

MAIJU TANNINEN

The Datafied Customer Relationship in Behavioural Life Insurance

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in Behavioural Life Insurance

ACADEMIC DISSERTATION

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<i>Responsible supervisor and Custos</i>	Professor Turo-Kimmo Lehtonen Tampere University Finland	
<i>Supervisors</i>	Professor Minna Ruckenstein University of Helsinki Finland	
<i>Pre-examiners</i>	Associate Professor Dorthe Brogård Kristensen University of Southern Denmark Denmark	Chancellor's Fellow Liz McFall University of Edinburgh United Kingdom
<i>Opponent</i>	Professor Tamar Sharon Radboud University The Netherlands	

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Doing a PhD is truly a journey that involves many highs and lows. Sometimes you feel inspired and like everything is going to plan; other times, you feel like nothing is working out and you might question all your life choices. This challenging but rewarding journey has taught me many things and it has helped me grow as a person. Looking back, two things come to mind. Firstly, I've learned that perseverance pays off: it is not about being perfect and knowing everything but about having the courage to continue even during the difficult times. Secondly, I know that I could not have done this alone. Thus, it is time to express my gratitude to all the wonderful people that helped me make this dream a reality.

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the best in expressing how much I value our friendships, but it means a world to me that you like and accept me the way that I am.

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ABSTRACT

This article-based dissertation examines ‘behavioural life insurance’, a novel insurance technology that implements self-tracked data and digital health services to improve risk prediction, pricing and management. As a widely circulated example of the possible effects of datafication, behavioural insurance policies have been both celebrated and criticized for their potential to disrupt the insurance industry. However, in this polarized debate, little attention has been paid to how the promises of personalization materialize in situated practices of developing the products and in policyholders’ experiences.

This research scrutinizes these aspects of novel insurance technologies by examining two Finnish behavioural life insurance products. Following the practice-oriented literature streams of sociology of insurance, sociology of markets and research focusing on people’s everyday engagements with algorithmic technologies, this study analyses Finnish insurers’ experimentation with behavioural life insurance products and the aims and ideas behind the development work. Furthermore, it examines the ways in which policyholders weave new insurance products into their everyday lives and experience the health interventions that they perform. By combining these perspectives, this dissertation analyses how behavioural life insurance (market) is co-constituted with the new (data) relations between insurers and policyholders.

The study is based on fieldwork that was conducted in 2017–2019 in two Finnish insurance companies. The data consist of 16 interviews with insurance professionals, 11 focus group discussions with real and potential policyholders and participant observations in the insurance professionals’ meetings. Furthermore, these data were supplemented with publicly available document data and reflections on testing the services. The analysis was conducted by juxtaposing and thematically analysing these varied empirical materials.

The study shows that instead of risk and premium personalization, Finnish insurers focus more on the promises of datafication to enable effective risk management and more intimate customer relationships. Seamless alignment between company and policyholder goals is, however, difficult to achieve. The data-driven technologies do not readily encompass customers’ lives; interventions experienced

as helpful in one situation might feel intrusive and annoying in another. Thus, these technologies can fail to enhance customers' autonomy and enact trustworthy data relations, rendering the disturbing sides of algorithmic control visible. The study shows that instead of a straightforward story of digital disruption, the emergence and success of a new insurance technology depends on human labour and the connections that are created in the process. However, these new data relations are prone to breakages and do not stabilize if behavioural policies fail to consider customers' feelings and values in a satisfying way.

TIIVISTELMÄ

Tarkastelen tässä artikkeliväitöskirjassa asiakkaiden käyttäytymisdataa sekä erilaisia digitaalisia hyvinvointipalveluita hyödyntäviä interaktiivisia henkivakuutuksia. Näiden uusien vakuutustuotteiden tavoitteena on tarkentaa riskien ennustettavuutta ja vakuutuksen hinnoittelua, luoda uusia riskienhallinnan muotoja sekä tehdä vakuutuksesta personoidumpi ja kiinnostavampi kulutushyödyke. Interaktiivisia vakuutuksia on käytetty esimerkkinä *datafikaation* disruptiivista vaikutuksista: niitä on sekä juhlistu että kritisoitu niiden potentiaalista mullistaa vakuutusalan vallitsevat käytännöt. Tässä polarisoituneessa keskustelussa on kuitenkin kiinnitetty vain vähän huomiota siihen, miten dataohjautuvan personoinnin lupaukset toteutuvat oikeissa vakuutusikäntännöissä.

Väitöskirjassani tarkastelen sekä interaktiivisten henkivakuutustuotteiden kehittämistä että vakuutusasiakkaiden näkemyksiä ja kokemuksia uusista palveluista. Tutkimus sijoittuu kolmen eri käytäntöorientoituneen ja tieteen- ja teknologiantutkimuksesta ammentavan lähestymistavan rajapinnoille: se nojaa vakuutus sosiologian ja markkinoiden sosiologian näkökulmiin sekä tutkimuksiin, jotka tarkastelevat ihmisten jokapäiväisiä kokemuksia algoritmista teknologioista. Tutkimuksessa tarkastelen 1. minkälaiset ideat ja tavoitteet ohjaavat uusien vakuutustuotteiden kehittämistä ja miten vakuuttajat hyödyntävät digitaalisia teknologioita ja käyttäytymisdataa kokeellisissa käytännöissään, 2. miten asiakkaat soveltavat interaktiiviset vakuutukset arkielämäänsä ja miten he kokevat tuotteisiin liittyvät hyvinvointipalvelut ja interventiot, 4. millaisia suhteita uudet vakuutusikäntännöt luovat sekä 4. miten interaktiiviset henkivakuutukset, niiden markkinat ja dataohjautuva asiakassuhde tuottavat toisiaan uudentlaisissa vakuutusikäntännöissä.

Väitöskirja perustuu empiriseen kenttätööhön, jonka toteutin kahdessa suomalaisessa henkivakuutusyhtiössä vuosina 2017–2019. Tutkimuksen aineisto koostuu 16 vakuutusammattilaisten asiantuntijahaastattelusta, vakuuttajien käytäntöjen osallistuvasta havainnoinnista sekä 11 vakuutusasiakkaiden kanssa toteutetusta fokusryhmäkeskustelusta. Tämän lisäksi hyödynnän dokumenttiaineistoa sekä omia reflektointejani vakuutuksiin kuuluvien palveluiden

käyttämistä. Toteutin tutkimuksen analyysin rinnastamalla näitä erilaisia empiirisiä materiaaleja ja analysoimalla niitä temaattisesti.

Tutkimus osoittaa, että tässä tuotekehitysvaiheessa suomalaiset vakuuttajat pyrkivät käyttämään interaktiivisia vakuutuksia ensisijaisesti riskienhallinnan ja asiakassuhteiden lähentämisen välineinä. Vakuutusyhtiöiden tavoitteiden ja asiakkaiden halujen yhtensovittaminen on kuitenkin haastavaa. Vakuutuksissa käytettävät dataohjautuvat teknologiat eivät aina pysty huomioimaan asiakkaiden muuttuvia tarpeita ja erilaisia elämäntilanteita. Interventiot, jotka asiakkaat kokevat yhdessä hetkessä hyödyllisiksi voivat toisessa hetkessä tungettelevilta ja ärsyttäviltä. Näin uudet vakuutuspalvelut tekevät algoritmisen hallinnoimisen häiritsevät puolet näkyviksi ja voivat herättää epäluottamusta. Tutkimus osoittaa puutteita niin teknoutopistisissa kuin -dystopisissa näkökulmissa, jotka nojaavat ajatukseen suoraviivaisesta digitaalisesta disruptiosta. Interaktiiviset vakuutukset eivät automaattisesti voimaannuta asiakasta hallinnoimaan hyvinvointiaan paremmin eivätkä ne myöskään ole yksisuuntaisen kontrollin välineitä. Sen sijaan tutkimus osoittaa, että uuden teknologian syntyminen vaatii paljon käytännön työtä, jossa erilaisia ajatus- ja toimintamalleja sovitetaan yhteen. Tämän lisäksi teknologian ja markkinan menestys nojaa niiden kykyyn luoda suhteita kuluttajiin. Interaktiivisen henkivakuutuksen tapauksessa nämä uudet (data)suhteet näyttäisivät katkeavan helposti, koska ne eivät onnistu huomioimaan asiakkaiden tunteita ja arvoja tyydyttävillä tavoilla.

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ABBREVIATIONS

AI	Artificial intelligence
ANT	Actor-network theory
CRM	Customer relationship management
EU	European Union
EULA	End-user licensing agreement
FIN-FSA	Finnish Financial Supervisory Authority
GDPR	General Data Protection Regulation
QS	Quantified Self
STS	Science and technology studies

ORIGINAL PUBLICATIONS

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1 INTRODUCTION

In recent years, novel insurance schemes implementing sensory technologies and utilizing policyholders' behavioural data have attracted considerable attention in the tech and insurance industries, media and research. These new policy types, going by the names of 'interactive insurance', 'pay-as-you-live insurance' and 'behavioural insurance', have been both celebrated for their capacity to disrupt the insurance industry and criticized for their potential to exacerbate (existing) inequalities and to submit people to intensified surveillance, or 'dataveillance' (Falkous & Callaway, 2018; Gidaris, 2019; Lupton, 2016a; Paluch & Tuzovic, 2017; Spender et al., 2019; Zuboff, 2019). This polarized debate has focused largely on the future potential of the new insurance types, as both the techno-enthusiastic and the critical viewpoints share the premise that these technologies are a source of profound change. However, less attention has been paid to what is actually happening in the field. Through a case study of two Finnish behavioural life insurance products, this research examines 1. the development work that goes into the policies and 2. customers' everyday experiences with new insurance technologies to understand how the behavioural life insurance (market) and the new data relations are co-constituted. It draws from the science and technology studies (STS) inspired and practice-oriented literature streams of sociology of insurance, sociology of markets and studies analysing people's everyday experiences with algorithmic technologies. The research shows that instead of a straightforward story of digital disruption, the emergence of a new insurance technology depends on the human labour through which the technology is tried to make work in a particular regulatory and market context. Furthermore, the success of behavioural life insurance (markets) relies on its capacity to connect with the policyholders in a way that considers their feelings and enacts values, such as autonomy and trust, in a satisfying manner. Yet, as new data relations are prone to breakages, the technology might still fail.

1.1 A polarized debate

The use of behavioural data in insurance is related to the broader phenomenon of *datafication*. Datafication, a concept coined by Mayer-Schönberger and Cukier (2013), refers to the processes of turning aspects of life that have not been previously quantified into data (Kennedy et al., 2015); these new data types include, for instance, information about people's online behaviour, driving habits and physical activity. In current digital capitalism, these data are a valuable resource or an asset with which corporations aim to optimize their operations, create savings and yield larger profits (Birch et al., 2021; Sadowski, 2019). Furthermore, data allows increased visibility in people's lives, enabling marketers to personalize and target services and to *nudge* people towards decisions that are supposed to be better for them (Fourcade & Healy, 2017; Schüll, 2016). The marketers' vision is that data would permit seamless and enjoyable co-existence between people and service providers, an automated infrastructure that would pleasantly encompass consumers (Fourcade & Healy, 2017). Thus, besides referring to the processes of using data for value creation, datafication, as a term, describes how data-driven practices penetrate people's everyday lives (Flensburg & Lomborg, 2021, p. 2).

Behavioural insurance policies are the result of insurers experimenting with this 'data economy imaginary' (Lehtiniemi, 2020). Hence, the ideas and technologies utilized in behavioural insurance do not originate from the field, but they are most often promoted by techno consultants and other 'interested parties' (Meyers & Hoyweghen, 2018). The promises of datafication are lucrative for the insurance industry. First, the idea is that behavioural data generated by sensory technologies, such as accelerometers in car insurance (Meyers & Hoyweghen, 2020) and activity wristbands and smart watches in health and life policies (Jeanningros & McFall, 2020; McFall, 2019; McFall & Moor, 2018), could be implemented in risk calculations, thus overriding traditional actuarial calculations and allowing more precise risk profiling (Cevolini & Esposito, 2020; Zuboff, 2019). Second, new data types could enable personalized premiums, thus rewarding people with lower levels of risk. Hence, the price of insurance would not depend on risk groups but on 'individual' levels of risk (Gidaris, 2019; Zuboff, 2019). Third, the new technologies could offer tools for risk management; policyholders could be pushed, or nudged, to make better choices with the data-driven tools (Hull & Pasquale, 2018; Paluch & Tuzovic, 2017). Finally, behavioural insurance could provide new possibilities for customer relationship management and retention; digital tools supposedly make insurance more interesting

and ‘friendly’, promoting better customer engagement and intimacy (Jeanningros & McFall, 2020; McFall, 2019; McFall & Moor, 2018).

The media and research have critically scrutinized the effects of datafication in the fields of health and insurance. The use of behavioural data in insurance has been seen as a way to submit people to increased surveillance, or *dataveillance*, the intense monitoring of their digital traces (Lupton, 2016a; van Dijck, 2014; Zuboff, 2015). The new insurance schemes have been seen as coercive technologies that make people increasingly responsible for their health decisions (Charitsis, 2016; Fotopoulou & O’Riordan, 2017; Gidaris, 2019), submit people to certain health ideals (Ajana, 2017; Sanders, 2017), promote a form of unpaid labour (specifically in the case of employer-provided insurance schemes) (Hull & Pasquale, 2018; Till, 2019) and have the potential to narrow insurance pools so that insurance becomes a luxury for the more fortunate and affluent, thus exacerbating existing inequalities and excluding people from coverage (Cevolini & Esposito, 2020; Elman, 2018; König, 2017).

The fear over the worsening conditions of insurance is understandable, especially in contexts where the health care system has many shortcomings and gaps, leaving people outside of coverage, such as the U.S. health care system. In this sense, cautionary arguments and predictions about the potential effects of new insurance technologies are important. However, what they do seem to overlook is the fact that behavioural policies are still emerging. Although well-known insurers have started to offer behavioural insurance products, including John Hancock announcing in 2018 that it will from now on only sell behavioural life insurance policies, these products are still largely experimental, and they are prone to face regulative, market and infrastructural barriers (Barry & Charpentier, 2020; McFall, 2019; Meyers & Hoyweghen, 2018, 2020). As critical accounts rarely analyse real insurance cases empirically, they might end up reinforcing the vision of digital disruption and overlooking the context-specific issues at stake in insurance.

1.2 Practice-oriented perspectives

To overcome the shortcomings of this polarized debate, this research studies behavioural policies in a situated, practice-oriented manner. It draws from the field of sociology of insurance (Lehtonen & Van Hoyweghen, 2014; McFall et al., 2020) or critical insurance studies (Booth, 2021), hence taking the specificities of insurance technology seriously. Although insurance is a central infrastructure in modern

societies and an organizer of people's lives (Baker, 2002; Ericson et al., 2003; Lehtonen, 2017a; Lehtonen & Liukko, 2015; McFall, 2011), for a long time, it was not given proper sociological attention. However, after the seminal works of Ewald (1990, 2019, 2021b), the social scientific study of insurance developed into a lively field. Earlier insurance studies have approached insurance from a neo-Foucauldian perspective, perceiving it as the most significant governing agent beyond the state (Dean, 1999; Doyle & Ericson, 2004; Ericson et al., 2003; O'Malley, 2004) and as a moral technology that normalizes certain types of lifestyles while sanctioning others (Baker, 2002; Defert, 1991; French & Kneale, 2009; Lobo-Guerrero, 2014). These studies have been followed by research drawing from STS, focusing on the (knowledge) practices in which insurance technology is being done (Jeanningros & McFall, 2020; McFall, 2014; Meyers & Hoyweghen, 2017, 2020; Van Hoyweghen, 2014, 2007). This study is inspired especially by these STS-influenced studies, and it furthers the debate by examining the practices of developing behavioural life insurance policies and policyholders' everyday engagements with them. The perspectives of the sociology of insurance will be discussed further in Chapter 2.

Besides the sociology of insurance, this study draws from research analysing datafication from STS and practice-based perspectives. These include studies that empirically examine the practices through which datafication is achieved; these studies approach data-driven technologies and techniques, such as algorithms and automated decision-making, *as culture* and aim at *rehumanizing* them, departing from clearly techno-deterministic accounts (Kristensen & Ruckenstein, 2018; Pols et al., 2019; Ruckenstein, 2022; Ruckenstein & Granroth, 2020; Schwennesen, 2019; Seaver, 2017). Importantly, these approaches consider the perspectives, experiences and practices of the 'ordinary user', examining how people engage with algorithmic technologies in their everyday lives. They highlight the ambivalent relations that people have with data technologies, showcasing the creative tinkering and doing in which people engage, and cases of noncompliance (Gorm & Shklovski, 2019; Kennedy et al., 2021; Lomborg et al., 2020; Pols et al., 2019; Steedman et al., 2020). These approaches help to get a more nuanced picture of datafication; instead of a polarized narrative that employs narrow understandings of the central values at stake with these technological developments, these studies show that algorithmic technologies and data relations are complex and have multiple enactments (Sharon, 2015, 2017; Sharon & Zandbergen, 2016). These perspectives will be discussed in detail in Chapter 3.

Finally, this research draws from the sociology of markets, a field of study that examines markets as the outcomes of processes in which varied arts, practices and

devices participate, rendering things economic in a particular way (Callon, 2007; MacKenzie et al., 2008; McFall et al., 2017; Muniesa et al., 2007; Pantzar & Ruckenstein, 2015). Hence, from this perspective, markets need to be done practically with different human and more-than-human actors; the focus is on the relations and *attachments* that are created in a market and that simultaneously co-produce that market (Callon et al., 2021; McFall et al., 2017; Pantzar & Ruckenstein, 2015). Consequently, markets cannot succeed without connections between offerings and consumers (Callon, 2017). This research is influenced especially by the studies that highlight the role of emotions and valuations in ‘capturing’ consumers and making of these attachments (Cochoy, 2007; Deville, 2014; Gomart & Hennion, 1999; Hennion et al., 1989; McFall & Deville, 2017). These perspectives on market making will be further discussed in Chapter 4.

The experimentation around behavioural insurance products re-energizes many central questions around insurance and creates novel concerns. Previous research has discussed the effects that behaviour-based personalization might have on the fairness and solidarity of insurance practices (Cevoloni & Esposito, 2020; Meyers & Hoyweghen, 2017); however, studies have shown that the wildest visions of ‘individual risks’ and ‘personalized premiums’ are not feasible due to infrastructural, regulatory and market obstacles (Barry & Charpentier, 2020; McFall, 2019). Hence, the new operations have been seen as ways to experiment with and construct future markets and to ensure insurers’ ‘right to underwrite’ in a context of increasing regulation (Meyers & Hoyweghen, 2017, 2018, 2020). What has gained less attention is the data-driven lifestyle interventions implemented in behavioural policies; specifically, very little is known about the practices of developing such digital health services and the customers’ experiences using them. Furthermore, the relational aspects of behavioural life insurance policies are under-researched. Although the policies’ task as a marketing tool has been considered by previous studies (Jeanningros & McFall, 2020; McFall, 2019; McFall & Moor, 2018), there is not enough research on the effects that data-driven technologies have on the insurer–insuree relationship.

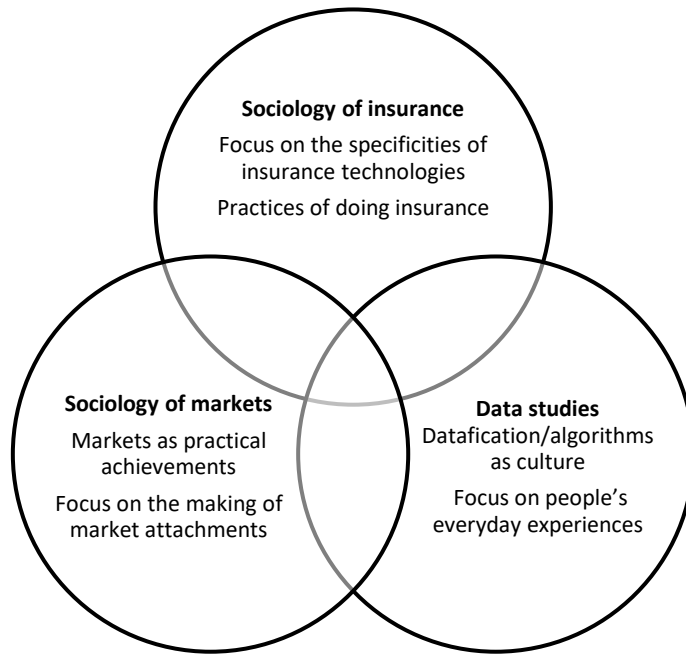


Figure 1. The theoretical approach of the study

1.3 The Finnish context

This research examines these issues in the context of two Finnish behavioural life insurance policies. Finland, as a Nordic welfare state, offers its citizens health care at a low cost and basic income in situations such as unemployment and disability. Furthermore, social insurance covers citizen's personal risks of old age (national pension and earnings-related pension), illness (public health care and sickness benefits) and death (survivors' pension). Thus, in Finland, private insurance mostly plays a supplementary role in providing security, as many risks are already covered by statutory insurance.¹ The life insurance policies examined in this study are, hence, not part of basic security in Finland but act as a form of complementary coverage. Still, this role of 'extra security' does not mean that private insurance would be insignificant in Finland; on the contrary, the popularity of, for instance, private health insurance policies has risen steadily during the last two decades (Sointu et al., 2021).

¹ The Finnish private and social insurance systems are, however, intertwined in many ways. For instance, pensions are arranged through private insurance companies although they are considered as part of social security. Hence, a clear separation between the two systems is not possible (Liukko, 2013).

Consequently, private insurance is an important consumer concern, affecting people's lives and setting standards for health care and for an adequate level of security (Lehtonen, 2014, 2017a; Sointu et al., 2021).

Finland is currently in the middle of major reform of social and health services in which the organizational responsibilities and production of these services are completely transformed. The reform has been a topic of prolonged political debate, with governments finding it difficult to reach a solution. The uncertainties created by the debate and the reform might have affected people's trust in the state's ability to provide services for them (OECD, 2021); consequently, this might have been a driver for people to opt for private solutions, including insurance. Generally, however, Finns report high trust in government and public services (OECD, 2021). Besides governmental actors, Finns seem to be satisfied with private insurers. According to the survey conducted by Finance Finland, a lobbying organization for the finance sector, Finns are generally happy with their insurance companies and believe that, in the future, private insurance will play a more significant role in providing security (Lapatto & Koivisto, 2022). Although this result should be taken with a grain of salt, it might have some truth to it regarding Finns' attitudes toward the insurance industry.

