action (Stirling, 2008). This reorientation resonates strongly with the empirical insights generated in my study. In addition to pointing toward future research directions, the findings of this thesis also raise important methodological and practical considerations

regarding how researchers and other actors may engage with RI in practice. These are discussed in the following section.

7.6 Implications for Studying, Practising, and Researching Responsible Innovation

Drawing on the findings of this thesis, this section reflects on what it means to study and engage with RI in organisational contexts from a relational and sociomaterial perspective. Instead of offering prescriptive recommendations, managerial guidelines, or fixed policy solutions, the reflections that follow are framed as methodological considerations that point to ways in which responsibility may be engaged with in practice. A central argument of this thesis is that RI cannot be understood as something implemented through predefined frameworks or governance models. Instead, responsibility emerges through ongoing sociomaterial practices, shaped by interactions between organisational actors, technologies, and material arrangements. This shifts attention away from managing or controlling responsibility toward engaging with how responsibility is continuously enacted, negotiated, and reconfigured in practice. These implications are addressed in turn below: first for research, then for organisational practice, and finally for the role of the researcher.

7.6.1 Implications for Studying Responsible Innovation

From a methodological perspective, a practice-based understanding of RI suggests that studying and engaging with it requires approaches that remain sensitive to multiplicity, uncertainty, and the distributed nature of responsibility. Instead of attempting to simplify or "manage" complexity, the findings point to the importance of facilitating organisational processes in which multiple voices, experiences, and forms of knowledge can be expressed and responded to. This includes attending to situations where participation is uneven, where hesitation or withdrawal occurs, and where responsibilities are not clearly defined or stabilised. Such moments need not be resolved, instead, they can be approached as sites where responsibility becomes visible and open to reflection. This responds to calls to engage with the messiness of organisational life instead of smoothing it out through overly linear methods (Law, 2004).

7.6.2 Implications for Organising and Practice

These methodological orientations are not limited to academic research. They may also inform the work of practitioners, consultants, and others involved in facilitating innovation processes, particularly in contexts where responsibility is negotiated across organisational boundaries and sociotechnical systems. Instead of functioning as tools or methods to implement, they can be understood as ways of remaining attentive to how responsibility unfolds in practice and how different forms of engagement are enabled or constrained. The distinction drawn here is between prescribing outcomes or procedures, which the findings suggest cannot meaningfully hold across situations, and naming orientations that help practitioners notice where responsibility becomes contestable in practice. This thesis offers the latter. The design and governance levers illustrated in Table 9 are examples of such orientations, not a checklist. For firms, there is also a practical reason to attend to these conditions: arrangements that make users feel safe sharing are also likely to produce more honest and useful feedback, as Alfa's CEO noted when he stressed the importance of honest answers.

While my thesis does not propose normative frameworks or policy prescriptions, it does suggest that responsibility in innovation cannot be meaningfully addressed through standardised models alone. If these findings have policy relevance, it lies not in defining universal guidelines, but in recognising that responsibility emerges through situated practices that often extend beyond individual organisations and involve users, partners, researchers, and other stakeholders. As argued in Section 7.5, this points toward governance as an ongoing practice of opening up possibilities for action Instead of refining procedural checklists. Supporting forms of organisational engagement that remain open, reflexive, and responsive to context matters more here than supporting any single correct method.

7.6.3 The Researcher as Part of the Practice: Reflexivity and Ethics

These considerations extend to the role of the researcher. In this study, I, as the researcher, am not positioned as a detached observer, but as part of the sociomaterial practices through which responsibility and inclusion are enacted. Through interactions with participants, methodological choices, and forms of representation, the research process shapes what becomes visible, what is foregrounded, and how responsibility is articulated. This highlights that research on RI is not neutral but entangled with the phenomena it seeks to understand. This entanglement raises important

ethical considerations. Ethical responsibility in research goes beyond formal procedures such as consent or confidentiality, and extends to how research engagements shape organisational processes, whose voices are amplified, and how participants' experiences are represented. In this sense, ethics becomes an ongoing, situated practice, not a predefined set of rules.