The Finnish private insurance market is highly concentrated, with four companies dominating it. The market is also clearly national; the most significant firms are Finnish, and there are no large international service providers (Lapatto & Koivisto, 2022). As many statutory insurance types are arranged through private insurance companies, the Finnish state has a clear interest in ensuring well-functioning insurance markets. The legislation on statutory insurance, insurance companies and pension institutions is advanced and planned by the Ministry of Social Affairs and Health. Finnish insurance regulations follow European Union (EU) directives enforced by national laws. Because of this EU harmonization (performed, for instance, through Solvency II Directive, Insurance Distribution Directive and Consumer Rights Directive), the basic principles of the Finnish insurance market align with other EU countries. Hence, the results of this study can be, at least to an extent, generalized to the European market. Finally, the insurance industry is supervised by the Finnish Financial Supervisory Authority (FIN-FSA), which ensures prudent conduct regarding solvency, risk management procedures, underwriting and investment risk.

The behavioural life insurance policies examined in this research are produced by two middle-sized life insurers. Both policies were introduced to the market in the late 2010s and framed as experimental market openings, or 'extra services'. In

essence, they are still regular life insurance products; that is, they do not use behavioural data to calculate risk. They both entail very similar features; they implement self-tracking devices and digital health services and gather customers' activity data. The new services are produced with partnering data analytics companies that deal with data collection and produce the mobile apps of the policies. Furthermore, the policies have experimented with different providers of digital health services, some of which are start-ups and some more established actors. While both policies engage in data collection, only one of the companies rewards its customers based on that data; the customers are given a bonus for their insurance coverage if they reach a certain 'activity status'. Otherwise, the data are collected for 'future operations'.

1.4 Research approach

Through the exemplary case of Finnish behavioural life insurance products, this research examines behaviour-based personalization in insurance from both the point of view of product development and customers' experiences with the new policies. The aim of this study is to overcome the often too narrow perspectives on datafication processes that are also employed when examining insurance. These include the supposed straightforward development of datafication, the disregard of people's everyday experiences, imaginaries of too-uniform neoliberal subjects and narrow conceptions of key values at stake, such as autonomy (Pols et al., 2019; Sharon, 2015, 2017). Although the core of experimental insurance products is still a regular life insurance policy, such novel technologies are not simply launched in the market. Instead, they hold a promise of potential economic value that must be configured with users in situated practices that combine technical and nontechnical (Lanzeni & Pink, 2021; Seaver, 2017). For behavioural life insurance (market) to succeed, insurers must find new ways of relating with consumers – more specifically, ways in which the collection of customers' behavioural data is central. Hence, this study analyses the co-constitution of 'behavioural life insurance' (markets) and the new (data) relations between insurance companies, experimental products and policyholders.

To achieve the aims that I have set for this study, I have formulated four distinct research objectives. First, I analyse the Finnish insurer's practices of experimenting with behavioural life insurance products and the aims and ideas behind the development work. Second, I examine the ways in which policyholders experience

behavioural life insurance products, engage with them and weave them into their everyday lives. Third, I study the relations that the new data practices configure. Fourth, I analyse the co-constitution of the new (data) relations, behavioural life insurance policies and their markets. Based on these objectives, I formulated the following research questions:

1. What kinds of ideas and aims guide the development of behavioural life insurance products, and how do they play out in insurance professionals' practices?
2. How do policyholders experience new insurance technologies and data practices and why do they engage with them in specific ways?
3. What kinds of relations do the new data practices create and how?
4. How is behavioural life insurance (market) co-constituted with new (data) relations between insurers and policyholders?

The following table summarizes these corresponsive research objectives and questions:

Table 1. Research objectives and questions

Research objective	Research question
To analyse the Finnish insurer's practices of experimenting with behavioural life insurance products and the aims and ideas behind the development work	What kinds of ideas and aims guide the development of behavioural life insurance products and how do they play out in insurance professionals' practices?
To examine the ways in which policyholders experience behavioural life insurance products, engage with them and weave them into their everyday lives	How do policyholders experience new insurance technologies and data practices and why do they engage with them in specific ways?
To study the relations that the new data practices configure	What kinds of relations do the new data practices create and how?
To analyse the co-constitution of the new (data) relations, behavioural life insurance policies and their markets	How is behavioural life insurance (market) co-constituted with new (data) relations between insurers and policyholders?

This research offers a corrective to the techno solutionist and critical discourses supposing that the implementation of data-driven technologies is a straightforward process that produces the anticipated revolutionizing outcomes. First, it shows that implementing a technology that comes outside the insurance industry is difficult. Insurance is a notoriously slow-moving industry with its own established technologies and practices. Hence, implementing technologies with vastly different operational logic is bound to create friction. Furthermore, by analysing the ideas, experimentation, labour and coordination involved in the making of new products, this study highlights that insurance is not a monolith or a singular logic but the result of situated practices. Second, this research shows how people's experiences with new insurance technologies come to matter in making behavioural life insurance (markets). There is very little research on policyholders in general; hence, it is instrumental to analyse policyholders' affect-laden relations with behavioural policies and the ways in which central values are energized and produced in these relations. Examining people's experiences allows us to think critically about what kinds of technology relations we want and what is valuable for us in these relationships.

The data for this research were collected collaboratively with the during two Finnish insurance companies experimenting with behavioural life insurance products. The empirical resources include expert interviews with insurance professionals, focus group discussions with real and potential customers and participant observations conducted in insurance professionals' meetings. Furthermore, freely available document data were used for contextualizing and supplementing the other empirical materials. For a long time, ethnographic approaches have been seen as the standard for analysing practices. As long-term participant observations were not feasible in the context of this research, an alternative route to the study of insurance practices was taken. Following the perspective that all methods are performative and interpretative (Atkinson & Coffey, 2003; Savage, 2013; Warde, 2005) and that practices consist of both procedures and their representations (Warde, 2005), this study uses interviews and focus group discussions as its main empirical resources.

The structure of this introductory essay is as follows. Chapter 2 discusses the essential literature from the field of sociology of insurance and examines the celebratory promises of behavioural insurance in light of this research. Furthermore, it formulates the research gaps that this study aims to fulfil. Chapter 3 discusses literature studying datafication and the data economy, feedback loops and personalization and people's everyday experiences with data. Chapter 4 concentrates on the sociology of markets literature, discussing the practices of doing markets and

the ways in which attachments, emotions and values come to matter in these processes. Chapter 5 summarizes the STS-influenced theoretical standing of this research and presents the research aims and questions, thus formulating the research approach. Chapter 6 describes the empirical resources and methods used in this study. Chapter 7 discusses the results of the four original research articles and presents them in the order of their publication. The introductory essay concludes with Chapter 8, which reflects on the study's contributions, limitations and ideas for future research.

2 INSURANCE LITERATURE

In this section, I discuss behavioural life insurance in light of the relevant critical insurance literature. I begin by giving a brief introduction to the basic principles of insurance, after which I discuss the three ways behaviour-based personalization is supposed to transform insurance operations: 1. risk and price personalization, 2. lifestyle management and 3. marketability and/or customer relationship improvement. I show what previous studies have said about these promissory capabilities, mirror them to a more classical insurance literature and define which questions need further investigation.

2.1 Insurance as a technique of risk

Insurance is a collective means of risk mitigation; it distributes the chance of harm to a group of policyholders who combine their resources to prepare for the misfortunes of life. This brief definition highlights the three requirements that, according to Ewald (1991), *insurable risks* have. First, risk must be *calculable*; it is the statistically determined probability that an unwanted event occurs. Insurance operations are based on the actuarial law of large numbers. With a large enough mass of individual cases brought together, an event starts to occur regularly; hence, its probability can be estimated. Still, at the same time, an insurable risk must be random in its occurrence; it is known at what rate the event occurs in the pool of insureds, but it is not known who faces it.

Second, and related to the previous requirement, risk is always *collective*. The calculation of risk is based on an abundance of cases pooled together. Hence, there cannot be ‘individual risks’; the chance of harm is always determined in relation to others. Consequently, insurance is always a collectivizing technique, as it creates pools that carry together the burden of risk. Yet, at the same time, insurance has its own individualizing tendencies. In underwriting practices, the individual risk status of a prospective customer is estimated with calculative devices, such as health questionnaires, in the case of life insurance (Van Hoyweghen, 2014, 2007). The

person's qualities are compared to statistical risk knowledge, and based on this estimation, they are placed in the 'right' pool with people who are deemed to have a similar level of risk. Insurance, thus, both collectivizes and individualizes risk (Dean, 1999; Ewald, 2019), and these tendencies are deeply intertwined; even individualized risk profiling is done in relation to others.

Third, risk is about *capital*. Insurance does not prevent risk from happening; instead, it covers monetary losses. Therefore, it covers only events in which a monetary value can be calculated. It cannot replace, for instance, sentimental or other types of values. Insurance institutions agree to carry the financial burden of a risk by bringing together a large number of people affected by the same risk. The premiums paid by the policyholders thus cover the risk for the 'pool as a whole' (Lehtonen & Liukko, 2015, p. 158). This way, risk is spread over the pool, which makes insurance an efficient and often more affordable means of security when compared to, for instance, saving (Lehtonen & Liukko, 2015). Hence, along with enabling the calculation of risk, the mechanism of risk pooling (and spreading) is vital for the financial viability of insurance operations.

Insurance holds the promise of gaining control over an uncertain world, as it renders uncertain events to calculable and predictable risks using actuarial techniques (Baker, 2002; Ericson et al., 2003; Hacking, 1990; O'Malley, 2004). Consequently, risk is not a naturally occurring phenomenon; nothing 'in the wild' is a risk in itself, and, at the same time, anything can be made into a risk (Ewald, 1991). Instead of just measuring and managing pre-existing risk, the calculative practices of insurance are performative; they generate and rearrange risk and produce what and who is regarded as insurable (Van Hoyweghen, 2014, pp. 334–336). Insurance is continuously used for objectifying new spheres of 'subjective' uncertainty into known and 'objective' risks that can be capitalized (Knights & Vurdubakis, 1993; Lobo-Guerrero, 2011). Thus, for the industry, risk is not only about harm but also an opportunity to turn a profit (Baker & Simon, 2002). As insurance companies generate a significant part of their profits through investing, they 'embrace' both insurance-related risks (such as mortality risk) and financial risks, which have been increasingly individualized (Baker & Simon, 2002; van der Heide, 2020).

Despite the definitions, principles and core techniques presented above, there is no single 'insurance logic' that all insurance institutions would follow. Instead, insurance is a field that changes with developments in economic, moral and political environments (Ericson & Doyle, 2004; Ewald, 1991; O'Malley, 2004). Insurance practices are always embedded in a specific regulative and cultural context; hence, what is regarded as fair and prudent conduct varies. For instance, although all

insurance policies entail a type of practical solidarity related to the mechanism of risk pooling, its degree varies between different contexts and insurance types from minimal ‘chance solidarity’ (each member pays according to their own risk, also known as *actuarial fairness*) to more subsidizing ‘risk’ and ‘income solidarities’ (the premiums of high-risk or poor policyholders are subsidized) (Lehtonen & Liukko, 2011). Furthermore, regulation determines which variables can be used to calculate risk and set premiums; for instance, in the EU, anti-discrimination legislation prohibits the use of genetic information (Joly et al., 2013; Van Hoyweghen, 2010, 2007) and gender (Rebert & Van Hoyweghen, 2015) in insurance. Hence, regulation (and the self-regulation of the industry) largely dictates what forms insurance operations can take.

Finally, it should be noted that calculating and pricing risk is not an exact science. Insurers consider many other things besides technical risk calculations when pricing insurance policies, such as the overall worth of the customer relationship and the marketability of the product (McFall, 2019; McFall & Moor, 2018; Van Hoyweghen, 2014). The history of the insurance business shows that the making of risk has often been based on rough estimates, heuristics and skewed data (Jureidini & White, 2000; McFall, 2011, 2014). Consequently, the history of actuarialism in insurance is not very long, and, still today, the calculations might entail uncertain elements. To combat this uncertainty and, perhaps more importantly, the problem of *asymmetric information* (customers withholding information that is essential for the underwriting of risk) and the connected issue of *adverse selection* (disproportioned selection of high-risk individuals in the pool) (Baker, 2003), insurers are eager to implement new sources of data in their calculations (Lobo-Guerrero, 2011, p. 126). However, new operations and data types, such as behavioural policies and the data they produce, may bring about new kinds of uncertainties and unknowns, constituting insurance as a risk (Booth & Harwood, 2016). Furthermore, they might contribute to the issue of asymmetric information in the sense that *insurers* have much more knowledge and power than the average person (Van Hoyweghen, 2007).

In the following sections, I examine the moral and political aspects of insurance, specifically in relation to the implementation of sensory technologies and behavioural data in insurance. I discuss the three ways behavioural data is supposed to transform insurance – 1. risk and price personalization, 2. management of policyholders’ lifestyles and 3. marketing and transformation of customer relationships – in light of critical insurance studies scholarship and show which of the promises might be unwarranted and which should be exposed for further examination.

2.2 Risk and price personalization

The first promise of behaviour-based personalization in insurance is that new digital technologies, such as activity trackers, smartwatches, accelerometers and in-home sensors, could help insurance companies tap into the benefits of more granular personal data, or ‘big data’. In industry and consultancy visions, these data are supposed to transform the ways in which insurance companies calculate and price risk (Meyers & Hoyweghen, 2018). Instead of relying on historical statistical information, insurers can gain access to data that are constantly generated by the very members of the risk pool. With this wealth of behavioural data, insurers are supposed to be able to hone their risk calculations to an unforeseen precision, even to an individual level (Cevolini & Esposito, 2020; Gidaris, 2019; Zuboff, 2019). Whereas in regular insurance, the risk status of the policyholder is estimated only in the underwriting process, behavioural insurance policies hold the promise of a continuous gaze on the customers’ lives and, thus, the ability to adjust the risk status and premium of a policyholder according to their data. This is supposed to alleviate the issue of adverse selection and, overall, make insurance more efficient, cost-beneficial and profitable (Paluch & Tuzovic, 2017; Wiegard et al., 2019).

To summarize, at the core of the envisioned benefits of the new policy types are individualized risk scores and personalized premiums, calculated by using the continuous flow of behavioural data. This scenario has received considerable critical attention, as it has been seen to threaten the solidarity principle of insurance (Cevolini & Esposito, 2020; Zuboff, 2019). Although many types of ‘insurance as we know it’ already divide people into different pools based on their estimated level of risk, the pools are never so precise that there wouldn’t be at least minimal subsidizing action within them (Lehtonen & Liukko, 2015, 2011). However, if risk is evaluated and priced based on the individual qualities and actions of a policyholder, the collectivizing mechanisms of insurance can unravel. Policyholders would no longer carry the risk for the ‘pool as a whole’; instead, everyone would pay a precisely calculated, individualized and actuarially fair price for their policy. For many, this is a worrisome prospect, as it could make insurance a commodity for low-risk individuals or affluent people, precisely excluding those who are in the most need of insurance (Baker, 2002; Ericson et al., 2003; French & Kneale, 2009; Heimer, 2002). Consequently, people who are deemed high risk or who do not want to subject themselves to continuous monitoring would be discriminated against, priced out of or denied access to coverage (Hull & Pasquale, 2018; Lupton, 2016a; Zuboff, 2019).

These scenarios, however, have many shortcomings. First, they do not engage thoroughly enough with the concept of insurable risk. As I explained in section 2.1, risk is always collective since probability cannot be calculated without a large number of cases. Thus, even if more granular data were included in the calculations, the data of an individual would still be compared with others' data (Barry, 2020; Barry & Charpentier, 2020; Frezal & Barry, 2019). Determining risk solely on the basis of individual data is thus impossible; without pooling and statistical methods, the pricing of insurance would be mostly guesswork (McFall, 2019). Relatedly, the price personalization conducted by behavioural policies currently on the market resembles more a customer loyalty programme or a bonus system usually applied in car insurance than 'real' personalization (Jeanningros & McFall, 2020; McFall, 2019; McFall & Moor, 2018). Second, it is questionable whether the technology used to construct continuous estimates and the risk scores of individuals is there yet. Data-driven technologies are subject to a lot of hype (and caution) and oftentimes, their abilities are overestimated (Ball & Webster, 2020). Third, regulation in the EU (and in Finland) prohibits insurers from relying on experimental data. To use a data type in determining and pricing risk, they must have solid evidence of its effectiveness. Finally, in the underwriting process, insurers consider many other things alongside the level of risk (McFall, 2011; Van Hoyweghen, 2007); it is unlikely that this would change radically, as, besides the accuracy of the calculations, insurers must consider the marketability of their products. Insurance policies with an extreme version of the behavioural model would not necessarily be attractive to consumers.

Still, this is not to say that behavioural policies do not have any effect on risk calculation and pricing. Behavioural data might lead to some degree of unpooling of risk. Risk pools might not consist of a single person, but they could become narrower. This tendency is not new to insurance; earlier neo-Foucauldian insurance studies showed that insurance unpool the very risks that it is trying to pool by pursuing more profitable, low-risk populations (Ericson et al., 2000, 2003; Heimer, 2002). Hence, the narrowing of insurance pools is a more long-term trend than simply an effect of behaviour-based personalization. Behavioural policies, however, can intensify this development as they could allow to select and attract customers who file fewer claims, creating more granular and profitable insurance pools for low-risk individuals (McFall, 2019; Meyers & Hoyweghen, 2017, 2018). Still, the lucrateness of this move depends on the market. In a small population, such as Finland, creating micropools might not be a profitable strategy. Nevertheless, for a larger international company or a start-up specializing in this kind of business, microtargeting might be profitable. Finally, the success of these operations might

vary in different policy types. For instance, the utilization of sensor-generated data can be more feasible in car insurance, where the practice has been taking place for a longer time (Cevolini & Esposito, 2020). Albeit not without problems and errors (Meyers & Hoyweghen, 2020), measuring driving style can be less tricky than, for instance, tracking people's activity.

The issue of risk and price personalization has been discussed quite undisputedly in previous research. It seems clear that the most extreme scenarios of behaviour-based personalization are unfeasible and that insurance will also be a collectivizing technique for risk mitigation in the future (Ewald, 2021a). Hence, this study does not primarily examine how the new data types affect insurance solidarity and fairness; instead, it builds upon the findings of previous research. This choice is partly informed by the fact that during fieldwork, the insurers themselves were not very engaged with the idea of risk and price personalization; at this stage of product development, the goal of using data in risk predictions seemed distant. In the empirical section, I touch upon the promissory visions of big data-enabled profiling and pricing and the ways in which insurers try to make them work. However, the focus of the study is more on the two final promises of behavioural insurance: risk management and the improvement of customer relations.

2.3 Lifestyle management

The second promise of behaviour-based personalization in insurance has to do with the new possibilities for risk management. The data-tracking devices implemented in insurance provide both a continuous gaze at policyholders' lives and a possible way to affect their behaviour. The idea is that the new digital tools' persuasive and 'nudging' elements combined with financial incentives (such as premium discounts, bonuses and cashbacks earned with a good enough tracking record) would create a feedback loop, helping insurers manipulate people's behaviour so that the probability of risk and the financial burden attached to it would decrease (French & Kneale, 2009; Jeanningros & McFall, 2020; Schüll, 2016). This more *proactive* relation to risk is often presented as a win-win situation; for instance, the Finnish insurers' leaflets and visionary roadmaps state that with the new policy types, insurers can help people lead safer and healthier lives by preventing risks, such as lifestyle diseases, from happening. Furthermore, these materials claim that behavioural policies will have a

positive impact on the wider society, generating, for instance, savings in health care expenditure.

This vision of a functioning feedback loop between insurance customers and their self-tracked data has been met with criticism. Notably, it has been seen as a way to create ‘guaranteed outcomes’ by imposing certain health ideals on people; technological manipulation and financial pressure push people to comply with desired ways of behaving, which then is supposed to enhance the predictability of risk and enable insurers to yield extra revenue or a ‘behavioural surplus’ (Zuboff, 2019). Consequently, behavioural policies are seen as a normalizing technique that pushes people to take more responsibility for their health and makes them more accountable for their everyday decisions (Lupton, 2016a; Sanders, 2017). Furthermore, it has been seen that behavioural insurance schemes financialize people’s everyday lives (French & Kneale, 2009) and are a form of unwaged labour, as data about simple everyday habits, such as steps taken and hours slept, are supposedly turned into greater profits (Charitsis, 2016; Gidaris, 2019; Sadowski, 2019).

The endeavours of insurance companies trying to manage people’s lives are not new. Insurance literature applying neo-Foucauldian perspectives has perceived insurance as a governing technology and as one of the main regulatory institutions beyond the state (Baker, 2002; Dean, 1998; Defert, 1991; Ericson et al., 2003; Ericson & Doyle, 2004; Heimer, 2002; Knights & Vurdubakis, 1993; O’Malley, 2000, 2004). Insurance governance is a form of liberal regulation in which freedom and choice are used as instruments for managing populations (Ericson et al., 2003). Insurance creates freedom by alleviating the financial burden of risk. Thanks to risk mitigation provided by insurance, buildings can be constructed, surgeons can operate and people are able to buy houses (Lehtonen, 2013). However, as the financial responsibility for risk is transferred to insurance institutions, insurers want to ensure that the insured behaves in a way that makes the chance of harm as slim as possible. A central concern that informs insurers’ actions is *moral hazard* – that is, the belief that people who are covered by insurance start engaging in more risky behaviour (Baker, 1996; Ericson et al., 2000; Leaver, 2015). Hence, insurance institutions aim to manage people by making them knowledgeable about risks and defining how they should act; the insured should lead prudent lives and bear the consequences of wrong choices (Ericson et al., 2003; Ericson & Doyle, 2004). In more practical terms, this kind of ‘moral regulation’ is performed, among others, through the calculative practices of insurance that define who and what is worth insuring, various preventive and educating measures, such as advertisement, and the terms and conditions of the

policies (Lehtonen, 2014; O'Malley, 2002; Van Hoyweghen, 2014; Zelizer, 1979). By using these means, insurance institutions and societies co-produce each other by shaping and distributing responsibility (Baker, 2002). Hence, insurance can be seen as a normalizing technology that offers conceptions of responsibility and justice.

In the case of life insurance specifically, researchers have seen that insurance institutions concentrate more on managing people's lives than on securing the risk of death (Ericson & Doyle, 2004, p. 286; Lobo-Guerrero, 2016). The life of a policyholder is seen as a subject of economic growth and as a site for intervention. The vitality of an individual is taken to be an expression of what he or she can achieve within a life course; hence, lifestyle management is essential to ensure that this potential is reached (Lobo-Guerrero, 2014, 2016). In other words, it is a key interest of insurers to keep policyholders alive and healthy and, thus, able to strive for a standard of liberal life that is intertwined with financial products, making them good, profitable customers (Lobo-Guerrero, 2014, 2016).

Relatedly, life insurance normalizes certain lifestyles and characteristics, such as a 'healthy body-mass index' or 'healthy limits of alcohol consumption' and presents them as a matter of choice (French & Kneale, 2009). This normalizing tendency has been especially evident in conversations related to the use of genetic information in insurance. While the use of genetic data was presented as unfair based on the argument that people cannot affect their genetic makeup, the use of lifestyle factors has been seen as morally acceptable since people have a choice in them. Hence, lifestyle is seen as something manageable and therefore subject to moral evaluations and interventions. The division between unfortunate 'risk-carriers' (the bearers of genetic risk) and the morally dubious 'risk-takers' (people engaging in habits that are deemed unhealthy) (Van Hoyweghen et al., 2007) is central in the case of behavioural insurance. In fact, the EU regulation prohibiting the use of genetic data in insurance may have increased European insurers' interest in considering lifestyle factors and managing *behavioural risk* (Meyers & Hoyweghen, 2017; Prainsack & Van Hoyweghen, 2020).

The data-tracking practices and the interventions of behavioural policies can be seen as efforts to estimate the moral character of the policyholder, minimize the risk of moral hazard and cultivate policyholders towards profitable liberal lives. However, neither these perspectives nor the critiques of the negative effects of the feedback loop capture the practices of developing such interventions and, perhaps more importantly, the policyholders' experiences of engaging with them. Overall, very little is known about how these endeavours unfold in real life. Hence, in this study, I examine both the insurance professionals' practices of developing such lifestyle

interventions and the customers' experiences of using them. How do these efforts work in real-life practices? On what premises are they built? What are the underlying ideas/inscriptions? How do customers experience these efforts? What kinds of negotiations and feelings are related to them?

2.4 Intimacy, relations and trust

The final promise of behaviour-based personalization in insurance has to do with its anticipated abilities to make insurance more interesting and marketable and to improve customer engagement and retention (Falkous & Callaway, 2018). With the implementation of data-tracking technologies, insurance companies can stand out from their market competitors and attract attention. For instance, John Hancock gained significant media traction when it announced in 2018 that, from that moment on, it would only provide life insurance policies with self-tracking features (Sullivan, 2018). Behavioural policies have been developed by many smaller start-ups, presenting themselves as the 'disruptors' of the market and, thus, a welcome breath of fresh air to the archaic world of insurance (Jeanningros & McFall, 2020; McFall, 2015, 2019, 2022). These new, more exciting, positive and playful aspects of insurance are supposed to attract customers; in the industry visions, the idea is that the personalization achieved with data-driven technologies renders insurance more customer friendly (Falkous & Callaway, 2018). For instance, with data-tracking technologies and mobile applications, insurers create a new channel to interact with their customers beyond the annual bill, thus inviting a new kind of personalized closeness or *customer intimacy* (Treacy & Wiersema, 1993). Informed by service design and marketing approaches that emphasize the co-creation of value, the new services are supposed to meet customers' needs (sometimes even better than they themselves would have anticipated), surprise them in a positive way and, consequently, ensure a long and prosperous customer relationship.

Alongside the tension between the collectivising and individualizing practices, there is another paradox in insurance; it is, at the same time, both very technical and fundamentally personal as people's 'private facts' penetrate and structure the distanced and mechanical insurance market (McFall, 2014). These 'private facts' are included in insurance practices in two main ways. First, insurance objectifies people's intimate aspects of lives, such as health, death and family relations, into manageable risks that can be pooled and priced. In underwriting practices, people's risk statuses

are assessed using calculative devices, such as health questionnaires, and based on these evaluations, they are placed into a pool of people who are deemed to have similar levels of risk. In this way, people's lives are turned into economic goods; as insurance works through collectives of people who mutually cover the risks, such as illness and death, customers' lives are included in the insurance policies (Lehtonen & Liukko, 2015; McFall, 2014; Van Hoyweghen, 2014). Thus, the technical measures of risk pooling and spreading are deeply intertwined with the personal and the intimate (Jureidini & White, 2000; Lehtonen, 2014; McFall, 2014; Zelizer, 1979).

Second, insurance is intimate in the sense of marketing and meaning making. As it is not a self-evident need, its significance must be communicated to consumers; 'insurance is sold, not bought', a common industry saying goes (Ericson et al., 2003; French & Kneale, 2009; Lehtonen, 2014). Historically, and still today, the importance of insurance has been justified by evoking affective and intimate elements alongside the 'logical' reasons for acquiring coverage. For instance, McFall (McFall, 2011) asserts that the success of 19th century industrial life insurance was attributed to the fact that, along with technical and calculative aspects, it engaged customers' feelings and sensibilities to underline its importance and to translate the product into a more calculable and palatable form. This was done through the marketing device of insurance doorstep agents, 'good average men', who were, along with collecting premiums and enrolling new clients, supposed to befriend the customer, act as a reassuring figure and help people to make the necessary calculations. Similarly, life insurance advertisements in Finland have relied on sensibilities by using gloomy images of missing marital spouses and breadwinners (historically, mainly the father but, coming to the late 20th century and the 21st century, also the mother) and by posing the question 'what if...?', presented in the advertisement with the ominous semiotic element of three dots (Lehtonen, 2014). These affect-laden images suggest that something bad might happen and evoke the question of the economic survival of the household. Without this connection to a sense of risk, worry, duty and love for others, people would likely be less interested in purchasing a life insurance policy. Thus, the economic value of insurance comes into being when it is embedded in aspects of life that cannot be given monetary value, such as love and relations; it can exist only when calculation and affect are made to intertwine (Ewald, 2019; Lehtonen, 2014; McFall, 2014; McFall et al., 2017; Zelizer, 1979).

Insurance marketing does not strive only to promote the purchase of any insurance policy; instead, its aim is to persuade consumers to get their policy from a specific service provider and to stay loyal to that company. Historically, the doorstep insurance agents mentioned above were a successful marketing device for honing a

tight-knit relationship with customers, resulting in customer loyalty that could last over generations (McFall, 2011). However, customer engagement has typically been a struggle in the insurance industry, as the closeness and intimacy employed in marketing do not readily penetrate the insurance–insuree relationship (Baker, 1994; French & Kneale, 2009; Jeanningros & McFall, 2020). Instead, insurance can be experienced as something distant, contractual and cold. Insurers experience a lack of engagement as problematic. In a context of saturated markets where price competition is seen as increasingly difficult and where marketing trends emphasize the importance of customer value, personalization and meaning, the relation between the customers and the insurance companies is gaining more attention. The ‘turn to lifestyle’, that is, insurers’ increased interest in different lifestyle-related interventions and services, can be seen as one way to enliven insurance (French & Kneale, 2009), a development to which behavioural insurance policies are also attached. With the new tools, insurers strive to scope and intervene in people’s everyday lives in new ways, thus supporting a new kind of intimacy between companies and policyholders.

In addition to the problem of customer engagement, insurers tackle a related core issue, namely the question of trust. Insurance is ultimately a promise to offer monetary compensation if an unfortunate event defined in the contract occurs. It works following the principle of *Uberrima fides*, a legal doctrine that supposes that all parties of an insurance contract act in good faith and reveal all relevant information (Lobo-Guerrero, 2013). Thus, trust is a core value of insurance, often seen as a static entity required for business operations and transactions (Guiso, 2012). However, critical insurance studies have questioned this understanding of trust as given and argued that it is achieved situationally through different interactions, practices and actions (Booth & Harwood, 2016; Lobo-Guerrero, 2013; Tranter & Booth, 2019). Insurers generally approach their prospective customers with distrust and employ different sources of information and calculative devices to ensure the customers’ reliability and to avoid issues of asymmetric information and adverse selection (Ericson & Doyle, 2004; Van Hoyweghen, 2014). This process of checking and scanning marks people as trustworthy if they are able to get coverage (Baker, 2002). Insurance also distributes trustworthiness by way of the claims process, where people’s reliability is again evaluated, also through the requirements that insurance contracts set for environment and action (Baker, 2002). Thus, from the insurers’ point of view, trust does not mean blind reliance on the customers’ prudent behaviour; instead, it must be enacted through different practices.

What is perhaps less discussed is people's trust in insurance. To transfer their risks to insurance companies, people need to feel secure that insurers will come through with their promises. For instance, distrust in insurance companies has been linked to underinsurance in the case of Australian bushfire insurance, with people experiencing deep uncertainty regarding expected pay-outs. In this context, insurance itself is enacted as a risk, providing a rationale for opting for alternative means of security (Booth & Harwood, 2016). Therefore, gaining people's trust is important for the insurance business, as its effects on a company's reputation can be seen as capital for future transactions (Lobo-Guerrero, 2013). However, consumers have much more limited means of scanning and checking companies' reliability than the companies have for scoping prospective customers. Critical insurance scholars have argued that the issue of asymmetric information is at stake here. Although often understood as the problem of customers withholding information that is vital for insurers, asymmetric information can be seen as referring to the power imbalance between insurance companies and their customers; insurers have much more knowledge of the risks, rights and principles that insurance operations rely on (Van Hoyweghen, 2007). Thus, consumers' reliance on insurance institutions must rely, in large part, on 'blind faith' and reputational information.

This research focuses on these relational aspects of behavioural life insurance policies. I examine how the introduction of self-tracking technologies and behavioural data in life insurance affects the relationship between insurers and their customers, specifically in terms of intimacy and trust. The technologies bring new elements to the insurance-insuree relationship, and they are supposed to make it more meaningful and personalized. As they scope a more granular picture of people's everyday lives, they could render new kinds of 'private facts' about consumers usable in insurance. Additionally, they use different kinds of affect-laden images in their marketing; instead of marketing death (Shun-ching Chan, 2012), the focus is shifting towards well-being and vitality (French & Kneale, 2009). These changes are supposed to increase the appeal of (life) insurance, making it more marketable and have an effect on the customer relationship. However, with the new data operations, the question of trust is revitalized: what do the new 'lively' data types (Lupton, 2016c) and digital technologies mean in terms of trust, and can insurers handle the uncertainties that they bring about?

3 DATA LITERATURE

In this chapter, I connect the specific issue of behavioural insurance to the wider context of datafication and formulate my own approach that emphasizes the situatedness of datafication processes and considers people's everyday experiences with data technologies. I first discuss datafication and the data economy, the larger trends at play in the digital transformation of the insurance industry. Second, I look at some of the techno solutionist promises of datafication in more detail. Namely, I discuss the visions of functioning feedback loops, hypernudges and personalization, techniques that are central in behavioural policies. Third, I turn to the users and discuss research analysing people's engagements with algorithmic technologies and, specifically, their self-tracking practices.

3.1 Datafication and the data economy

Datafication is a term used for describing the processes through which previously unquantified life events are converted to digital data (Kennedy et al., 2015). In the contemporary world, masses of 'user data' are continuously generated about people's online behaviour, geolocation, driving habits and physical activity, to name a few (Birch et al., 2021; Sadowski, 2019, p. 5); these digital traces, or 'big data', are aggregated, stored, sold and analysed with algorithmic techniques (Amoore & Piotukh, 2015, 2016; Fourcade & Healy, 2017; Meijas & Couldry, 2019; van Dijck, 2014). The promise of datafication is to *optimize* processes and services, making them more personalized and cost-efficient; this is also supposed to generate new business opportunities. Data-driven logics and practices influence both private and public domains, ranging from marketing and finance (Aimé et al., 2022; Darmody & Zwick, 2020; Hansen, 2021; Mackenzie, 2015; Ruckenstein & Granroth, 2020) to education and policymaking (Chen & Aitamurto, 2019; Lupton & Williamson, 2017; McStay, 2020; Poel et al., 2018; Ramaekers & Hodgson, 2020). For this research, a focal point is *the datafication of health*, particularly the promise of precision and preventive medicine to alleviate the burden of chronic disease and unsustainable health care

costs with data-driven solutions, such as wearable health technologies (Blasimme et al., 2019; Lupton, 2014; Ruckenstein & Schüll, 2017; Schüll, 2016; Swan, 2012). These promises are appealing to life insurers, as the prevention of lifestyle diseases at an early stage would help decrease the expenditure on indemnities.

Besides corporate and governmental actions, the effects of datafication are experienced in people's everyday lives as they engage with, for instance, self-tracking technologies (Lupton, 2016a, 2016c; Neff, 2016; Ruckenstein, 2014; Schüll, 2016), recommendation algorithms and targeted advertisement (Liao & Tyson, 2021; Ruckenstein & Granroth, 2020; Siles et al., 2020) or when their lives are negatively affected by automated decision-making, for instance, in the contexts of credit scoring, social work or services for the homeless (Crawford, 2021; Eubanks, 2018; Mau, 2019). Evidently, datafication describes both how digital systems prompt the use of information as a resource for value creation and how data-driven practices permeate everyday life (Flensburg & Lomborg, 2021, p. 2) This study scrutinizes both of these aspects of datafication, as it focuses both on the insurers' motivations and practices of creating new data-driven services and on the customers' experiences of engaging with them.

Clearly, datafication is inseparable from the pursuit of economic gain. Masses of data are packaged, sold and resold at a bewildering pace. The companies dealing primarily with this data accumulation, analysis and reselling are among the wealthiest; furthermore, the more traditional industries who buy the aggregated data use them for value creation (Sadowski, 2019). Hence, data are highly valuable for different kinds of service providers. These new forms of economic action, focusing on the accumulation, circulation and analysis of data, have been conceptualized as digital capitalism (Fourcade & Kluttz, 2020; Sadowski, 2020; Sharon, 2018b), data economy (Lammi & Pantzar, 2019; Lehtiniemi & Haapoja, 2020; Lehtiniemi & Ruckenstein, 2019; Marelli et al., 2020) and/or platform capitalism (Srnicsek, 2017). The key idea behind these economic models is the so-called data imperative: the ambition is to extract all possible data (Amoore & Piotukh, 2015; Fourcade & Healy, 2017; Sadowski, 2019). All data are seen as potentially valuable 'raw material' that may entail hidden insights, revealable with the right analytical tools. The data imperative has turned around operations for value creation, reconfiguring data from a by-product to an asset (Birch et al., 2021). Consequently, data have become a commonly used currency that people exchange for ostensibly free online services (Fourcade & Kluttz, 2020; Lanier, 2013; van Dijck, 2014).

Data are (supposedly) used for value creation in at least five different ways: profiling and targeting people, optimizing systems, managing and controlling things,

calculating probabilities, building new services and growing the value of assets (Sadowski, 2019, pp. 5–6). However, many data technologies and their expected benefits are still emerging, with their development depending on their ability to harness their *potential value* (Geiger, 2020; Lanzeni & Pink, 2021; Meyers & Hoyweghen, 2018). Hence, the data economy imaginary, holding the position that it is justifiable to exploit data for value creation by the way of innovation, savings and increased profits, is important in steering action in digital capitalism and in making these technologies become reality (Beckert, 2016; Lanzeni & Pink, 2021; Lehtiniemi, 2020).

Datafication has been a topic of lively scholarly and societal criticism. Data-driven operations are not seen just as ways to improve and optimize services for everyone; they entail numerous problematic features. For instance, datafication is seen to lead to increased surveillance or *dataveillance*, that is, the intense monitoring of people's digital traces, threatening people's privacy and causing security issues (Andrejevic & Gates, 2014; Briggs et al., 2016; Couldry & Yu, 2018; Haggerty & Ericson, 2000; Lupton, 2016a; Lupton & Michael, 2017; Thylstrup, 2019; van Dijck, 2014; Yeung, 2017). Zuboff (2015, 2019) conceptualizes the way in which increased visibility is used for value creation as 'surveillance capitalism'; she sees it as an extractive and parasitic economic model in which profit-making is based on the practices of scanning, predicting and controlling people's behaviour. However, instead of harvesting data that is just 'out there', corporations use people to generate specific kinds of data to use for value creation (Sadowski, 2019). People receive little to no compensation for their efforts; this is seen as exploitative, unwaged digital labour (Charitsis, 2016; Charitsis et al., 2019; Gidaris, 2019; Till, 2014). Furthermore, they are supposedly mostly unaware of the surveillance and extraction that they are exposed to; hence, these operations are seen as threatening individuals' self-determination, market democracy and human nature (Zuboff, 2019).

This asymmetry of power between the actors dealing with data collection and those who are subject to data extraction has been conceptualized as digital or data divide (Andrejevic, 2014). People are seen to have little power when compared to data giants that can perform significant governing actions, shifting power from the state to private corporations (Andrejevic, 2014; Flyverbom et al., 2019; Taylor, 2021). The algorithms that deal with the deciphering of the data insights and make decisions based on them are usually corporate property veiled in secrecy. Thus, algorithms are seen as *black boxes*, data monitoring systems whose workings are mysterious (Pasquale, 2015). This imbalance of power and lack of transparency are seen as problematic because, contrary to what *dataistic* perspectives suppose, data are not

objective and do not automatically produce superior insights (van Dijck, 2014). Instead, data might be skewed from the very beginning, and the algorithms that deal with the data might entail biased, sexist and/or racist suppositions (Crawford, 2021; Eubanks, 2018; Noble, 2018). These biased insights reinforce existing inequalities and might have direct effects on people's lives, such as receiving low credit scores (Kear, 2017) or being (wrongly) targeted for social work interventions (Eubanks, 2018). To alleviate these issues, some have argued for increased transparency in algorithmic operations, which would supposedly increase the accountability of firms and help make digital capitalism more equal (Pasquale, 2015)².

In recent years, the forementioned issues of privacy, bias and transparency (along with the issues of fairness and explainability) have been the focus of ethical discussions considering datafication, algorithms and artificial intelligence (AI). There has been a boom of AI ethics, with initiatives coming from research, NGOs and industry, aiming at mitigating these problems and creating better practices (cf. Coeckelbergh, 2020; Dubber et al., 2020; Hagendorff, 2020; Lauer, 2020; von Braun, 2021). Furthermore, concerns over the effects of datafication have been reflected in the regulations. In the EU, the most notable regulative effort is the General Data Protection Regulation (GDPR), implemented in 2018, and the forthcoming AI regulation, which aims to constitute Europe as the ethical forerunner and, simultaneously, as an attractive market (European Commission, 2021).

Although these critical perspectives, ethical considerations and regulative efforts are very necessary in the face of the rapid changes that datafication brings about, they have their limitations. Many of the claims of this critical data studies literature are speculative and theoretical (Flensburg & Lomborg, 2021; Sharon, 2017); hence, it is often not specified which of the problematic practices are hypothetical and which are real. In many cases, data technologies are not as advanced as critical (and optimistic) voices suppose (Crawford, 2021; Ruckenstein & Schüll, 2017). Furthermore, with their focus on the large-scale power dynamics of datafication, critical studies often fail to acknowledge cases of resistance, noncompliance and appropriation (Sharon, 2018a). This can lead to unrealistic configurations of users; while techno-enthusiasts picture a rational and empowered consumer, critical scholars imagine a too-uniform neoliberal subject who is an unaware victim of data

² The transparency argument has been criticized quite widely. Even the developers of algorithmic systems do not know the 'whole' system and all the qualities of algorithms; hence, defining algorithms clearly and rendering them transparent is impossible (Amoore, 2020; Ananny & Crawford, 2018; Seaver, 2017).

power (Pols et al., 2019; Sharon, 2017). This perspective strips away all possibilities for agency and the creative sides of power, casting people as mindless dupes who are either under false consciousness or completely submitted (Latour, 2004; Sharon, 2015). This is not a realistic perspective, and it disregards people's experiences, positioning the critic as the one who has the 'right' knowledge (Latour, 2004).

Many AI ethics perspectives, even though well-meaning, are quite limited. They typically focus on a certain set of issues, including privacy and fairness, aiming to form principles that can be technically operationalized (Hagendorff, 2021). However, this approach disregards more nuanced and complex considerations of central values and narrows them to an idealized, measurable and calculable form that can be rendered to codes of conduct and technological features (Hagendorff, 2021; Rességuier & Rodrigues, 2020). This approach to ethics is, thus, perhaps incapable of considering the ambivalent and not-so-ideal typical positions and feelings people experience in relation to data technologies. Furthermore, the focus on certain predetermined issues can conceal other considerations that would better capture the harms at stake in algorithmic operations. For instance, the focus on 'privacy' can hide larger value transgressions that occur in the field of digital health when data companies take up tasks from the public sector (Sharon, 2021b). Furthermore, 'privacy', understood as an individual quality that can be protected through informed consent, might not be enough to encompass the environment of continuous and multidirectional data extraction; the value of *autonomy* might better help challenge the presumptions about the naturalness of data collection (Couldry & Yu, 2018).

Finally, although the GDPR has been seen as a move in the right direction, it has many shortcomings in ensuring secure data relations. According to Marelli et al. (2020, pp. 12–13), the scope of the GDPR is limited in four major ways: 1. the traditional data protection principles are not sufficient to regulate big data practices, 2. the regulatory categories are vague, 3. the notice-and-consent model has limitations and 4. the tools to control data processing operations are insufficient. For instance, informed consent is difficult to achieve, as the end-user licensing agreements (EULAs) of digital services that inform people about the collection and use of data are one-sided and non-negotiable legal documents that users have no chance of reading and comprehending (Sadowski, 2019). The EULAs also highlight the 'individual control' approach (Lucivero & Prainsack, 2015), which reframes societal issues as individual ones; yet individual control of data subjects is insufficient in reducing and controlling the risk and harms caused by the expansion of data-driven technologies (Lehtiniemi & Ruckenstein, 2019; Sharon & Lucivero, 2019).

The aim of this research is not to completely bracket the critical and the AI ethics viewpoints but to use a practice-based approach to avoid some of the pitfalls presented above. Hence, this study does not perceive datafication and algorithmic technologies solely as things that threaten to corrupt human nature, culture and ways of life (cf. hostile worlds argument, (Sharon, 2021a; Zelizer, 2005)). Instead, following Seaver (2017), I see them *as* cultural; they are enacted in practices that blend technical and nontechnical and they are influenced by ideas, practices and values. Hence, this study emphasizes that datafication is the product of human effort and labour, not something that inevitably occurs. Furthermore, I approach datafication from the perspective of people's everyday engagements with algorithmic technologies. This viewpoint highlights the fact that people are not just enslaved and exploited, but they do have some knowledge and understanding of datafication and they are able to negotiate and contest data practices; hence, they have agential capabilities (Kennedy et al., 2020).

In the following two sections, I explore more closely the aspects of datafication that are the most important for understanding the insurer's design practices and the policyholders' everyday experiences. First, I discuss the techno-solutionist ideas that influence the development of behavioural policies: feedback loops, hypernudge and personalization. Second, I discuss research on people's everyday engagements with data-tracking technologies, especially with health-tracking devices.