These reflections reinforce the central argument of this thesis: responsibility is not something that can be implemented or imposed, but something continuously enacted through sociomaterial practices. Studying and engaging with RI, therefore, requires methodological approaches that remain open to complexity, attentive to practice, and reflexively aware of their own role in shaping the realities they investigate. In this sense, engaging with RI becomes less about designing better frameworks and more about cultivating sensitivity to how responsibility is continuously negotiated in practice. These considerations lead back to the thesis's central argument, which is synthesised in the concluding section.

7.7 Concluding Synthesis

My thesis rests on one central argument. RI is not a framework that gets implemented and then checked for compliance. It is a sociomaterial practice, something continuously enacted, negotiated, and cared for through the ongoing alignment of people, technologies, timing, and space. This is not a minor reframing of existing RI theory. It offers a different starting point, which the analysis gives concrete form in two ways.

The first concerns responsibility. Responsibility does not pre-exist the innovation process as a fixed property waiting to be applied, not even where formal structures such as regulation, professional codes, or organisational policy are already in place. Those structures matter, but they are not sufficient: they set conditions, not outcomes. In any given moment, responsibility is settled through practice: how a notification lands, how a dashboard is read, whether someone chooses to speak in a meeting where their camera is off. This is the thesis’s core claim, grounded in its ontological starting point and given empirical substance by the analysis: responsibility is enacted, not possessed.

The second concerns inclusion. Inclusion is not a milestone an organisation reaches and then holds. It is a relational condition that must be continuously sustained through the alignment of technologies, timing, space, and organisational responsiveness, and it can come undone as easily as it can be

achieved. Treating inclusion as a fixed accomplishment, something secured once through a workshop or a pilot invitation, misses exactly what this thesis's findings show: that the same arrangement which enables participation on Monday can foreclose it by Friday, if the conditions around it shift.

Together, these two claims are what the Splat the Rat metaphor, introduced at the outset of this thesis, was always pointing toward. RI is not a matter of building the right framework once and applying it consistently. It is a matter of timing, sensitivity to context, and the capacity to respond without overcorrecting. Act too forcefully, impose too rigid a structure, and you close the very openness that care requires. Act too cautiously, defer to procedure, wait for certainty, and you miss the moment where responsibility was at stake. Crucially, this thesis shows that individuals do not carry this judgement alone. It is distributed across sociomaterial arrangements that shape what action feels possible, legitimate, or safe to take, for everyone involved: users, employees, and organisations alike. This is what a practice-based understanding of RI ultimately asks of us: not a better framework, but a different relationship to the question of what responsibility is. By staying with the messiness of practice instead of resolving it prematurely, this thesis offers a grounded, relational account of RI in digital health, one that invites scholars and practitioners to shift their attention from ideals of control and coherence toward practices of coordination, care, and continuous responsiveness. That shift, not a new set of principles, is this thesis's contribution to how we might engage more honestly with innovation in an increasingly digitalised world.

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Responsible innovation has developed a substantial body of theory, yet we still know little about how it unfolds in the everyday life of businesses. This thesis follows a Swedish digital health start-up and the employees who used its well-being application in workplace pilots over 20 months. It shows that responsibility was enacted not through formal frameworks, but through everyday arrangements of technology, time, and space. What is often described as users' reluctance to take part turned out to be a response to how situations were set up: who was watching, when prompts arrived, and whether anyone answered. Like the fairground game Splat the Rat, responsible innovation is a matter of timing and attentiveness. When inclusion fails, the thesis suggests, we should look not at the user, but at the arrangement.

Linnea Tavakoli Hagström is a PhD candidate in Industrial Economics and Organisation at Mälardalen University. Her research explores responsible innovation in digital health, with a particular interest in how technologies, organisations, and users together shape what it means to innovate responsibly. Her work has been published in the Journal of Responsible Innovation.

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