3.2 Feedback loop, hypernudge and personalization

Datafication is not just about collecting data but creating feedback loops that transmit the data back to users, 'enabling them to orient themselves in the world' (Kennedy et al., 2015, p. 1). Feedback loops are built into different algorithmic systems, such as self-tracking devices, health applications, entertainment and music services and targeted advertisements. In these systems, the data that are collected about people's (online) behaviour are used to create easy-to-digest, meaningful and actionable insights; these insights are then fed back to people with the aim of affecting their behaviour (Ruckenstein & Pantzar, 2017; Swan, 2013). Hence, these systems participate actively in the relationship with the users; they don't provide information passively; instead, they monitor the users continuously and utilize the flow of real-time information to target users with tailored suggestions and to push

them towards certain decisions and behaviours (Lupton, 2012; Schüll, 2016; Yeung, 2017).

Feedback loops implemented in algorithmic systems make use of the idea of *nudging* (Thaler & Sunstein, 2008). Nudging refers to a form of behaviour modification in which people are gently pushed towards decisions that are supposedly better for them (Thaler & Sunstein, 2008). The model derives from behavioural economics, applying psychological insights and bracketing the classical conception of the rational actor. Instead, people's capabilities of making beneficial long-term decisions are seen as limited. Behavioural nudges are supposed to aid people in making better decisions; the aim is to build a 'choice architecture' that facilitates the making of the 'right' decisions without limiting other choices. Hence, nudging is seen as a form of 'libertarian paternalism'; it is claimed to help make better decisions without manipulating people or tampering too much with their self-determination (Gane, 2021; Lilley et al., 2017; Thaler, 2017; Thaler & Sunstein, 2008). These conceptions resonate, for instance, with the viewpoints of the Quantified Self (QS) community, the movement of techno-enthusiast self-monitoring trailblazers from which the current commercial forms of self-tracking took inspiration (Nafus & Sherman, 2014; Sharon, 2017; Wissinger, 2017). Analysing the key conceptions of the QS, Ruckenstein and Pantzar (2017) show that the feedback loop is not perceived as a controlling or manipulating mechanism; instead, the information and insights produced by the technologies are seen as empowering people to change their behaviour.

Nudging can happen in both offline and online worlds. When it comes to the application of these principles in the context of the digital realm, one can talk about *micronudging* (Schüll, 2016) or *hypernudging* (Yeung, 2017). The use of data technologies leads to an increased pace and accuracy of the nudges, as the feedback loop enables more precise targeting of the pushing elements. Despite the viewpoints that nudges don't force people to do anything and, hence, don't pose a threat to their autonomy, some have perceived that the use of data-driven personalized choice architectures is a form of manipulation (Yeung, 2017) that invades people's decisional privacy (Lanzing, 2019). Furthermore, the logic of a feedback loop is seen as a way to create 'guaranteed outcomes', making people's behaviour more uniform and predictable, hence enabling service providers to yield larger profits (Zuboff, 2019).

The perspectives concentrating on the coercive aspects of nudging fail to recognize the fact that the mechanism of a feedback loop enables the possibility of 'gaming' the algorithm. In this sense, people are not just victims of logic, but they might try to consciously affect the way the algorithm sees and actions upon them,

making themselves up in a more beneficial light (Kear, 2017). Furthermore, micronudging can be seen as being beyond the heteronomy/autonomy conception that understands autonomy as the absence of external constraints (Sharon, 2015). Nudge can be seen as a form of governance that ‘both presupposes and pushes against freedom’ (Schüll, 2016, p. 328); it is constituted by the tensions between ‘enterprise and submission, responsibility and discipline’ (Schüll, 2016, p. 328). Hence, nudging technologies suppose a user who welcomes the devices to actively participate in his or her life in hopes of alleviating the burden of self-management; they configure the user as a ‘*passive*, choosing self who will want to employ devices to actively help her’ (Schüll, 2016, p. 330). This challenges the straightforward understanding of autonomy as an individual quality, moving away from either–or positions and showing that it can be understood in more relational terms (Stoljar & Mackenzie, 2000).

The relational perspectives are employed in studies that show, on the one hand, how people are approached as living parts of algorithmic systems (Ruckenstein & Pantzar, 2017) and, on the other hand, how such looping technologies become prosthetic parts of the human (Lupton, 2012). Hence, in the context of intense human–machine interaction, the demarcations between the human and the technology, self-determination and coercion are not clear-cut (Hayles, 2017; McFall & Moor, 2018; Sharon, 2017). This interaction and intertwining of the self and data technologies has been made sense of, for example, using the terms *dividual* (Deleuze, 1992) and *data double* (Haggerty & Ericson, 2000), both referring to the habits, preferences and patterns that algorithmic technologies sense, record, store and use, creating an archive of the user. Thus, the technologies produce another self, one that is not identical to the ‘offline self’ but can have its own agency. Because of this mix of the self and the technology, the human–machine relations can be quite intimate and affective (Kennedy & Hill, 2018; Lomborg et al., 2020; Pantzar & Ruckenstein, 2015; Pink, Lanzeni, et al., 2018); this intimacy of surveillance characterizes the contemporary world and current market practices (Berson, 2015; Ruckenstein & Granroth, 2020).

Personalization is another component of these close-knit human–machine relations and a related mechanism to feedback loop and micronudge, all engraved in most algorithmic systems. Continuous data streams provide a new kind of visibility for marketers, which ostensibly enables them to tailor their goods and prices based on people’s preferences and past histories. Hence, the goal of datafied markets is to ‘see’ the customer from inside as opposed to gazing at them from the outside; the ideal is ‘personalized presence’ that feels like a natural part of people’s everyday lives

(Fourcade & Healy, 2017). Digital marketers aim to create a seamless alignment between their goals and those of their customers, matching the customers' intentions at the right moment with personalized and meaningful content, creating a kind of 'hyper-relevance' (Darmody & Zwick, 2020; Zwick & Bradshaw, 2016).

However, scholars have pointed out that the personalized 'you' created in these processes is not really an individual configuration; instead, it is always produced in relation to the larger category, connecting a person to a reference group (McFall & Moor, 2018; Moor & Lury, 2018). Marketers rely on a kind of 'mass personalization' in which 'data and algorithms are continuously readjusted to exogenous pre-existing forms of knowledge' (Kotras, 2020, p. 10); hence, personalization does not rely solely on the user-produced data but makes use of more traditional categorizations of consumers. In people's everyday experiences, these configurations of the targeted individual might feel annoying if they fail to match with the 'real me' or creepy if the scoping feels too intense (Liao & Tyson, 2021; Lupton, 2020; Ruckenstein & Granroth, 2020; Siles et al., 2020).

These perspectives on the mechanisms of feedback loops, hypernudges and personalization help, on the one hand, to contextualize the reasoning and motivations behind the insurance professionals' actions. On the other hand, they help to see these endeavours in a more critical and nuanced light, highlighting the fact that the looping and nudging effects in algorithmic systems do not happen automatically but depend on the complex relations between the technologies and the users. Furthermore, they raise the question about behavioural policies' ability to make these mechanisms work and to adequately consider the affect-laden relations and the different valuations involved in them.

3.3 Everyday engagements with algorithmic technologies

In scholarly debates on the effects of datafication, studies examining how people understand, experience and engage with algorithmic technologies have received less attention than their more theoretical and critical counterparts that concentrate on power relations evident on a societal scale. In this section, I discuss research analysing people's everyday encounters with data technologies, particularly with health-tracking devices. This study deals with a specific branch of human-technology relations: policyholder's self-tracking practices, conducted with sensory technologies, such as activity wristbands, smartphones or smartwatches. Over the

last decade, self-tracking has become increasingly popular, evolving from the do-it-yourself culture of the QS movement (Nafus & Sherman, 2014) towards more commercial forms, promoted by companies such as Fitbit, Apple and Oura (O’Neill, 2017; Salmela et al., 2019; Schüll, 2016). Although the practice of measuring oneself goes way beyond the introduction of the current algorithmic technologies (Crawford et al., 2015), the data-driven devices open up new possibilities for intense and real-time self-monitoring and disciplining measures; furthermore, they connect the person to a large network of data relations (Gabriels & Coeckelbergh, 2019).

Because of the commercial (and ideological) success of self-tracking practices and the novel elements that data technologies bring to the act of self-monitoring, self-tracking has gained much scholarly attention in recent years, with an influx of research examining different aspects of it (Ajana, 2018; Fors et al., 2020; Lupton, 2016c; Neff, 2016). Many of these studies represent the ‘datafied power’ approach (Ruckenstein & Schüll, 2017), which conceptualizes self-tracking as neoliberal subjectification (Foucault, 1991) that imposes certain health ideals onto people and pushes people to become ‘entrepreneurial selves’, that is, self-governing individuals who carry responsibility over their health (Elias & Gill, 2018; Lupton, 2016a; Moore & Robinson, 2016; Till, 2014). Some studies see that a focus on continuous quantification can override the sensing body and authentic experience, forcing people to rely on the perception and guidance of external devices (Sharon, 2017; Smith & Vonthehoff, 2017; Toner, 2018). A popular move among the critical perspectives is to employ the Foucauldian concept of ‘biopolitics’ (Foucault, 1990), perceiving self-tracking and the datafication of health as a mode of power that regulates the ‘vital characteristics’ of a population (Ajana, 2017; Isin & Ruppert, 2020; Reiby et al., 2022; Sanders, 2017).

However, in this section, I am more interested in studies that turn to another Foucauldian conception, approaching self-tracking devices (and other data technologies) as ‘technologies of the self’ (Foucault, 1988), thus shifting attention from the larger power struggles to the productive sides of technology relations. These studies employ ethnographic and other qualitative methods and analyse users’ perceptions, everyday experiences and relations with data technologies, resembling ‘living with data’ and STS-influenced ‘data-human mediations’ approaches (Ruckenstein & Schüll, 2017). They highlight the user’s agency and the ways in which technologies might also open up new possibilities for action and care, particularly when embedded in complex human-technology arrangements (Kennedy et al., 2015, 2020; Kristensen et al., 2021; Kristensen & Ruckenstein, 2018; Lomborg & Frandsen, 2016; Pantzar et al., 2017; Pantzar & Ruckenstein, 2015; Ruckenstein,

2014). By engaging with these studies, I want to highlight both that self-tracking practices implemented in insurance might not be as normalizing and coercive as critical perspectives suppose – and that they might not be as empowering and engaging as the techno-enthusiasts perceive (Sharon & Zandbergen, 2016). Consumers embrace self-tracking technologies despite unequal power relations between people and data companies and privacy threats (Kristensen & Ruckenstein, 2018). However, people have their own context-dependent ways of using technologies, often in contrast to the intended ways of engagement.

The experience of self-tracking is seen as a flow with multiple temporalities. Self-tracking practices entail temporal lock-ins and sequences (Lomborg et al., 2018); users find meaning from these regimes by, for instance, being able to look at long-term trends and developments. Hence, the rhythmicity of self-tracking is based on repetition (Vigren & Bergroth, 2021); the same routines and actions need to be measured over and over for the technologies to be able to produce meaningful insights. However, other rhythms, such as ‘falling in and out of rhythms’ (Vigren & Bergroth, 2021, p. 146) and ‘(un)willingness to adhere to specific rhythms’ (Vigren & Bergroth, 2021, p. 150), come to play in the practices. Furthermore, these rhythms and temporalities might be collective (Pantzar et al., 2017) or connected to larger historical, contextual, institutional and sociocultural dimensions (Saukko & Weedon, 2020), all shaping the experience of human–technology engagements.

Self-tracking practices follow the principle of quantification, but unlike some critical perspectives perceive, users are usually able to modify their practices quite flexibly (Lomborg et al., 2018, p. 4591). People’s everyday self-monitoring practices are not rigid and systematic; they do not typically engage with the technologies in a controlled manner but, instead, combine knowledge eclectically, using the self-tracked data as material for daily decisions and their own theories about health (Pantzar & Ruckenstein, 2017). These encounters with ‘data doubles’ can be creative and playful, and they can influence people’s reflections on themselves, others and their lives (Ruckenstein, 2014).

Thus, self-tracking practices can be seen as a creative and experimental process in which users co-evolve with technologies (Kristensen & Ruckenstein, 2018). People pursue self-improvement by trying out devices and applications that work on different aspects of the self, amplifying some while downplaying others; in this co-constitutive process, users might learn about themselves, get bored or disenchanted with the technologies and find interest and connections elsewhere (Kristensen & Ruckenstein, 2018). This kind of relational work can be an open-ended process where people try out the devices and invent ways of using them, often with different

end goals than the tech industry, health sector and, in this case, insurance companies hope for (Pols et al., 2019). For instance, technologies push for the ‘optimization’ of daily routines, but this might not be the goal of the user at all (Lomborg et al., 2018). Hence, the technology relationship can also be misaligned and ‘fail miserably’ (Pols et al., 2019). However, although the devices might be abandoned, the learned insights might affect people’s behaviour beyond active self-tracking practices (Clark et al., 2022).

People, thus, do not uncritically adopt the intended ways of using the technologies, and their self-tracking practices might change over time. This shows that people have agential capabilities in self-tracking practices. They don’t merely passively allow technologies to work on them, but they negotiate or resist data practices and engage actively in making, interpreting and co-living with their data (Kennedy et al., 2020; Lupton, 2019). Even though people might experience self-tracking as fun and useful, they do not want to be ruled by the technologies (Lyll & Robards, 2018); thus, they need to negotiate the roles that the devices are allowed to have in their lives.

Emotions and feelings play an important role in these negotiations and affect the ways in which people understand and experience algorithmic practices (Kennedy et al., 2020). People’s encounters with their visualized data or data double are often affective (Ruckenstein, 2014). Users might experience feelings such as joy, frustration and shame in relation to how their data represents them. These affective qualities are often seen as part of the ‘nudging’ machine, motivating people to strive for better results. However, studies show that people can try to manipulate their self-tracking practices and data to avoid negative feedback and the difficult feelings related to it (Gorm & Shklovski, 2019; Lomborg et al., 2018). For instance, people might regard only data that show them in a positive light and avoid using self-tracking devices on days when they know their scores will be subpar. These selective practices can be seen as ‘episodic use’ of the devices, aiming at protecting the user from emotional discomfort and upholding the feeling of taking care of one’s physical activity (Gorm & Shklovski, 2019). Clearly, self-tracking practices are often subject to ambivalent feelings, as they entail both pleasurable and demoralizing elements (Lupton, 2019). Data practices can be a source of hope, anxiety and doubt (Lomborg et al., 2020; Pink, Lanzeni, et al., 2018); they might help users to gain a sense of control over their health goals or they can enact new demands and uncertainties (Bergroth, 2019). These emotional responses are context dependent (Lomborg et al., 2020); for instance, the experiences and emotions of a chronically ill patient

measuring oneself in a health care context are very different from those of a person engaging in mundane self-tracking practices.

Although often seen as individualistic, some studies have explored the relational aspects of self-tracking, specifically in relation to care. Instead of a technological problem, episodic use of self-tracking technologies can be seen as a way for users to engage with the technologies in a way that considers complex life situations and social relations (Gorm & Shklovski, 2019). For instance, people might choose not to track some events to spare themselves from physical and emotional distress, thus breaking the inscription of the device to care for themselves (and others). People take a lot of steps to make technologies ‘work’ for them and to adjust them so that they would truly help them in their specific life situations (Gorm & Shklovski, 2019; Kristensen et al., 2021). For instance, in the case of Danish gymgoers, these efforts include a kind of ‘data work’ that is performed collectively with peers and personal trainers, aiming at mending and preventing various forms of brokenness (Kristensen et al., 2021; Pink, Ruckenstein, et al., 2018). Hence, for Danish gymgoers, the sense of well-being is not achieved in a dyadic relationship with a self-tracking device but in the sociality of data work (Kristensen et al., 2021). Algorithmic systems, thus, need to be continuously and creatively ‘repaired’ to make caring arrangements possible (Schwennesen, 2019).

The studies discussed above have mostly analysed voluntarily chosen forms of self-tracking that are not attached to a larger institutional context. Hence, it is important to consider to what extent these insights are generalizable to behavioural insurance products as, albeit being voluntary, they constitute a specific institutional setting for self-tracking practices. The implementation of data tracking technologies in insurance has been contextualized as pushed or coerced self-tracking (Lupton, 2016a), a form of involuntary data work that submits people to increased surveillance and normalization (Christophersen et al., 2015; Till, 2019). Such arrangements of self-tracking might allow different agential capabilities for people coming from different socioeconomic backgrounds. On the one hand, wealthier individuals can more easily opt out of pushed forms of self-tracking even if it meant that they lose the financial rewards or other benefits attached to the schemes. On the other hand, less well-off people might rely more on the self-tracking related forms of compensation, which hinders their opportunities to decide for themselves.

Still, as there is very little research on how people engage with institutional self-tracking practices, the studies on voluntary data-tracking can inform us about commonly shared experiences. In the focus group discussions, some insurance customers reflected on how they had forgotten about the insurance-relatedness of

their self-tracking practices and many reported that they had stopped tracking altogether; hence, at least in the case of Finnish behavioural life insurance policies, the institutional context is not very coercive. Thus, I feel confident in my decision to mirror my case study to the research looking at voluntary forms of self-tracking. This is not to say that there is nothing special about the institutional context: it is not the same to track by yourself and to track in an insurance arrangement. In the analysis, I try to be sensitive towards these relational aspects.

Institutions often picture that self-tracking practices should be continuous, as this is a way for them to tap into the promises of data flows and increased visibility: optimized, personalized and more profitable services (Gorm & Shklovski, 2019; Sadowski, 2019). However, as presented above, people's self-tracking practices are creative and episodic, and they do not adhere to the proposed ways of engaging with technologies. Furthermore, people discard self-tracking devices easily; at the moment, there is an overflow of data-tracking technologies on the market, making abandonment easy (Kristensen & Ruckenstein, 2018). Instead of being able to harvest neat and all-encompassing data sets, institutional actors can be left with 'broken' data, full of breakages, missing and sporadically collected data (Pink, Ruckenstein, et al., 2018). Although this data might be salvageable and useful in some ways, generally data analysis does not deal well with missing data (Pink, Ruckenstein, et al., 2018). Hence, institutional actors, including insurers, might have a difficult time implementing data tracking operations if they don't consider people's practices of engaging with the technologies.

These empirical insights into self-tracking practices help to understand better and situate insurance customers' experiences with behavioural policies. They also raise a lot of questions regarding behavioural policies' abilities to consider the typical ways of engaging with self-tracking technologies. Do insurance customers engage in episodic self-monitoring? How do they negotiate their technology use and the boundaries of acceptable interventions? How do insurers deal with people's unruly ways of engaging with technologies?

4 RELATIONALITY AND THE DATA-DRIVEN INSURANCE MARKETS

In this section, I turn from the insurance and data literature to more general research on market making. First, I discuss how critical studies have approached customer-led marketing perspectives, highlighting the importance of knowing customers and co-producing value with them. I then turn to the perspectives of the sociology of markets and discuss how market devices and experimentation are at stake in market making. After that, I discuss how emotions and valuations come to matter in the forging of markets, specifically in creating *market attachments*. In this way, I highlight the perspective that behavioural insurance markets are a practical achievement that depend on the insurers and the new policies' abilities to connect with consumers.

4.1 Scoping, testing and doing markets

As discussed in Chapter 3.2, instead of scoping from the outside, with the increased real-time information about people's behaviour, marketers aim to see the customer from within the market, using their data to target and customize offerings and anticipate their needs (Fourcade & Healy, 2017). One technique for 'knowing' the customer and for achieving these aims is customer relationship management (CRM). CRM promises the ability to profile or 'mass personalize' (Kotras, 2020) individual consumers based on their attributes, behaviours and profit contribution and to target individual consumers (or segments) with tailored products and promotions and to measure promotional effectiveness and return on investment (Knox et al., 2010; McFall & Deville, 2017; Vargha, 2018). Hence, the feedback loops engraved in technologies are supposed to automate consumption and influence marketing, utilizing the digital traces that consumers leave behind (McFall et al., 2017; McFall & Deville, 2017). These technologies, however, do not just scope the objective reality of markets but are constitutive of it. They perform ideals about consumers and produce digital doubles of them. Yet, the technologies are prone to fail in their endeavours of making consumers knowable, as the demassified profiles might not

readily represent the ‘real you’ (Knox et al., 2010; Lupton, 2020; McFall & Moor, 2018; Moor & Lury, 2018; Ruckenstein & Granroth, 2020).

CRM represents the wider trend of customer-centric marketing approaches that perceive that value is co-created in the interaction between the company and the consumer. The premise is that in the digitalized world, increased competition and networked, informed and empowered customers push market actors to shift the focus from products and transactions to continuous ‘relationship management’ and personalized consumer experiences of value creation (Knox et al., 2010; Prahalad & Ramaswamy, 2004; Ramaswamy, 2014; Zwass, 2010). Beyond CRM, customer-centric marketing approaches include participatory methods, such as service design, which are applied in both the private and public sectors. These techniques promise improved interaction between service providers and customers, better customer experiences, innovation, democratic/public participation and increased profits or savings (Bellos & Kavadias, 2021; Penin, 2018; Trischler et al., 2019; Trischler & Westman Trischler, 2021; Vink et al., 2019). The development of Finnish behavioural life insurance policies relies heavily on these approaches.

Critical marketing research has conceptualized the co-creation models of marketing in terms of governance; instead of disciplining consumers, they govern through freedom, constituting the consumer as a ‘free person’ who can participate in the ‘mutually beneficial’ company–customer relationships. This moves the consumer closer to the production of goods and services; for instance, the technique of value co-creation allows for the exploitation of valuable forms of consumer labour (Zwick et al., 2008). Instead of being a passive target of market offerings, consumers’ knowledge and skills are integrated into the making of these offerings, constituting them as important information commodities for firms (Charitsis et al., 2019; Zwick & Denegri Knott, 2009). Hence, so-called ‘biopolitical marketing’ strives to extract value from consumer communications, lifestyles and subjectivities, highlighting the non-hierarchical relation between companies and customers and fading out the roles of the marketer and the consumer (Zwick & Bradshaw, 2016).

This intertwining of production and consumption has become increasingly central with the explosion of consumer-generated data (Ritzer & Jurgenson, 2010). In the digital economy, (automatized) prosumption (or the prosuming machine) may lead to economic models in which services are free but prosumers are not specifically compensated for their labour (Ritzer, 2015; Ritzer & Jurgenson, 2010). Relatedly, personal data is often exchanged for otherwise ‘free’ services, be it online games, social media or various computer programmes and applications. These seemingly free services hide the structural asymmetries between the service provider and

customer; instead of coercing people to give out their data, services are cast as ‘good deals’ or ‘bargains’, making use of the idea of reciprocity (Fourcade & Kluttz, 2020). In this line, the behavioural life insurance policies that I examine cast the new features as ‘free’ or ‘extra’ services, though people are expected to give out their data in return.

Although new digital technologies have changed the speed and scale of monitoring, historically, these practices of market surveillance and presumption are not new (McFall, 2014; McFall et al., 2017; Ritzer & Jurgenson, 2010). Marketers have used a plethora of techniques, ranging from government statistics to neighbourhood profiling, for rendering consumers socioeconomically, anthropologically and psycho-sociodemographically knowable (McFall & Deville, 2017). These practices of scoping consumers can be seen as techniques for doing markets. Following a markets-as-practice approach (Pantzar & Ruckenstein, 2015), this study perceives that markets don’t just emerge out of thin air; instead, they need to be devised with different kinds of techniques and artefacts (Callon et al., 2007). Hence, markets are the outcomes of processes in which *market devices*, ‘the material and discursive assemblages that intervene in the construction of markets’ (Callon et al., 2007, p. 2), render things economic in a particular way. For instance, the production, circulation, valuation and pricing of goods are accomplished with various market devices, such as (targeted) advertisement, pricing models and analytical techniques (Muniesa et al., 2007).

One such device for market making is experimentation, a key feature of customer-centric approaches and service design. Markets are objects and products of research; they are performed through experimental practices and testing, ranging from financial engineering to market research (Callon et al., 2007; Lezaun, 2007; MacKenzie et al., 2008). Generally, actor–network theory (ANT)-influenced economic sociology argues that economic theories and concepts are performative; instead of just depicting the world as it is, they intervene in it, making the economic models a reality (Çalışkan & Callon, 2010; Callon et al., 2021; MacKenzie, 2006b, 2006a; MacKenzie et al., 2008). In other words, economic theories influence market practices and the ways in which the economy is understood and ‘done’. Experimentation allows markets to test potential consumers’ reactions to recently developed products without having to commit fully to new offerings and the production market knowledge without the demands of academic research (Meyers & Hoyweghen, 2020). In the case of behavioural insurance, Meyers and Van Hoyweghen (2020) show how economic experiments take part in the constitution of future insurance markets: they help constructing insurance infrastructures and

provide insights on which data to collect and how. The case of Finnish behavioural life insurance products can also be seen in this light; the insurers see the new operations as a starting point for future operations and as a way to probe potential practices and markets.

However, despite these devising efforts, products and markets fail if people do not engage with the offerings. In many ways, the main purpose of activities such as market research, consumer surveillance and co-creation activities is to secure stable *market attachments*, that is, to ensure that goods and consumers are connected (McFall et al., 2017; McFall & Deville, 2017). Emotions and valuations are hugely important in making these relationships; hence, in the next section, I discuss in more detail the role that they play in market formation.

4.2 Emotions and values in market making

Emotions and mainstream economic theory have been separated for a long while, with the rational and self-interested ‘homo economicus’ playing the main character of economics. However, the early market theorists, including Adam Smith, Max Weber and John Maynard Keynes, were not strangers to considering the role of emotions in economic life (Schmidt & Conrad, 2016). Thus, the rationalistic way of considering economic action is not as ‘natural’ as it is often supposed. For instance, the idea of a ‘self-interested’ person, discussed by Hobbes and Smith, was not originally considered as a description of reality but as an ideal type, provided as an alternative to the ‘violent passions’ of the aristocrats and leaders of the time (DuGay, 2005). The self-interested person was, then, a performative concept; it gradually brought into existence a new category of people and a new rationalistic way to think about economic action (DuGay, 2005; Hacking, 1986; MacKenzie et al., 2008). Recently, emotions have gained more attention in economic theory, specifically in the field of behavioural economics. This branch of economics brackets the homo economicus and instead emphasizes the bounded rationality of humans, the different cognitive biases, the role of emotions in decision making and, importantly, the ways in which affect could be devised to ‘nudge’ people towards better decisions (Berndt, 2015; Lilley et al., 2017). Still, the perspective is very individualistic, focusing on the qualities of a person and supposing that emotions are innate and biologically universal.

In economic sociology, emotions are understood as a particular form of thinking that underlies all action; they highlight values, interests and meanings in social life (Barbalet, 2006; Schmidt & Conrad, 2016). Hence, from the point of view of economic sociology, emotions do not oppose reason but give it direction. Meanings, purposes and values are secondary to the emotions of the social actors who express them (Barbalet, 2006). Economic actions and sentiment are thus intertwined; for instance, money and the practices of pricing can be entangled with affect-laden cultural meanings (Bandelj et al., 2017; Zelizer, 1979, 1994, 2017). However, the perspectives highlighting the role of emotions in directing economic action have been criticized for being too individualistic. Instead, emotions can be seen as embedded in market institutions; these institutions are not purely rationalistic but are products of actors interacting in different social contexts in which emotions are central (Barbalet, 2006). Hence, interactions between economic actors inflict emotions and, respectively, emotions have an impact on these interactions (Bandelj, 2009). Furthermore, economic sociology emphasizes the work that professionals (and people in general) have to perform to control their own and others' emotions, evoking and suppressing feelings in relation to the sense of what they 'ought' to feel (Hochschild, 1979). Thus, people are not just directed by their emotions; they control their feelings to direct their behaviour. As the boundary between the 'intimate' and the 'commercial life' is supposedly becoming increasingly permeable, more and more of this kind of 'feeling work' is required (Hochschild, 2005).

Economic sociology has thus analysed what markets and/or capitalism do to pre-existing social relations, highlighting the dissolving effects that capitalism has on social ties (cf. Hochschild, 2005). The 'real' social ties are seen to be removed from the economic ones; studies like these contrast the uncorrupted world of the intimate with the market, separating them into two 'hostile worlds' (Deville, 2014). This perspective has been challenged, for instance, by Zelizer (2011), who argues that economic actions are produced by underlying social processes and highlights the coexistence of the economic and the affective. However, Zelizer (2011) still presumes that social ties are formed outside of the market or that they ultimately belong to another sphere. Furthermore, she does not consider the role that different materialities (such as nonhuman actors and various market devices) play in market making (Deville, 2014). ANT-inspired sociology of markets moves away from perspectives that concentrate exclusively on human actors and supposes that markets just reflect underlying social ties (Callon, 2017; McFall & Deville, 2017). Following this line of research, the focus is shifted to the relations and attachments that are created *in* a market and that simultaneously co-produce that market through

varied arts, practices and market devices (Callon et al., 2021; McFall et al., 2017; Pantzar & Ruckenstein, 2015). The idea is that through these practices and actors, markets effectively create new connections and new ways of being; in fact, markets would not succeed without the creation of these attachments (Callon, 2017). From this perspective, people's attachment to market offerings (and vice versa) is a key issue that markets need to solve. Social studies of markets help explain, on the one hand, how connections between products and people are created and, on the other hand, why some products fail to attach people (McFall et al., 2017).

Affective and emotional experiences are central to the creation of attachments. This is a perspective that research focusing on the material aspects of market making has perhaps tended to overlook in the past (Deville, 2014). However, several scholars have highlighted the role of emotion in the making of attachments (Deville, 2012, 2014; Gomart & Hennion, 1999; Hennion et al., 1989; McFall, 2011, 2014), showing that attachments are not achieved solely through rationalistic calculations, infrastructures and dependencies but through the careful managing and devising of emotions. Marketers practice 'emotion management' both to manipulate consumers' inner states and to connect with them, strengthening the ties between people and economic practices and values (McFall et al., 2017). Although not straightforward, the attachment process can be structured and organized using market devices that produce emotions and affect agents (Callon, 2017). For instance, to create desire, marketers picture the consumer while designing the offering, inscribing him or her to the service or product. Hennion et al. (1989, p. 208) put it as follows: 'what makes us desire (-) is to have in front of us not a strange object but an object that already contains us since we have been incorporated in it by a thousand techniques from the moment of its production' (p. 208).

Besides desire, many other feelings need to be considered for the market to 'have' (McFall & Deville, 2017) or to 'capture' (Cochoy, 2007; Seaver, 2019) consumers; for a service or a product to become enduring, it needs to fit people's varied relations and values in itself (McFall et al., 2017). These relations and associations that tie 'us' are achieved practically. They also involve various forms of valuation: social practices of giving worth (Helgesson & Muniesa, 2013; Lamont, 2012). From the perspective of the STS-influenced field of valuation studies, value is not seen as a static entity but as something that is done relationally. There can be multiple values co-existing in a situation; these values are enacted in practices and they need to be coordinated, or they might fail to coordinate (Mol, 2002). Emotions play a role in the practices of valuation; as they are (at least partially) culturally produced, they are tightly connected to norms and values. Studies have examined, for instance, how emotions are at stake

in the practices of valuing traded assets in financial markets (Lange & Scheve, 2021) and how emotional reactions to the burning of Notre-Dame de Paris in April 2019 can be approached as valuations (Heinich, 2021). Hence, emotions inform us when something *valuable* to us is at stake, and, alternatively, they show when something is *despised* in a specific cultural context (von Scheve, 2018). With datafication, many commonly shared values, including solidarity, autonomy and privacy, are seen to be at stake (Prainsack & Van Hoyweghen, 2020). Hence, to understand how data and digital economy affect political and social life, it is important to examine how they uphold, erode and transform public values (Kennedy et al., 2015). In the context of this study, I see that negative emotions indicate when boundaries are crossed – that is, when important values, such as autonomy, are threatened. Positive emotions, on the other hand, can be seen as an indication of successful attachment to the technologies, an alignment in which values such as trust and intimacy are enacted in a satisfying manner, at least momentarily.

Sociologists often think that emotions are socially and culturally produced; yet, their perspectives can still be individualistic, confining emotions to the cognitive and bodily processes of a person (von Scheve, 2018). From the point of view of affect theory, affects are not seen as contained experiences of the individual but as something that moves between human, nonhuman and partially human bodies (Clough & Halley, 2008). I draw from affect studies the notion that affects are not contained solely in the individual body but are entangled in complex sociomaterial relations. I analyse how emotional states and bodily experiences are borne in connection to the behavioural insurance machine and the wider context of self-tracking practices. This perspective follows the conception that individual experiences have been (partially) produced within relations; bodies learn to be affected in connection to other bodies and technologies (Clough & Halley, 2008; von Scheve, 2018). However, this study does not subscribe to a single theory of emotions and affects, as they are multiple and not always very distinctive and/or clear (Schmidt & Conrad, 2016). Emotion as a concept is difficult to define strictly; although some studies have made distinctions between the elements of emotions (regarding, for instance, that emotions have some intentionality, while a component of emotion, affect, does not (von Scheve, 2018)), I see that all these components are parts of similar phenomena. Hence, I use the terms emotion, affect, sensibility and feeling interchangeably, focusing on the ways in which affects work as elements of valuation and market making; emotions are, thus, explored as part of the larger project of the creation of market attachments.

5 RESEARCH APPROACH

In this chapter, I discuss the research approach of this thesis. I summarize the STS-influenced and practice-oriented standing of this study, highlighting the focus on the ways in which technologies and markets are being enacted, co-produced and coordinated. Furthermore, I detail how the three branches of research introduced in the previous chapters (sociology of insurance, data studies and sociology of markets) help me to formulate the research questions and objectives.

5.1 Co-constituting behavioural insurance and the new data relations

As this study examines the ways in which behavioural insurance (markets) and a new kind of data-driven customer relationship are enacted, it aligns with approaches that perceive algorithms and/or datafication (Seaver, 2017) and markets (Abolafia, 1998) as culture. From this perspective, algorithmic technologies and markets do not come from ‘the outside’ to corrupt social practices and relations; instead, they themselves are done in practices that can create new attachments (Deville, 2014; McFall et al., 2017; Sharon, 2021a; Zelizer, 1979, 2011). Hence, this study makes the theoretical commitment that reality, in its many versions, is accomplished in practices in which various human and nonhuman actors participate; this perspective is familiar to the different pragmatist and practice theoretical approaches to social life (de Certeau, 1984; Halkier et al., 2011; Schatzki et al., 2005; Warde, 2005) and, particularly in the case of this research, to STS (Callon, 1998; Latour, 2005; Law & Mol, 2002; Mol, 2002, 2021).

This research is situated at the intersection of the STS-inspired literature streams of sociology of insurance, data studies and sociology of markets; hence, it draws its theoretical assumptions heavily from STS. I see that reality is achieved through different procedures and relations that need to be coordinated and that the more connections a thing (a technology, an artefact, an idea) collects, the more stable and

‘real’ it becomes (Latour, 2005; Mol, 2002). Furthermore, I see that nonhuman actors, such as data technologies in the case of this research, have agency beyond human intervention (Latour, 1992, 2005; Lupton, 2016b; Schwennesen, 2019). To summarize, I understand reality to be a complex, multiple and often contradictory thing that is achieved through action and that needs coordinating practices to hold oneself together (Law & Mol, 2002; Mol, 2002). These enactments of reality entail normative and political ideas that are inscribed and black-boxed to technologies (Akrich, 1992; Latour, 2005; Mol, 2002, 2013). However, as reality is seen as a collective and practical achievement, it entails the possibility of alternative enactments or, as well-known STS trope goes, things could be done otherwise (cf. Felt et al., 2017).

A central stream of STS literature has analysed the co-production of science, technology and society (cf. Callon, 1984; Jasanoff, 2004; Latour, 1987), highlighting the fact that they cannot be studied separately; instead, they must be understood as mutually constitutive of each other. In other words, the making of a scientific fact or a technology always involves societal values and relations; in return, scientific facts and technologies participate in constituting social order. In the case of this study, the focus is on how behavioural life insurance products become ‘real’ through the connections and attachments that they manage to create and how, simultaneously, these new connections affect consumers, values and what is regarded as a desirable customer relationship. Hence, this study explores how behavioural insurance markets and data-driven customer relationships are (attempted to be) co-constituted and how emotions and values are at stake in these practices.

5.2 Research objectives and questions

Following the STS-inspired and practice-oriented literature streams of sociology of insurance, sociology of markets and research focusing on people’s everyday engagements with algorithmic technologies, this study analyses the practices through which the new insurance products are enacted. It focuses on the digital lifestyle interventions (or risk management techniques) implemented in the policies. Furthermore, it examines the effects that these data-driven technologies have on customer relationships. These are both under-researched aspects of behavioural insurance policies, as previous research has focused more on regulative perspectives and on the impact that risk and price personalization could have on insurance

solidarity. The focus on the relational aspects of insurance is, however, vital for understanding how and why behavioural life insurance policies (may not) succeed and, relatedly, whether scenarios of extreme personalization and unpooling of risk will become reality. If behavioural insurance policies fail to connect with consumers in a way that can be leveraged to produce data-driven services (i.e., if they fail to engage customers and are not able to gather their behavioural data), the market for the new insurance products might not succeed. Therefore, analysing both the practices of developing behavioural policies and people's experiences engaging with them helps to develop the notion that datafication processes need to be done relationally; the digitalization of services is not a straightforward development but involves tinkering, coordination and frictions.

Following these perspectives, the objectives of this research are as follows. First, it analyses the Finnish insurer's practices of experimenting with behavioural life insurance products and the aims and ideas behind the development work. Second, this research examines the ways in which policyholders experience behavioural life insurance products, engage with them and weave them into their everyday lives. Finally, the thesis analyses the relations that the new data practices configure and the ways in which the new (data) relations, behavioural life insurance policies and their markets co-constitute each other.

The main research questions of the study are as follows:

1. What kinds of ideas and aims guide the development of behavioural life insurance products and how do they play out in the insurance professionals' practices?
2. How do policyholders experience new insurance technologies and data practices and why do they engage with them in specific ways?
3. What kinds of relations do the new data practices create and how?
4. How is behavioural life insurance (market) co-constituted with the new (data) relations between insurers and policyholders?

The four original publications have more precise research questions that are presented when discussing each article in detail (Chapter 7, sections 7.1–7.4). The ways in which the articles help to answer these larger research questions are reflected in Chapter 7.5 and Chapter 8. The following table shows which article helped to answer which larger research question. The first research question was examined in the empirical article analysing insurance professionals' practices, while the second question was scrutinized in the two articles looking at customers' experiences. All four articles helped answer the two final research questions.

Table 2. Research questions and the articles answering them

Research question	Articles helping to answer the research question
What kinds of ideas and aims guide the development of behavioural life insurance products and how do they play out in the insurance professionals' practices?	Article II: 'Tracking lives, forging markets'
How do policyholders experience new insurance technologies and data practices and why do they engage with them in specific ways?	Article III: 'The uncertain element: personal data in behavioural insurance' Article IV: 'Trouble with autonomy in behavioural insurance'
What kinds of relations do the new data practices create and how?	Article I, 'Contested technology: Social scientific perspectives of behaviour-based insurance' Article II: 'Tracking lives, forging markets' Article III: 'The uncertain element: personal data in behavioural insurance' Article IV: 'Trouble with autonomy in behavioural insurance'
How is behavioural life insurance (market) co-constituted with the new (data) relations between insurers and policyholders?	Article I, 'Contested technology: Social scientific perspectives of behaviour-based insurance' Article II: 'Tracking lives, forging markets' Article III: 'The uncertain element: personal data in behavioural insurance' Article IV: 'Trouble with autonomy in behavioural insurance'

6 METHODS AND EMPIRICAL RESOURCES

In this chapter, I discuss the methodological choices for this research. First, I describe the two behavioural life insurance policies that form the empirical case of the thesis. I discuss the features of both policies and outline the insurance companies and other actors behind them. Second, I explain the course of the fieldwork from the first contacts to the final meetings. Third, I discuss the methods used for data collection more thoroughly. Fourth, I cover how I coded and analysed the data and how the different empirical materials worked together. Finally, I reflect on the ethics of the fieldwork, especially the pros and cons of a collaborative research design.

6.1 Research site and focus

The first Finnish market experimentation around behavioural insurance took place in 2015. At that time, Company X, a Finnish mutual insurer with a medium market share in life insurance, introduced a new policy that provided access to digital health services and offered a free activity wristband for those enrolled. The same year, Company Y (also a medium-sized Finnish mutual life insurer, not included in this study) piloted a service with a very similar concept: life insurance that entailed activity tracking and gave access to few health applications. This experimentation, however, ended up being short-lived and already exiting the market by 2017. Company Z, a proprietary insurer that is part of a large Nordic financial conglomerate, introduced its behavioural policy in 2017. The concept differed from Company X's policy in the sense that it included a form of financial reward: policyholders were able to earn a raise in their insurance coverage, either +15% if they achieved the status of an 'everyday athlete' or +25% if they achieved the status of an 'active athlete'. Otherwise, Company Z's policy relied on data-driven services similar to Company X's policy: activity tracking and digital health services. This study concentrates on the policies of Company X and Company Z, both of which are still on the market (in some form) at the time I am writing this (May 2022).

After their introduction, these pilot policies gained traction in the media with several news stories and longer coverage in current affairs programmes.³ The stories were somewhat critical in their tone, raising questions about the effects that continuous tracking could have on people's mental health, the privacy issues that behavioural policies might entail and the consequences that they could have on the solidarity and fairness of insurance operations. Besides news coverage, behavioural life insurance products were circulated on social media; all companies experimenting with the products relied heavily on influencer marketing, contracting popular lifestyle bloggers and influencers to test their products and endorse them online. The influencers produced blog entries and shorter posts about behavioural life insurance products on various platforms. Following the practice of influencer marketing to create 'authentic' content (Bishop, 2021; Yesiloglu & Costello, 2020), in these posts, the influencers weaved the policies into their everyday lives, for instance, by telling stories about their own struggles of maintaining healthy habits and a balance between the different aspects of life. Through this marketing channel, insurers were targeting a largely female audience. Later, when I had conversations with the insurance professionals of both Company X and Company Z, it was confirmed that the target segment for the products was young, (somewhat) health-conscious women who had or were planning to have children.

Even at a closer look, the principles and structures of both Company X's and Company Z's behavioural life insurance policies are quite similar. They are both experimental market openings, still under development while being available for customers. They both include similar properties, such as self-tracking features and access to health applications, 'additional services' that are produced by a network of service providers; they both use these services to collect policyholders' activity data. Still, essentially, they are regular life insurance policies that operate following the traditional principles of the industry, using mortality tables and actuarial calculations to determine risks and premiums. Hence, at this stage of product development, the activity data are not used in risk calculations, but data are being collected with potential future uses in mind.

The policies are compatible with several types of self-tracking devices, including activity wristbands, smartwatches and smartphones, manufactured by different companies. At first, Company X distributed free activity wristbands on the side of the policy (although this was not the only device that could be attached to the policy). The 'freebie' was a simple device produced by a Finnish manufacturer of self-tracking technologies; it recorded the user's sequences of activity and passivity based

³ These media texts are not cited to protect the anonymity of the companies.

on the movement of their hand, pushing reminders to move on a cyclical schedule. The device was used for capturing consumers' interest, encouraging them to engage in self-tracking practices and for collecting their activity data. However, later, Company X discontinued the dispense of the trackers, changing its free 'bait' to a more comprehensive well-being analysis, conducted with robust heart rate-tracking technologies over the course of a few days. Company Z adopted a 'bring-your-own-device' approach (Barlette et al., 2021) from the very beginning, perceiving this approach to be the most cost-effective and allowing consumers to choose their preferred device.

The health applications and well-being services included in the policies are produced both by well-established actors and by smaller start-ups. These include, for instance, self-coaching services targeting different facets of well-being, including stress management, smoking, and eating habits, and apps that push users to take breaks from sitting by offering short exercise videos. At the time of the fieldwork, insurers from both companies were experimenting with different service providers and start-ups, trying to find the best well-being-related apps that would work with the policies. The aim was that with these services, behavioural policies would be able to approach well-being holistically, taking all aspects of health into account. Finding suitable matches, however, was a bit of a struggle. Unlike the automatized tracking of activity, many services targeting, for instance, sleep and eating habits, rely on manual recording. This was regarded as an issue from the perspectives of both data reliability and user engagement. Hence, at the time of the fieldwork, the role of activity tracking was emphasized quite heavily.

In both Company X's and Company Z's policies, customers' self-tracking practices and data collection were organized by third-party data companies. These Finnish firms, specializing in the production of well-being platforms and the analysis of behavioural health data, offer digital health solutions for insurers, health providers and corporations. Thus, they offer their know-how in data analytics, an area of expertise that is not necessarily readily available inside insurance companies. On their websites, they present references from multiple European insurers, although it is not certain which of these collaborations are still in effect, as, after the fieldwork, the partnerships between the data companies and the Finnish insurers seem to have dissolved. However, at the time of the fieldwork, the data companies produced applications through which customers could interact with the behavioural policies, check their activity status and access services. In addition, some of the 'nudging' elements were carried out through this channel. Moreover, the data analytics companies executed the gathering and processing of users' behavioural data.

Insurance regulations dictate that insurers are only allowed to access and use data that can be proven to have legitimate uses for policies. The data companies provided insurers with aggregated activity data and filtered certain values (for instance, whether a customer has been inactive, moderately active or very active) for their use, thus ensuring compatibility with regulation. Hence, contrary to what some critical studies have suggested, at least in the Finnish context (and, due to the EU harmonization, in the European market), the data that insurance companies end up receiving can be essentially very limited, setting insurers far away from ‘real-time rate adjustments’ and other more advanced scenarios related to the use of behavioural data.

Behavioural life insurance policies thus have a platform structure; they are cast as a platform that gives access to multiple services produced by a range of actors. Because of this structure, the entirety of behavioural policies can be difficult to comprehend. In a changing collection of services, the flow of the users’ data and the different feedback loops at play are not very easy to follow. Furthermore, even though insurance companies receive a very limited range of data and are not allowed to sell that data forward, it remains unclear how data circulate throughout the entire insurance network. Figure 2 attempts to depict these diverse data relations and the movements of the data.

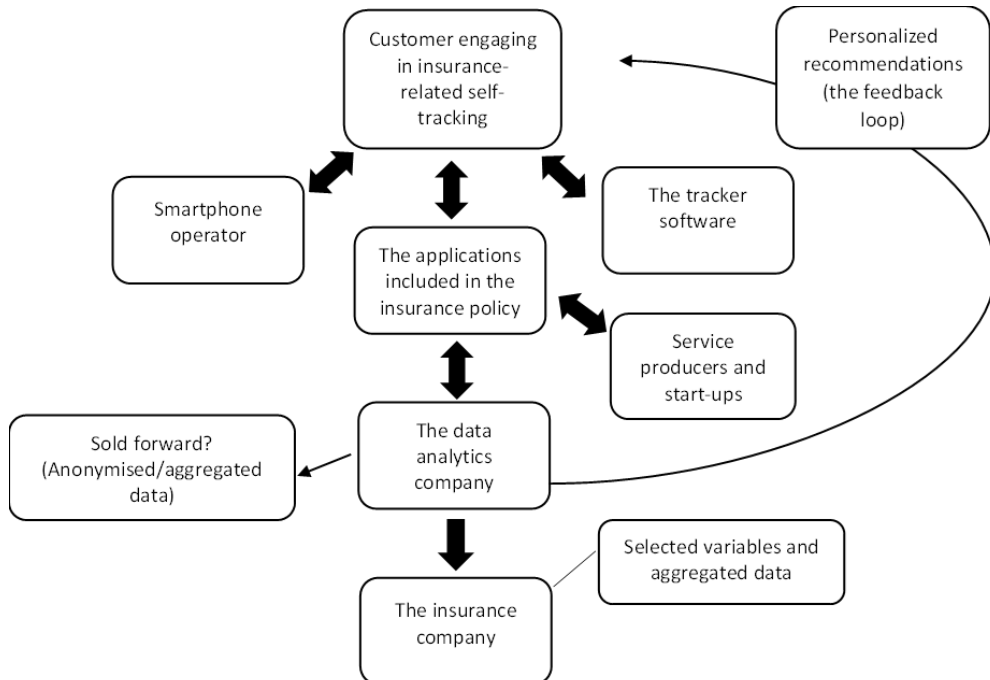


Figure 2. The flow of data in behavioural life insurance policies

6.2 Access to the field and the research collaboration

I approached the field in autumn 2017, intrigued by the media coverage that the new policy types had gained. I wanted to know how insurers were developing these products and how policyholders were engaging with them in their everyday lives; hence, I was interested in the new insurance practices that the implementation of data technologies would bring about. Using the contacts of my supervisor, Professor Turo-Kimmo Lehtonen, I managed to arrange a meeting with Company X representatives who were interested to hear from Lehtonen and me what kind of research ideas we had. In this meeting, they agreed to a research collaboration, thus granting me initial access to the field. In further negotiations, we agreed that I would conduct six focus group discussions with real and potential customers of behavioural life insurance products. Furthermore, I was invited to conduct interviews with key professionals working on behavioural policies. The insurance company would cover the costs for the arrangements and for the interview transcriptions; in return, I would report key findings that they could use in product development. In addition to the focus groups and interviews, I was given an opportunity to test the behavioural insurance application myself. I gained access to a pilot version of the app and the freebie activity wristband, allowing me to experience the service.

The most self-evident method for examining practices is ethnography, specifically participant observations. Ethnography has been the standard way in anthropology to examine the practices of foreign cultures, and the approach has been later embraced by STS, implementing it to study, for instance, laboratory practices (Latour & Woolgar, 1986), high energy physicists (Traweek, 1992) and the making of atherosclerosis in a Dutch hospital (Mol, 2002). Ethnography has also been employed in the sociology of insurance to study how risks are made in the calculative practices of life insurance (Van Hoyweghen, 2007). Thus, following these steps, an ethnographic investigation, including lengthy participant observations of insurers' and policyholders' practices, would have been a justifiable approach. However, like elites in the finance sector in general, insurance professionals and institutions are notoriously difficult to reach and gain access to (Abolafia, 1998). Although I was successful in convincing the professionals at Company X (and later, at Company Z) of the usefulness of my research, a large-scale ethnographic investigation with prolonged participant observations was not a feasible option. Generally, in ethnographic research and particularly when working with the finance sector (Abolafia, 1998), access to the field is not really guaranteed at any point. This was also the case in my fieldwork. Access to the field was the result of continuous

negotiations in which I needed to prove that I was trustworthy and that my research was worth participating in. In these negotiations, it was also settled which methods for data collection were acceptable for the insurers and would, at the same time, produce knowledge that allowed me to answer my research questions.

Hence, this research is not a fully-fledged ethnography but a 'field research' in a looser sense, drawing from ethnographic perspectives and case study research (Flyvbjerg, 2011; Swanborn, 2010; Yin, 2018). It juxtaposes several types of empirical materials to obtain an in-depth understanding of the practices related to behavioural life insurance policies, making use of all the data available. The study implements the case study approach in the sense that it is interested in the emergence and evolution of behavioural insurance (market), and it pays attention to the different cultural, market and regulative contexts in which the policies are embedded (Flyvbjerg, 2011). The two insurance products serve as exemplary cases of larger processes related to the formation of data-driven markets and customer relationships. Hence, even though I am conducting in-depth qualitative research on the two insurance policies, this research has a larger scope in describing the effects of datafication on insurance.

The focus group discussions with the customers of Company X were arranged in November 2017. The company recruited the participants for the groups since, by law, I was not allowed to access information about the identity of their customers. At first, I thought that this might be problematic, as the company could manipulate the selection of participants. However, recruitment proved to be quite difficult: volunteers were not easy to find, which ensured random selection of people. This reflects the fact that people are not that invested in insurance; hence, it does not feel that interesting to them (Jeanningros & McFall, 2020). Potential customers were recruited from a marketing research panel. The motive was to determine whether there were interesting differences between people who had purchased a behavioural policy and those who had not engaged with it.

The focus group discussions were held in the space of a market research company. The reason for this was to distance the research from the insurance company and to avoid the difficulties of seeking permits to have outsiders in the office. The topics and questions for the focus groups were circulated to the insurance professionals before the sessions, and a few representatives from the company attended the sessions, observing them behind a darkened window. Some of the recruited customers did not show up for the focus group session, possibly discouraged by the terrible weather in late November Finland. The focus group participants were given gift cards that were paid by the insurance company. I

reported the results from the focus group discussions by holding a presentation for the insurance professionals in their main office.

The expert interviews were held in Company X's main office in spring 2018. I recruited the interviewees by asking my main informant to circulate an invitation among the people who were working on the product. Altogether, I interviewed six insurance professionals, five face-to-face and one on the phone. During the interviews, I was also able to attend insurance professionals' meetings where they were planning the product; this allowed me to observe their ways of working. After the interviews, the collaboration with Company X slowly dissolved; the reason for this was probably the fact that the company had already received the results from the focus groups. Initially, the idea was that the research design could entail a form of longitudinal analysis in which the same customers could be interviewed several times to see how engagement with behavioural policies evolves. However, this plan was dropped later in the process.

In autumn 2018, I reached out to some of the customers who had participated in the focus group discussions with little luck, and only two of them agreed to do an interview with me. This was not a surprise for me, considering the lack of interest in the first round. I conducted two interviews, one via Skype and the other face-to-face. However, they did not produce much new knowledge. The customers' relations to their insurance policies remained the same, and they did not have much to add to their previous accounts. Hence, I needed to find an alternative way to enrich the data that I had collected.

I decided to contact Company Z to see if they were interested in participating in the study. As I didn't have pre-existing contacts in the company, I reached out to them via two channels that I could think of: using the contact form available on their website and sending a LinkedIn message to a company manager. I was not too optimistic about this approach, but to my surprise, I received an answer from both channels and was invited to a meeting at the company's headquarters. In this meeting, I presented my research plan and negotiated the features of possible collaboration. The professionals were somewhat suspicious about my connections to Company X and afraid that I would leak confidential information to their competitor. However, I managed to convince the professionals that this goes against the ethical conduct of scientific research and that everything they would tell me would be confidential; the same would be true, of course, for Company X. Still, Company Z required a formal contract with my institution to ensure the safety of its operations. However, the negotiations between Company Z and the university proved to be more tedious and difficult than I had anticipated. Finally, after a lengthy

exchange between the company and the university, a contract was made, and a research permit was granted.

Company Z agreed to a very similar research design that I had conducted in Company X. I would conduct focus group discussions with real and potential customers and interviews with insurance professionals. The company would take care of the transcriptions, and I would present the results that are useful in product development. This time, I started with expert interviews. The recruitment of the interviewees was conducted by my main informant, and I was pleasantly surprised by the insurance professionals' willingness to participate in the research. Altogether, I interviewed 11 people who worked on different tasks in the company. The interviews were arranged over the course of three days in the insurance company's main office in February 2019.

At the same time, Company Z's marketing team recruited participants for the focus group discussions. As in the case of Company X, recruitment proved to be somewhat difficult. Hence, the composition of the focus groups was slightly altered. Instead of including only customers of behavioural products, some groups also included people who had only a regular insurance policy from the company. In the end, there were four groups of insurance clients (some of whom had a behavioural policy and some a regular one) and one group of potential insurance clients; they were recruited from a market research panel. The focus group discussions were held in the space of a market research company in May 2019. This time, the rate of participation was higher. The representatives from Company Z followed the interviews and prompted me with further questions during breaks between sessions. The focus group participants were given gift cards that were paid by the insurance company.

I reported the results for Company Z in two parts: First, in a smaller meeting with the behavioural insurance team leaders, who also made further requests for the final presentation that I gave in the monthly info of the insurance company. This meeting included all the employees working on insurance; hence, I presented the results to a considerable crowd. After my presentation, a smaller meeting was held with the higher management of the company. It seemed that the insurance professionals were pleased with my presentation and the collaboration, although I had presented some results that challenged their initial ideas. They were also given the materials that I produced for them. The collaboration with Company Z ended with this presentation.

Altogether, gaining access to the field was surprisingly easy, despite the prolonged negotiations in Company Z. I was positively surprised by the openness of the

companies and their willingness to take part in qualitative research, with no guaranteed financial benefits for them. After a while of observations in the companies, I concluded that openness is related to the experimental nature of the products. In both companies, the development of behavioural insurance products was related to a larger shift towards a more experimental and agile way of doing business. Both companies relied heavily on the principles of service design, focusing on customers' experiences and an iterative approach to service development. The aim was to get a version out on the market and then continue developing it based on customer feedback. My research fit well in this experimental structure, providing another source of information for product development.

This description of the procession of the fieldwork is, of course, a simplification. During the fieldwork, I had frequent e-mail exchanges and phone calls with my main informants, several meetings where the data collection was planned and more informal meetings over coffee or lunch. I understand that all the interactions I had during the collaborative phase are part of the field of this research. When examining insurance, it is difficult to demarcate the field clearly, as insurance operations range from people having insurance policies and engaging with them to global actors, such as reinsurance companies operating in financial markets (Collier et al., 2021; Lehtonen, 2017b, 2017a; Tranter & Booth, 2019). Defining the field in a 'clear-cut' way is, thus, not sensible. Furthermore, it is not possible to encompass such large-scale operations in a single study. Hence, I see myself as the one constructing the field. The field is produced through the communications and engagements that I had during the fieldwork. From this approach, the field is not something that is 'objectively' out there but something that is produced by the methods that are used in the study. Methods are always performative; they enact a version of the world (Law & Ruppert, 2013; Ruppert et al., 2013; Savage, 2013). Therefore, it is important to reflect on which kinds of suppositions exist behind the chosen methods and what kinds of realities they produce. In the next section, I will discuss the different methods used in this study in more detail.

6.3 Methods and analysis

Participant observations

Over the course of the fieldwork, I had several meetings with insurance professionals. Some of them were exclusively meant for the planning of the collaboration and some focused on other aspects of behavioural products. Participating in these meetings helped me understand how insurance professionals work and how decision-making happens in the organization. Furthermore, they helped me learn some of the professional jargon that the insurers were using, thus enabling me to get more of an insider view of the products. In addition to meetings, I had many informal interactions with insurance professionals, especially my key informants. These informal meetings happened over lunch, coffee and on the breaks between focus group sessions. They were essential for getting the ‘feeling’ of the product development and the insurance professionals’ visions. On these occasions, the informants were able to speak more freely and speculate about possible futures for behavioural policies. Finally, I had plenty of communication with insurance professionals over the phone and via email. Although these were a bit more formal and straight to the point, they gave me important information about the functioning of an insurance organization.

I was not able to conduct participant observations with the insurance customers. Observations of insurance-related self-tracking practices could have given me a more thorough understanding of how people engage with the technologies in different contexts. Furthermore, they might have better brought out differences between people who come from different professional and socioeconomic backgrounds; the focus groups teased out some of these dissimilarities, but, as people tend to express affiliation in group settings (Lindström & Sorjonen, 2012), some of the contradictory experiences might have been lost. However, as recruiting people to the focus groups proved to be very difficult, it can be estimated that a research design requiring more intense informant participation would have been quite challenging to organize. Moreover, for many customers, the self-tracking was happening in the background without active engagement with the devices, or, they had stopped using the insurance-related technologies altogether. These kind of practices of non-use, although extremely interesting, are difficult to observe when compared to, for instance, self-tracking that happens at the gym. Hence, the scope of this study does

not include the observations of customers' practices, although, for future research, this would be an important step.

In the analysis, these participant observations act mostly as a way for me to contextualize the topic. I chose this approach because I believed that the observation data were not comprehensive and systematic enough to produce proper ethnographic insights. Hence, in the original publications, I don't concentrate on analysing the observations on their own. Their importance lies in the way they allow me to get the 'bigger picture' of the topic and understand where the insurance professionals are coming from. These insights proved to be useful while conducting the interviews. Instead of positioning myself as a complete outsider, I was able to get a partial insider view, already understanding some of the vocabulary and ideas that the professionals were circulating. This helped me gain insurers' trust and probe more in-depth knowledge about the new operations.

Semi-structured interviews

Interviews were the main empirical resource through which I learned about insurers' operations and their practices of developing behavioural products. One could argue that this approach has limitations. Social sciences have traditionally favoured participant observations as a method for examining practices; they are regarded as a direct way to analyse action in 'natural' situations, whereas interviews are seen as producing accounts of action (Halkier & Jensen, 2011). Hence, participant observations have been understood as a more trustworthy source of data, as there could be discrepancies between what people *do* and *say* (Atkinson & Coffey, 2003). This polarization, however, might not be warranted. Atkinson and Coffey (2003) argue that participant observations are far from 'natural' situations and that they are entangled with interpretations similar to interview data. All methods are performative and enact versions of social reality (Halkier & Jensen, 2011; Law & Ruppert, 2013; Savage, 2013); hence, instead of aiming to capture 'objective' and 'truthful' reality, it might be useful to acknowledge that there is no 'uncontaminated' world that would be free of interpretations. Social life is always performed and narrated, which means that practices consist of both doings and sayings (Atkinson & Coffey, 2003; Warde, 2005). There is no sense in contrasting action and talk, as they are fundamentally intertwined. Thus, research must account for both the analysis of procedures and their representations, paying attention to what people do, feel and mean (Warde, 2005).

Following the perspective that interview talk is performative, it is no longer interesting whether people are telling the ‘truth’ or not; instead, attention is paid to the cultural action that happens in the interviews. This positioning also resonates with STS approaches arguing that it is not the analysts’ job to suspect everything that informants are telling; this kind of ‘critical superiority’ might in fact prevent the researcher from appreciating the expertise of the informants and from seeing resistance related to the phenomena (Latour, 2004). Hence, interviews appear as a suitable method for analysing the components of practices, including understandings, procedures and engagements (Warde, 2005). In particular, ethnographic and active interviewing techniques, emphasizing reciprocal engagement between participants, are used to study cultural practices (Holstein, 1995; Skinner, 2012).

The interviews that I conducted with the insurance professionals were semi-structured. I planned a rough guideline of themes that I wanted to discuss; this guideline was then adapted in the interviews, considering the flow of the discussion and the professional background of each interviewee. The guideline ensured that I would get varied perspectives on some of the key issues that I was interested in, but retaining some flexibility also allowed me to consider each professionals’ specific expertise. The professional backgrounds of the interviewees varied from the upper management of the companies to service designers, marketing managers and actuaries. This allowed me to gain a comprehensive view of the ideas and practices behind behavioural policies. People with different professional backgrounds approach the new policies from slightly different perspectives; for instance, marketers and service designers highlight the marketability and customer friendliness of the products, whereas lawyers underline the legal basis of the policies. The professional mix varied slightly among the companies. In Company X, the role of designers and engineers was stronger, whereas in Company Z, most of the professionals had a background in finance and management.

For the first set of interviews at Company X, I based the guidelines on previous literature and on the information that I was able to gather from the document data and focus group discussions. At Company Z, I could also use the results from Company X to formulate my questions. The interviews were held in the insurance companies on a tight schedule. I conducted two to four interviews per day. Although tiring, this gave routine to the interviews and allowed me to quickly pinpoint the central issues and adjust the questions accordingly. The interviews lasted from 35 to 90 minutes and were recorded and transcribed. Eight of the interviewees were women and eight were men.

One of my concerns before the interviews was that the insurance professionals might feel obliged to give me sales pitches, emphasizing only the positive sides of the new products and feeding directly into the disruption narrative. This fear was proven unnecessary. It seemed that the interviewees answered my questions quite openly and were willing to reflect on the difficult aspects of developing new and experimental products. This contributed to the mutual trust between me and the insurance professionals. Although insurers, self-evidently, have their own agenda (obviously, they want their products to succeed), they appeared to be honest about the downsides of their operations and were open to hearing my sometimes quite challenging perspectives.

Focus group discussions

Altogether, I conducted 11 focus group discussions with 46 real and potential customers of behavioural life insurance policies. The focus group participants were from the Greater Helsinki region; 24 of them were women and 22 men, with an age range from late twenties to sixties. The participants came from various educational and professional backgrounds; among them were (practical) nurses, a physician, storage workers, computer engineers, teachers, a hairdresser, bank clerks, an urban planner, salespersons and a business consultant, to name a few. The makeup of the groups was, in this sense, quite diverse; people from different socioeconomic backgrounds were mixed in the sessions.

This diversity was reflected in the focus group discussions. People with different backgrounds expressed, for instance, different levels of technological skills (some more senior participants recounted that they needed their younger relatives' help in deploying the insurance-related self-tracking technologies) and different possibilities in engaging in continuous self-tracking (people working in medicine explained how they are not allowed to wear jewellery or watches while at work, hence, unable to wear self-tracking devices). The self-tracking features of the policies seemed to fit best the lifestyles of policyholders who were knowledge workers or, more generally, people working at an office: for these people the cyclical logic of the tracking devices made most sense, yet, for them as well the devices might interrupt at the wrong time.

Even though the participant reported differences in the ways they were able to engage with self-tracking technologies, I did not notice clear differences between the different groups of people in terms of their attitudes towards the overall logic of behavioural insurance and its effects on fairness and solidarity. The focus on

individual responsibility seemed to make most sense on informants working in the tech industry; however, that is not to say that all participants from upper middle-class backgrounds were sympathetic towards the individualizing tendencies. For instance, a city planner was concerned about the discriminating effects. Furthermore, some people from working class backgrounds were supportive of the new schemes and happy with the idea that they would not have to carry other's risks. For most focus group participants, however, the policies were just a practical way of getting a self-tracking device or a bonus benefit on top of their insurance policy; they were not thinking that deeply about the logic. Yet, it is clear that behavioural policies might have very different meanings and consequences for people coming from different socioeconomical backgrounds; hence, research should be sensitive towards these differences.

The focus group discussions were organized in the spaces of two market research companies. When attending the session, the participants first entered a waiting room where they were offered snacks and asked to fill in a brief questionnaire and/or consent form. The form had few questions about the interviewees' educational and professional backgrounds, their insurance policies and self-tracking practices. Furthermore, it provided information about the practicalities and ethical principles of the research and asked for written consent to participate in the study. The purpose of these forms was to ensure informed consent and to generate a little bit of background information about the participants to assist with the analysis of the focus group data. After the analysis, these forms, excluding the page with the consent statement, were disposed of in a secure manner, ensuring that no personal information was possible to trace.

After filling out the form, I guided the participants into the discussion room. On both occasions, the rooms were accompanied by a viewing space that was separated by a darkened window; furthermore, a build-in recording system was included in the space to enable smooth monitoring. The insurance professionals used the viewing space in some of the sessions. I disclosed this information to the focus group participants even though I was a bit worried that this might impact their behaviour in the sessions. However, I got the impression that the presence of insurance professionals was quickly forgotten as the discussion began. An exception to this was an occasion in which a focus group participant spoke up directly to the insurance professionals, not letting the black window bother him. In the end, the fear that the insurance professionals' presence would hinder people from sharing their honest opinions was not warranted; even the participant addressing the insurers gave direct suggestions on how to improve the service.

The discussions varied in length and style depending on the number of participants and the interactional dynamic that the group members had together. I tried to pay attention to these differences and accommodate my conduct as the facilitator of the groups to them. In some groups, the conversation flowed smoothly, requiring me to push it gently in the directions that were important regarding the scope of the study. Other groups called for active participation, with me asking more direct (follow-up) questions to encourage people to speak. A few groups had one or two very dominant participants who needed some extra attention from me. I tried to balance the situation by asking questions directly from the more passive participants. Altogether, I saw to it that my place as a facilitator was not centre stage; instead, I focused on providing the themes for the discussion and directing the conversation so that all group members would have an equal opportunity to participate (Hennink & Leavy, 2014; Sim & Waterfield, 2019).

I had prepared a general framework for the focus groups that had questions related to the central topics of the study. I adjusted this framework depending on the turn that the conversation took. Generally, people quite openly discussed topics related to well-being, their self-monitoring practices, motivations for obtaining insurance and their experiences with behavioural insurance policies. On a few occasions, I felt that the question about the reasons for purchasing a life insurance policy created awkward silence in the room. I estimated that this might have to do with Finns' general apprehension to discuss topics related to money; describing motives for obtaining coverage, for instance, purchasing a new apartment, could be regarded as bragging and bad taste in Finland. Generally, however, these topics stayed at a level that people didn't seem to regard as too intimate; in focus groups, this could be an issue, as ensuring a safe space in a group of strangers can be difficult (Sim & Waterfield, 2019). The conversation touched upon more intimate themes related to physical and mental health, but these topics were discussed in the participants' own terms; each person could contribute as much and as detailed an account as they wished. A few times, I decided to steer the conversation away from an account that was too personal and distant from the scope of the study.

Ethico-political negotiation in the focus groups

A special feature of focus groups is that they generate interactions among participants (Kitzinger, 1995). Yet, this quality is often forgotten; particularly in the context of market research, the method has been used for scoping tradable and

‘authentic’ individual opinions (Lezaun, 2007), thus understanding focus groups as an easy way to interview multiple people at once. Originally, however, focus groups were seen as a useful method for examining ‘every sphere of human behaviour and experience’, with a specific interest in the interactional qualities of the discussions (Merton, 1987; Morgan, 2021). Hence, when examining focus groups, it is vital to pay attention to what is happening between the group members, that is, the interactional context and the conversational dynamics (Grønkvær et al., 2011; Halkier, 2010).

In the analysis, I focused on the interactional dynamics among the group members. I used the pace of the conversation as an indicator of the themes that were interesting and exciting to the focus group participants. Some themes, such as humorous visions of technological control, sparked lively conversations, inviting people to test their ideas and build on each other’s utterances. In these moments, the conversation started to have a life of its own, indicating that the group members shared a repertoire of meanings to discuss the issues. These moments show that focus groups are an especially useful method for examining emerging and contested technologies. They act as a ‘provocative containment’ (Lezaun et al., 2013), creating clearly demarcated spaces in which things that are ‘not readily available’ can be teased out, displayed and performed. I interpret these often-speculative interactions as *ethico-political negotiations* where people test their ideas, discuss different scenarios and negotiate appropriate reactions to them. These collective interactions are not deliberation in the sense that people come to a shared conclusion and find agreement (cf. Rask & Worthington, 2015). They, however, provide an open-ended view of the continuous making of techno-mediated relations, a process in which different and often contrasting norms, values and morals are negotiated.

Document data

During the fieldwork, I gathered a document dataset that consisted of publicly available materials related to behavioural insurance policies in Finland. These include news articles, articles published by insurance companies, policy terms and conditions, screen captures from company websites and marketing materials, such as regular advertisements and collaborative blogger posts about the products. The purpose of these documents was to help me contextualize the phenomenon. In the original publications, I did not engage in a thorough examination of the document

data, for instance, by using discourse analysis. Instead, these data were used to gain a ‘bigger picture’ of behavioural policies.

Experimenting with the devices

I experimented with both Company X and Company Z’s services. In Company X’s case, I was given access to the beta version of the application and the activity wristband that the policyholders were using. I engaged in self-tracking for a couple of weeks and tried out many of the features of the application, including virtual coaching programmes that were available for trial. In Company Z’s case, I was able to download a free version of the application that was included in the policy. The data company behind the app also marketed it for wider audiences; this version, however, did not include insurance features, such as the indicator of whether I would be eligible for an insurance bonus or not. Still, I was able to experience the logic of the app: the service turns everyday activity (presumably steps taken) to ‘activity points’, a measurement that also reflects the intensity of the movement.

My own experiences using these applications and devices varied. I started the experimentation with slightly mixed feelings. I was interested in trying out the products but not so keen on the idea of tracking myself. I have a background in compulsive exercise; thus, I was slightly apprehensive about subjecting myself to such numbers. However, instead of becoming obsessed with tracking, I quickly found myself forgetting to use the applications, which resonated with the experiences reported by the focus group participants.

Autoethnographic approaches have been frequently used in examining self-tracking practices (Hine, 2020; Hughes, 2021; Salmela et al., 2019; Vignren & Bergroth, 2021). The purpose of my experimentation, however, was not to provide a detailed autoethnography but to help me get a sense and feel of the products. Trying out the products proved to be a good strategy, as my own experiences helped me understand, on the one hand, the ecosystem and the features that the insurance professionals were describing and developing and, on the other hand, the experiences and emotions that policyholders discussed in relation to the policies.

Analysis

I coded the data in several phases. First, I read the transcribed interviews and focus group discussions carefully multiple times, using the recordings to check the tone of

voice, words used and the pace of conversation. In this way, I got a general feeling of the data and identified central themes in the conversations, such as ‘data relations’, ‘uncertainties’ and ‘future scenarios’. During these first rounds, I also produced more practical overviews of the data for the insurance professionals. These summaries included, for instance, descriptions of people’s experiences using the products, the difficulties they met and their suggestions for improvements.

Second, I conducted a more thorough analysis, concentrating on the themes identified in the first phase. In this phase, I used the qualitative analytics software ATLAS.ti to pinpoint the extracts that discussed these themes. With the help of automatic coding, I searched the documents using keywords such as ‘data’ and ‘tracking’. After this, I was left with collections of extracts that included these terms. I read through the extracts, discarding those that were not relevant to a specific theme. Finally, I read through the full transcriptions once more to ensure that the relevant extracts were not overlooked by the automatic coding. The coding differed slightly in the interviews and focus group data; with focus groups, I selected lengthier extracts to keep the interactional context of the utterance aboard.

In the third phase, I transmitted the selected extracts to an Excel sheet and conducted more rigorous coding by hand. I carefully read the extracts and categorized them into more detailed groups. I gave each extract up to three codes. The functionalities of the Excel sheet proved to be helpful later in the analysis. After I had fully coded the data, I could easily use filters to look at the data from different perspectives. Still, while doing the final analyses, I always returned to the full transcriptions, checking the original context of the utterances.

In the analysis process, I juxtaposed the different empirical resources to gain a comprehensive understanding of the phenomena. However, in the original publications, I ended up concentrating either on the insurance professionals’ or the policyholders’ perspectives. I first tried to combine these perspectives into a single article, but given the word limitations, this led to a shallow analysis that was unable to engage properly with the empirical materials. Hence, I decided to discuss these perspectives separately; however, the entirety of the different materials contributed to the analyses and conclusions I had made. The original analyses of the empirical papers were conducted by me; they were developed together with my co-authors in joint data sessions. Our observations were surprisingly uniform. Although small differences in perception appeared in the conversations, our main findings were similar. We took this as a sign that we had located the central issues in the data. The final analyses were honed during rounds of writing and rewriting.

6.4 Ethical reflections

The most significant ethical considerations of this thesis have to do with my position in the research collaboration. Throughout the fieldwork, I needed to coordinate my roles as a collaborator and as an independent scholar. The insurers, of course, were excited about their experimental products and wanted them to succeed; hence, they perceived the collaboration through the lens of service development. My position, however, was different: I wanted to remain neutral towards the insurers' endeavours, not taking a definitive side on their decisions and plans. I experienced that this kind of neutral openness toward their ideas was the best stance to take as it allowed me to keep my distance; yet I was not threatening the insurers with highly critical viewpoints (Abolafia, 1998). Still, holding this position was difficult as the insurance professionals asked my opinions frequently and addressed me, at times, almost like a consultant. Relatedly, even though I repeatedly emphasized in the focus group discussions that I was not an insurance company representative, at times this was forgotten. I tried to avoid these misunderstandings by kindly correcting the participants if they started asking me about, for instance, the technical details of the products.

Clearly, I was getting involved in the making of the topic of this study; this is true to all research to some extent, but in this case, I was producing knowledge and opinions that were applied directly in the product development. Some could see this as a problematic practice, questioning my capability of conducting critical analysis on the topic. However, drawing insights from design anthropology and sociology (Clarke, 2018; Gunn et al., 2020; Lupton, 2018; Pink et al., 2020), this kind of active involvement can be also an effective way to direct attention to ethical issues at stake and to intervene in the ways in which possible human futures with data-driven technologies are envisioned. In the end, I feel that the collaboration allowed me to have a larger impact on the firms' operations than a critical inspection conducted at a distance would have had. I was able to present science-based critical perspectives to the insurance professionals, making them consider issues related to, for instance, customers' experiences that they had not thought about before.

Another ethical consideration has to do with my decision to pseudonymize all actors in this research. This was a self-evident choice in the case of the insurance customers, guided by basic research ethics. Besides changing names, I omitted sensitive information that could make people recognizable from the data set. In the case of the insurance companies the issue was, however, a bit different. It could be argued that research examining powerful institutional actors, such as insurance

companies, loses some of its impact if it omits the names of the firms. Generally, I'm sympathetic to this argument as I perceive that, especially when it comes to exploring the potential negative effects of datafication, research should move from vague and abstract perspectives toward empirically rooted approaches that show the different actors involved. However, in this case, I needed to consider two things: firstly, getting access to the field would have probably been a lot harder if I had wanted to use the real names of the companies. Secondly, during the fieldwork, I got access to a lot of information that could be classified as confidential (or, semi-confidential). In the analysis, I needed to consider carefully which of this information I could use in the analyses and publish. If I used the real names of the organizations, these considerations should have been even more precise. Hence, to avoid exposing the companies and myself to the risks related to the revealing of confidential information, I decided to pseudonymize all actors, including the insurance professionals, the insurance companies, the data companies and the different start-ups involved with behavioural life insurance policies.

7 RESULTS

In this chapter, I present the results from the four journal articles that constitute the original research contribution of the thesis. I discuss the articles in the order of their publication, one article in each subsection (sections 7.1–7.4).

The first article, a literature review on behaviour-based personalization in insurance, discusses research from the fields of critical data studies and sociology of insurance. It compares these approaches and, based on the comparison, formulates a research approach that the three empirical articles follow: 1. examining insurance as a specific financial technology, 2. considering the (regulatory and market) context in which behavioural insurance policies are being developed, and 3. focusing on the practices of doing insurance and the different actors involved.

The second article analyses empirically the Finnish insurance professionals' efforts to develop behavioural life insurance products that would support the policyholders' lifestyle change and enable a more proactive and intimate customer relationship. In other words, the article follows a process of market making where constructing a fitting emotional landscape is of key importance but proves to be difficult to accomplish in practice.

The final two articles examine how consumers experience and use the new insurance technologies to which they still don't have a well-established relationship. The third article shows the ambivalent feelings that people have toward the real and imagined abilities of behavioural insurance technologies, highlighting the coexistence of trust and uncertainty in the new data-driven relation. The fourth article analyses how people define, negotiate, and enact autonomy in relation to the new insurance technologies and the behavioural interventions that they push. It approaches autonomy as a relational concern and demonstrates the role of affective responses in determining the boundaries between acceptable and non-acceptable control.

Finally, in section 7.5, I draw the results together and elaborate how they help answer the larger research questions of the thesis.

7.1 Article I: Personalizing insurance

Article I, 'Contested technology: Social scientific perspectives of behaviour-based insurance', is a literature review that discusses research from two fields that have analysed the use of behavioural data in (health and life) insurance: critical data studies and social studies of insurance.

To generate the data for the review, I conducted literature searches on two databases using a variety of keywords related to datafication, self-tracking and insurance. This left me with over 500 research items, which, after several phases of reading, analysing and excluding, I narrowed down to 73 publications discussed in the final analysis. The details of the literature searches and the criteria for exclusion are further explicated in the original publication.

I based the analysis on Ruckenstein and Schüll's (2017) categorization of the different perspectives to datafied health. Behavioural insurance as a topic (partly) overlaps with this area of research; thus, the classification was a useful starting point for the analysis. It helped me to differentiate between the theoretical and critical publications that represented a 'datafied power approach' (or critical data studies literature) and the more ethnographic and STS-inspired 'living with data' or 'data-human mediations' approaches (cf. Ruckenstein & Schüll, 2017, pp. 263–268). Categorized roughly, the use of behavioural data in insurance is mostly discussed in 1. critical data studies literature and in 2. the empirically oriented/STS-influenced studies stemming from the field of sociology of insurance. Even though the demarcation between these research clusters is not clear-cut, for instance, in the sense that they both draw from Foucauldian research traditions, the analytical division helped me get a sense of the differences between the theoretical understandings and methodological choices that the two approaches make.

First, I discussed the literature on critical data studies. I formed three thematic categories based on the issues these studies attribute to the use of behavioural data in insurance: 1. dataveillance and privacy issues (e.g. Lanzing, 2019; Lupton & Michael, 2017), 2. responsabilization, discrimination and exclusion (Ajana, 2017; Crawford et al., 2015; Hull & Pasquale, 2018) and 3. prosumption, unwaged labour and surveillance capitalism (Charitsis, 2016; e.g. Gidaris, 2019; Zuboff, 2015, 2019). To summarize, these studies use behavioural insurance as an example of a highly extractive data-driven logic that submits people to extensive dataveillance, discriminates against those who are deemed 'high risk' (by using individualized risk calculations and personalized premiums) and exacerbates inequalities by excluding

people from coverage. To highlight the exploitative aspects of datafication, the literature draws from both Foucauldian perspectives and neo-Marxist approaches; concepts such as biopower, neoliberal subjectification and commodification of personal data are used to make sense of the phenomenon theoretically.

Although insurance is used as an example of the negative effects of datafication, the critical literature is neither theoretically nor empirically well informed about it. Insurance is not the focus of the analysis; instead, it is merely employed to represent a dystopian outcome of digital capitalism. This is problematic, since it disregards the preconditions of the insurance industry, including national and international regulation, technological aspects and market relations (McFall, 2019). Furthermore, the examples are US-centric, which could lead to biased assumptions about new insurance technologies. Finally, the literature disregards users' everyday experiences with behavioural insurance policies and possibilities for resistance; this lack of attention to human (and nonhuman) actors and different agencies at play can make the critique alienating and strengthen traditional conceptions of certain values, such as autonomy as a lack of constraints (Latour, 2004; Sharon, 2017).

In the second part of the review, I discussed how behavioural insurance products are approached by the STS-influenced and empirically oriented insurance literature. As these studies were limited in number, I supplemented them with earlier neo-Foucauldian insurance research to show why it is important to approach insurance as a specific and contextualized financial technology. Furthermore, I discussed selected studies analysing 'ordinary' users' engagements with self-tracking practices to highlight the importance of focusing on the different actors involved in the practices of 'doing' insurance.

First, I criticized the scenarios of individualized risks and personalized premiums. As I explained in Chapter 2 in more detail, insurable risk is based on the law of large numbers; therefore, it is always collective. The new data forms might enhance existing ways of calculating risk, but the change might not be as revolutionary as critical research supposes; practices of pooling and spreading risk are likely to remain. Neo-Foucauldian insurance studies and critical data studies, however, are aligned in the perception that behavioural data could increase exclusion from coverage by narrowing risk pools. However, it is still too early to determine whether the use of digital data will become more feasible and popular among insurers.

Second, I discussed how the current (European and US) regulations limit the insurance industry from achieving many of the envisioned benefits of behaviour-based personalization. For instance, in the EU, the GDPR and anti-discrimination legislation narrow insurers' room to manoeuvre (Rebert & Van Hoyweghen, 2015;

Thouvenin et al., 2019; Van Hoyweghen, 2010). However, researchers have pointed out that the GDPR has many shortcomings (Marelli et al., 2020) and that the increased anti-discrimination acts might also fuel demands on insurers' 'right to underwrite', hence increasing their interest in behavioural data (Meyers & Hoyweghen, 2017). As insurance is a highly regulated field, the local regulatory context should always be considered in the analysis; the preconditions for behavioural insurance are largely shaped by (the debates about) regulation.

Third, I examined more closely the STS-inspired studies that follow empirically the practices of doing behavioural insurance. They demonstrate the practical difficulties related to personalization and argue that, at least for now, new products mainly serve as a form of marketing (Jeanningros & McFall, 2020; McFall, 2019; McFall & Moor, 2018; Meyers & Hoyweghen, 2020). What is still missing from this literature is studies exploring insurer's practices of developing behavioural products and policyholders' experiences with the new insurance technologies; these perspectives are under-researched in both critical data studies and in social studies of insurance.

The article concludes by arguing that even though the two research strands share some common ground, they are separate research projects with distinct aims. While critical data studies use the 'alarming' case of insurance to conduct overall theorization of datafied health, insurance studies concentrate on examining how data-driven innovation affects the specific practices of insurance. Without empirical investigation, critical research might buy into the techno deterministic accounts of behavioural insurance's capabilities and end up enforcing industry narratives. Hence, disregarding the basic usefulness of insurance and people's experiences with new technologies can hinder scholars from conducting a comprehensive critique of new insurance operations. To avoid these pitfalls in the empirical part of my thesis, I align my approach with STS-influenced social studies of insurance and 1. examine insurance as a specific financial technology, 2. consider the regulatory and market context in which policies are being developed and 3. focus on the practices of doing insurance and the different actors involved, concentrating specifically on the relations between insurers, data-driven technologies and policyholders.

7.2 Article II: Building techno-mediated intimacy

The first empirical article of the thesis, ‘Tracking lives, forging markets’, examines the development of behavioural policies from the perspective of insurance professionals. It analyses how insurers deal with the vision of product personalization. With the abundance of personal data, service providers and marketers envision being able to anticipate, notice and answer individual customers’ needs even before they are aware of them and, thus, make businesses more efficient, profitable and alluring (Darmody & Zwick, 2020; Fourcade & Healy, 2017; McFall & Deville, 2017). This article examines how Finnish insurance professionals strive towards these promises and, specifically, three objectives set for behavioural policies: 1. influencing customers’ well-being-related habits, 2. inviting more close-knit and ‘intimate’ customer relationships and 3. creating new insurance markets through experimenting with data-driven technologies. The article is based on the empirical fieldwork that I conducted in the two insurance companies between 2017 and 2019, the details of which are explained in Chapter 6.

The article first discusses the ways in which insurance and everyday life are connected; more specifically, it shows how insurance both turns people’s lives into commodified risks and uses people’s ‘intimate facts’ in marketing. Although insurance is often regarded as something contractual and technical, the value of intimacy is not alien to the industry; on the contrary, the success of insurance markets depends on the sentiment (Lehtonen, 2014; McFall, 2014; O’Malley, 2002; Zelizer, 1979). Therefore, the Finnish insurers’ goal to create a closer relationship with consumers seems like a logical step, as it could offer possibilities for risk management, marketing and customer retention. However, the introduction of new products and the actualization of data-driven intimacy are hindered by regulative constraints and market frictions, including internal and external aversion towards the policies. Despite the challenging operational environment, Finnish insurance professionals see that experimenting with the promise of personalization is the right step forward. It is seen as an important way to create and prepare for future markets.

Next, the article analyses the practices through which insurers aim to influence their customers’ lifestyles and, simultaneously, create closer relationships with them. These efforts are categorized into three main strategies: 1. educating, 2. incentivising and 3. partnering measures. These strategies utilize different (imagined) features of the data-driven technologies and entail distinct ideas of the customers’ internal qualities as well as behaviour. Educating strategies rely on information sharing,

conducted either through customers' self-tracking devices or through more traditional methods, such as bulletins about healthy eating habits. The core assumption is that customers simply lack knowledge of healthy habits, and by offering information, insurers can help them behave differently. Incentivizing strategies, for their part, aim at motivating customers; they use financial rewards and gamified structures to engage users and push them towards better habits. The idea here is that people might have knowledge, but they lack motivation; hence, they need to be prompted externally. The final strategy, partnering measures, is perhaps the most ambitious and aligns best with the promises of personalization. The vision is that with the new technologies, insurance companies could see customers more closely, be able to detect well-being deficiencies and target the right services for the right moment, that is, to create a *relevant* relationship (Darmody & Zwick, 2020). This is believed to enable insurers to have a proactive relationship with risk and transform the usually distant customer relationship into a long-lasting intimate partnership. Here, customers are imagined as being open to such invasive measures, unable or unwilling to handle their lives without intensive co-living with monitoring technologies.

The analysis shows that insurers use data-driven technologies to engender desired ways of *relating* and *feeling* with new products. The technologies are supposed to monitor the policyholders, advise and push them towards better habits and offer emotional support. Insurers want to 'surprise the customers in a positive way', and they strive to make the 'tone of the policy' encouraging and upbeat. Hence, in this market making, a lot of effort is put into emotion management, that is, the stirring of the 'right' affective response from the customer (McFall et al., 2017). Through this affect-laden technological attachment, the insurer-insuree relationship is expected to change into a more intimate one. Historically, insurers aimed at creating close connections with their customers by using insurance agents whose job was, alongside gathering premiums, to befriend the insured, offer advice to them and see what's going on in their families (McFall, 2014). Now, similar tasks are given to a 'friendly' digital infrastructure; insurers imagine building a cocoon of data with an encouraging emotional landscape to encompass the customers.

In this vision, customers are cast as passive followers of the tools' advice; the imagined services leave little room for their own decisions and will. Insurance professionals are aware that these technologies may feel too invasive. To combat this issue, they explore the right balance of closeness and autonomy, a service mix that would allow them seamless alignment with the customers, a pleasurable form of co-living that would enhance the customers' lives and benefit the insurance company.

Still, it is easy to see that the current ‘partnering’ strategies might feel suffocating and intrusive. If the insurance agents of the 18th century were supposed to be customers’ trusted friends, the data-driven services are like an overly attentive nanny, rushing to satisfy the customers’ every need.

Based on these findings, behavioural policies are not as disruptive as utopian and dystopian accounts claim them to be. Instead, the strategies of educating, incentivising and partnering have continuities with traditional insurance practices and entail some false premises. For instance, the policies were built on the premise of continuous use of self-tracking devices, a practice that is prone to failure in an institutional context (Gorm & Shklovski, 2019). Furthermore, insurers lack the data and the abilities to offer such all-encompassing services that the ‘data economy imaginary’ (Lehtiniemi, 2020) promotes, and the strict regulative framework prevents them from adopting practices from more agile tech sectors. Thus, it seems likely that data-driven insurance technologies do not readily take up their predecessors’ task of befriending customers.

7.3 Article III: Managing trust in unmanageable data relations

The third article of the thesis, ‘The uncertain element: personal data in behavioural insurance’, looks at the new policies’ data practices from the customers’ point of view. It examines how people understand, experience and negotiate the use of behavioural data in life insurance. Insurance typically relies on statistical information that is confined inside the companies; the profitability of insurance and the competition between firms have in part depended on the quality of these datasets. The new ‘messy’ and ‘lively’ data types, however, differ from these insulated data since they ‘flow’ in the real world and create connections – in fact, their business potential is seen to derive largely from the ability to circulate. Hence, experimenting with behavioural data requires a leap of faith from both insurers and consumers since they challenge the usual insurance practices and principles. For the new operations to succeed, the data practices must be seen as trustworthy and valuable by consumers; as behavioural life insurance policies are voluntary, aversion and doubt towards them could be detrimental for market formation.

The analysis discusses people’s relations with the new insurance types in three parts: 1. acquiring a behavioural policy 2. negotiating data use and 3. having uncertainties and ‘data doubt’ (Lomborg et al., 2020). The first part examines

people's reasons for opting into a behavioural policy – an aspect that is often dismissed by critical research. People are curious about the new policies. Some are attracted by the novel technological features and their potential development, while others see the policies as a practical way to obtain a self-tracking device. Some are motivated by the opportunity to earn insurance bonuses. Still, the most important reason to obtain a policy is the need for life insurance; the new features are seen as an additional benefit, not as essential.

The second part of the analysis discusses how people figure out their standing in the new data relations. The curiosity and positive attitudes towards behavioural policies are mixed with more negative tones; a certain ambivalence characterizes customers' relations to behavioural policies. Generally, customers approve of insurance companies' rewarding practices, but they still have some reservations, for instance, about the reliability of the data. They are not convinced that the behavioural data generated by self-tracking devices are trustworthy enough to base pricing on. Furthermore, people in the focus groups see that their data have an innate value and that they should be rewarded for it – irrespective of whether they reach the policy goals for 'healthy' behaviour. Small monetary rewards are not seen as adequate compensation; rewards deemed too small leave people wondering whether they are 'selling their soul' for petty cash, hence indicating uncertainty related to the new policies. Instead, people engage in bargaining practices; they imagine the policies giving access to real-life services, such as medical doctors, nutritionists and personal trainers. Digital services are not seen as appealing as a connection to human professionals, which must be disappointing to insurance professionals striving for data-driven intimacy. Thus, the second part of the analysis shows that people try to control the situation and negotiate a better deal for themselves. It is not clear whether behavioural policies are to be trusted or whether the deal is beneficial; therefore, the relationship with the new insurance types must be negotiated and worked on.

The final part of the analysis examines the doubt and uncertainty people experience in relation to behavioural policies. People generally accept the policies if they are self-chosen and voluntary, but they still experience unease regarding the schemes' potential negative effects. These effects are discussed in humorous tone in the focus groups; exaggerated narratives of surveillance and control were typical in the sessions. However, what is important is the fact that people are not often sure which monitoring and disciplining measures are speculation and which are already happening. People are unsure of the types of data that are being collected from them and the attributes that are transmitted to insurance companies. Furthermore, the role of intermediating data analytics companies is not clear to consumers, and their

existence is often forgotten. Thus, the case shows the inadequacies of the GDPR in ensuring trustworthy data practices; messy data relations render informed consent nearly impossible. Finally, although people generally trust insurance companies as custodians of their data, the data itself is seen as untrustworthy and prone to breakages and unwanted movements. For instance, many interviewees have fears that their data could come haunting them in unexpected ways, thus violating their sense of privacy, self-determination and trust.

The article shows the ambivalence that people experience in relation to behavioural policies. On the one hand, the new insurance schemes are seen as interesting and valuable, and on the other hand, people are not sure what they are signing up to when purchasing such a policy. Hence, the new insurance-related data practices are troubling, stirring mixed feelings; interest and pleasurable experiences with the technologies are accompanied by irritation, disappointment and doubt. This uncertainty is not limited to the immediate relationship between people and their personal data. Instead, it extends insurance and data economies at large. The fears and apprehensions related to data practices (fuelled by media discussions and people's own experiences with, for instance, targeted advertisements) come to increase the anxiety related to insurance; additionally, insurance has its own reputational troubles regarding, for instance, fair pricing and indemnities. Insurance does not only mitigate risk but can create new uncertainties (Booth & Harwood, 2016); this is very much the case in behavioural life insurance policies, where increased insecurities related to the new data practices can affect the trustworthiness of the whole insurance arrangement.

7.4 Article IV: Doing (and not doing) autonomy collaboratively

The fourth article, 'Trouble with autonomy in behavioural insurance', examines how people construe, negotiate and enact autonomy in relation to behavioural life insurance policies and the lifestyle interventions that they support. The proliferation of data-driven technologies and digital infrastructures has raised concern about the effects that algorithmic technologies could have on commonly shared values, such as privacy, solidarity and autonomy (Prainsack & Van Hoyweghen, 2020; Sharon, 2017). Consequently, this has led to new regulatory and ethical frameworks aimed at safeguarding these values. These initiatives, although well meaning, often employ predetermined and narrow conceptions of values, situating them within algorithmic

systems, for instance, by conceptualizing fairness as the quality of a statistical model. This ignores the situatedness and multifacetedness of values and hinders the ability of ethical considerations' to react to emerging and changing technological landscapes (Graeber, 2001; Lanzeni & Pink, 2021; Rességuier & Rodrigues, 2020).

To combat these issues, this study approaches the value of autonomy from a practice-based and relational perspective and examines how autonomy is deployed in complex sociomaterial relations. Autonomy is a key value in the liberal tradition to make sense of issues related to freedom and self-determination. Although autonomy is often understood as a static and universal entity, studies have highlighted the conceptual variations that it has had historically (DuGay, 2005; Honneth, 2014; MacPherson, 1962; Sulkunen, 2009). In the context of behavioural insurance products, autonomy can be seen as both a 'juridical' and 'relational' notion. On the one hand, it is understood as something that people 'have' and that others can 'control'; this understanding is also inscribed in insurance technologies and regulation (Ewald, 1991). On the other hand, relational notions of autonomy help better explain how algorithmic technologies tamper with people's self-determination, both creating new 'spaces of possibilities' (Hacking, 1986, p. 165) and limiting the scope of their actions. The article argues that both approaches need to be considered in order to analyse how people navigate the current sociotechnical landscape, shaped by responsive digital technologies.

The study is based on focus group discussions conducted with the customers and potential customers of both insurance companies. In this article, focus groups are treated as sites for *ethico-political deliberation* where customers test and negotiate the limits of acceptable control. They are seen as a useful setting for analysing emerging technologies, a 'provocative containment' that helps to surface new perspectives in a controllable space (Lezaun et al., 2013) (for more detail on ethico-political deliberation, please see Chapter 6.2 and the original publication). In more practical terms, the analysis concentrates on the moments of excited conversation in which people take part in collective action and imagination. In these moments, the topic of autonomy surfaced organically; although people rarely used the term 'autonomy', they engaged in vivid imaginings of the ways in which the new insurance technologies could monitor and control them, hence posing a threat to their self-determination.

The results are presented in two analytical pairs. The first examines *how people talk about autonomy* in focus groups. The analysis shows that while people underscore their individual autonomy, they simultaneously show interest in distributing some of the burdens of self-management to external forces. Generally, people saw that the self-

chosen nature of the policies ensured the acceptability of the behavioural interventions and the fairness of the rewarding structures. As they opted in the policies voluntarily, people regarded themselves as capable of managing their relationships with the algorithmic tools and, more generally, with the insurance companies. Hence, the values of individual autonomy, choice and self-determination were important for people's self-understanding. Here, 'autonomy' appears as a clear-cut entity that aligns with the 'logic of choice' (Mol, 2008). This straightforward understanding is complicated by the fact that the same people expressed willingness, even desire, to be controlled by external devices. People imagined how machines could violently force them to lead healthier lives; these humorous visions were a way to discuss the difficulty of managing oneself. Even though they do not prove that people would want to submit to such drastic controlling measures, they do show that self-governance can be a burden. The contrasting desires of 'sovereign self-management' and 'willingness to accept outside help' (or the mix between active and passive) (Gomart & Hennion, 1999) indicate that placing strict limits for controlling measures does not solve the issue of autonomy in behavioural insurance.

The second analytical pair examines the negotiations and practices that people have with behavioural policies; thus, it analyses *how autonomy unfolds in relation to the technologies*. First, the article discusses cases in which co-existence with the devices works and people feel benefitting from them. In a working relationship, the user, the devices and the insurance policy get entangled; it is not clear who does the tracking and directs the behaviour. In these situations, people might feel that they are gaining control, even though the doing of autonomy is distributed to multiple actors. Furthermore, the relationship with a behavioural policy can be experienced as beneficial when the policy stays in the background, providing the user with an insurance bonus. However, the second part of the analysis shows that these kinds of well-aligned relations break easily. The same policy features that were experienced as beneficial in one moment may become irritating and invasive in another. The devices fail to recognize users' needs and push their own agendas in the wrong moments, or they become irrelevant and uninteresting. People discard the devices and quit self-tracking practices easily; hence, the attachment between policyholders and behavioural life insurance policies is not very strong.

The study shows that, in the policyholders' deliberations, autonomy is a multifaceted concern that cannot be resolved by relying solely on the notion of individual autonomy. Hence, the study confirms that the narrow conceptions of values employed by ethical and regulative initiatives are insufficient, as they are not able to consider the situational and contextual nature of values and the complex

emotional landscapes related to them. Relational understandings of autonomy help us to see how self-determination is done situationally, together with different actors. In these connections, policyholders' feelings of joy, irritation and frustration act as indicators when the algorithmic control is 'just right' and when it has gone too far. Consequently, the analysis shows that when decisions are delegated to a data-driven system, questions of autonomy energize in a new manner; self-determination becomes something that must be discussed, thought about and dealt with in the insurance relation.

7.5 Synthesis of the results

In this section, I discuss how the results of the four articles help answer the larger research questions of this thesis.

Article II provides insights into the first research question: *What kinds of ideas and aims guide the development of behavioural life insurance products and how do they play out in insurance professionals' practices?* It shows that Finnish insurance professionals are not that engaged with the idea of using behavioural data to personalize risk and premiums; this vision is seen more as a long-term goal. Instead, insurers are more focused on risk management and the relational aspects of new technologies. Their actions are guided heavily by marketing approaches that emphasize the co-creation of value and customer intimacy. Insurers want to 'befriend' the policyholder and promote a new kind of data-driven partnership in which digital health-tracking tools act both as means to nudge customers' behaviour and as means for customer relationship management. These goals closely resemble the digital marketers' visions to create seamless alignment between consumer and marketing goals and to 'see' people from within the market, allowing service providers to cater to their needs even before they themselves are aware of them (Darmody & Zwick, 2020; Fourcade & Healy, 2017). However, as the article shows, in practice, these visions are difficult to realize. Insurance professionals face regulative and market frictions that prevent them from following the 'data imperative' (Amoore & Piotukh, 2015), that is, from gathering vast amounts of data. This, in turn, makes the production of all-encompassing digital services challenging. The insurers' educating, incentivizing and partnering strategies entail false premises, such as the idea of continuous use of self-tracking devices. They also have clear continuities with earlier insurance practices.

Hence, new technologies might not be that revolutionary, and they might fail to forge long-lasting connections with consumers.

Articles III and IV help to answer the second research question: 2. *How do policyholders experience new insurance technologies and data practices and why do they engage with them in specific ways?* They show that people are interested in new technologies and at times find using them enjoyable and helpful. However, their data relations are characterized by a certain ambivalence (cf. Lomborg et al., 2020). People ponder the limits of algorithmic control and closeness. They do not want to feel that they are ruled by digital technologies, as the conception of individual autonomy is important for their self-understanding. However, when analysing their self-tracking practices, the picture of self-determination is more nuanced, pointing towards the fact that autonomy can be achieved relationally with technologies (Stoljar & Mackenzie, 2000). Still, these aligned enactments of autonomy break easily, as technologies fail to regard people's changing and diverse life situations, pushing their internal logic mechanically. Besides negotiating the limits of acceptable control in digital health services, people experience a lot of uncertainty regarding the scope of new data practices. They are not sure which data the insurance companies have access to or what exactly is done with these data. Although people generally think that they have 'nothing to hide' (cf. Ajana, 2020), this uncertainty about data monitoring surfaces frequently in focus group discussions. Hence, it shows that people need to consider whether the new insurance types are trustworthy or not.

The third research question, *What kinds of relations do the new data practices create and how?*, deals with all four articles of this thesis. As behavioural life insurance policies have a platform structure, the different partnering service providers create a complex ecosystem of multiple actors. This helps insurers adapt to and go around insurance regulations, enabling them to experiment with new data-driven services. The customers, hence, do not form a relation only to the insurance provider (and to the pool of insureds who jointly carry the burden of risk) (Lehtonen & Liukko, 2011), but they join a network of data relations. The platform structure makes it difficult for policyholders to comprehend how their personal data circulate in the insurance arrangement and who has access to that data. Thus, giving informed consent is difficult. Still, in people's minds, the connection between life insurance products and insurance-related digital well-being services is not very strong. In practice, people forge stronger relations to the technologies with which they engage hands-on; the more distant insurance connection is forgotten. Hence, policyholders might not remember that their self-tracking practices are related to the insurance machine.

Finally, all four articles help to answer the last research question: *How is behavioural life insurance (market) co-constituted with the new (data) relations between insurers and policyholders?* The articles show that the purpose of new insurance technologies is to capture people into a friendly digital infrastructure that helps them lead healthier and happier lives and, at the same time, promotes customer retention and savings for insurance companies. Behavioural life insurance policies, however, fail in creating these kinds of relations. Instead, they connect with people in a sporadic and episodic way (Gorm & Shklovski, 2019), as people do not engage in continuous use of digital well-being services. This leads to difficulties in personalizing the products since data analysis does not deal well with missing or ‘broken’ data (Pink, Ruckenstein, et al., 2018). Furthermore, data-driven technologies introduce novel enactments of values (or value transgressions) (Sharon, 2021b) in insurance; for instance, they push policyholders to contemplate whether their decisions are really free-willing and whether their personal information is safe in the somewhat vague network of actors that behavioural life insurance policies create. Hence, new insurance technologies change the relationship between the insureds and the insurers in the sense that they energize people to consider the preconditions of that relationship. In this way, insurance transforms from an invisible and self-evident infrastructure to a visible actor but perhaps not in the way that insurance professionals intended. Instead, it seems that the more large-scale uncertainties related to the data economy penetrate the datafied insurer–insuree relationship. As trust is a key value in insurance, these uncertainties can be detrimental to behavioural life insurance (markets). If new insurance technologies are unable to deal with consumers’ concerns, they are likely to fail.

8 DISCUSSION

8.1 Contribution to the current debate

This study contributes to the social scientific debate on the effects of behaviour-based personalization in insurance, a conversation that has been taking place over recent years and produced, for instance, a theme issue in *Big Data & Society* (see McFall et al., 2020). It builds an empirically rooted and practice-based perspective to the ‘new datafication’ of insurance, an approach that many of the previous studies have paved the way for (cf. Jeanningros & McFall, 2020; McFall, 2019; McFall & Moor, 2018; Meyers & Hoyweghen, 2017, 2018, 2020). Instead of exploring the effects of data-driven innovation on insurance from a theoretical point of view, this study empirically examines the experiences and practices of doing behavioural life insurance. Furthermore, it considers the different actors involved in these practices, particularly the insurance professionals, policyholders and new algorithmic insurance technologies. By following the practice-based line of research, this study confirms many of the findings of the previous research and, more importantly, produces new insights about the development of behavioural insurance policies, the policyholders’ experiences and the datafied customer relationship.

Adding to previous research on the regulative perspectives to insurance (McFall, 2019; Prainsack & Van Hoyweghen, 2020), this research demonstrates how EU-level and national regulation hinders the implementation of behaviour-based personalization in insurance. Thus, the study supplements the previous exploration of regulative barriers (McFall, 2019) by showing in Article II how these restrictions unfold in insurance professionals’ practices of developing behavioural policies and how insurers try to go around them by collaborating with third-party data companies. Second, the study reinforces the perspective that, at this stage, behavioural policies act more as a form of marketing or as a customer loyalty programme than as a way of truly personalizing risk and premiums (Jeanningros & McFall, 2020; McFall, 2019; McFall & Moor, 2018). Article II shows that insurance professionals focus heavily on improving customer relationships; their short-term aim is to use data-driven services to promote customer loyalty and intimacy, while promises of risk and price

personalization are seen as long-term goals that are not relevant for the present moment.

The most unique contribution of this research, however, is its focus on policyholders' experiences and practices. This perspective has been lacking in social studies of insurance, as insureds are a largely under-researched area. Hence, previous studies have only been able to speculate how behavioural policies affect policyholders. This study confirms some of the previous claims, for instance, about the shortcomings of the notice and consent model used in the GDPR (Marelli et al., 2020). Article III shows that even though policyholders have signed an EULA, they are not sure what they are signing up to. Hence, the complex data relations constituted by behavioural policies are a source of uncertainty and ambivalent feelings for customers. This finding is an important addition to the regulative approaches to behaviour-based personalization in insurance and an issue that the ethical initiatives seeking to craft the best practices for ensuring secure data relations should consider.

Furthermore, the study provides evidence to support the claims that behavioural policies might not be 'sticky' enough to attach consumers in a secure way (Jeanningros & McFall, 2020; McFall, 2015). Articles III and IV show that people are curious about the products but still apprehensive about their effects. They recognize the value of their personal data and want something in return – notably, customers imagine real-life services and connections to human experts, a form of intimacy that is beyond data-driven technologies. The services are deemed acceptable if they respect the user's sense of self-determination and yet, their functionality is based on controlling measures; this relation to autonomy is troubling, pushing people to seek and test the limits of acceptable control. Ultimately, people discard the technologies easily if they find them useless, irritating or, if they are simply not capturing enough, allowing people to forget to use them.

Thus, the empirical evidence shows ambivalence related to behavioural policies: they neither empower nor enslave their users; instead, the policy features are subject to situated negotiations, different aims and interpretations. As behavioural policies are voluntary, insurers cannot coerce policyholders to use them. Instead, they work through alternative routes, trying to find the right combination of services and operations to align with customers' lives and to create more close-knit and trustworthy relations with them. However, consumers' varying hopes, wants and needs are not very easy to encompass through digital means. Even the 'soft' interventions can be experienced as too intrusive or simply not engaging enough; they can be creepy instead of helpful, violate customers' sense of intimacy and self-

determination or become irrelevant to them. Hence, creating trustworthy relations with customers is difficult, and, as markets don't succeed without attachment between consumers and goods, ambivalent responses can be detrimental for behavioural policies.

In addition to practice-based insurance studies, this research contributes to the critical data studies literature by analysing how the (imagined) effects of datafication and the data economy unfold in action. The insurance professionals' activities are very much inspired by dataistic visions of big data-enabled disruption (Ruckenstein & Pantzar, 2017; van Dijck, 2014); data are supposed to transform operations into an efficient and optimized form, allowing insurers to see their customers in a more detailed way and to target services to their precise needs (Darmody & Zwick, 2020; Fourcade & Healy, 2017). These effects are often presented as something that happens automatically and inevitably. However, the empirical findings of this research indicate that the processes of 'datafication' and 'digital disruption' do not happen effortlessly. Established insurance operations are difficult and slow to change due to the industry being conservative and well regulated (McFall, 2019). Hence, the implementation of data-driven techniques requires a lot of effort and labour from professionals developing these products. The research shows the regulatory, market and infrastructural obstacles that insurance professionals face and the compromises they must make in terms of data quantity and quality. Furthermore, the research discusses the effort that goes into customers' self-tracking practices. Even in the context of institutional self-tracking, people do not self-evidently subscribe to the suggested ways of using the devices, but they make the tracking practices 'their own' by going around the pushed logics of the technologies and by engaging with them in alternative ways.

Thus, in a sense, this research offers a rehumanizing approach to data processes (Ruckenstein, 2022) by showing the labour, performed both by insurance professionals and customers, that goes into the making of these technologies and the successes, difficulties and failures they face doing it. Consequently, this study acts as a counter perspective to the techno utopian and dystopian approaches that engage with disruption rhetoric. The study shows the friction between the hype and reality by describing the practical efforts of the development work, the continuities between the new policy types and 'the insurance as we know it' and the difficulty to contain and attach consumers.

This is not to say that behavioural insurance policies offer nothing new or that they won't have any negative effects; the purpose of this research has not been to undermine the critical perspectives but, instead, to provide more empirical evidence

and nuance to them. Although the current forms of behavioural policies face many practical difficulties and do not reach the promises of personalization, the experimentation can be seen as a starting point for future operations, opening a new leaf for a data-driven customer relationship. Asymmetries of information, resources and power constitute the insurance companies as the ones who set the playing field. Hence, the narrowing of insurance pools and the vagueness of data practices are real concerns, consequences of which people that are already disadvantaged are more likely to experience. Relatedly, the analysis shows that new data-driven technologies pose a threat to commonly shared values; they make them visible and energize them in a new manner, forcing actors to engage with questions related to, for instance, autonomy and trust. The three empirical articles all deal with this issue, analysing the ways in which the values of intimacy, trust and autonomy are negotiated and enacted in insurance practices. They show the difficulties of combining the values of the traditional, slow-moving insurance business with agile, data-driven marketing approaches. Furthermore, they highlight how misaligned connections with persuasive technologies make people question whether their will is truly free and whether their self-tracking practices are self-chosen. Finally, they underscore the fact that, with the introduction of digital technologies, the uncertainties related to the data economy at large can spread to the field of insurance and undermine consumers' trust in the industry.

To summarize, this research pushes back on the idea that the introduction of Insurtech would have rapid changes in insurance practices and markets. Private insurance policies fail without a relation to consumers, – and behavioural life insurance products seem to have, at least for now, a difficult time creating firm attachments. Hence, a simple story of disruption is not warranted. Researchers must be mindful when deciding which narratives of datafication they support and consider what is being done with these narratives and metaphors (Wyatt, 2021). Although the cautionary perspectives are well meaning and, in many ways, needed, they might end up contributing to the techno deterministic and solutionist visions, producing closures that prevent alternative perspectives. Yet, as this research has demonstrated, engaging with these worrisome forms of datafication empirically helps deconstruct prevailing narratives and conduct constructive criticism.

8.2 Reflections on market attachments

At the core of this research is a very classical STS problem: how does a new technology and a new market emerge? Relatedly, why does a technology fail to actualize, at least in the way that it was intended? Following an approach that was informed by STS perspectives and, more specifically, insights drawn from the field of sociology of markets, this research attempted to answer these questions by paying attention to the relations between the different actors involved with behavioural life insurance policies, in particular consumers, data-tracking technologies and insurance companies. The theoretical principle that guided this decision was the core idea of actor–network theory (and, more generally, the field of STS) that technologies (and markets) become real through the connections that they make; the more connections a thing has, the more stable and influential it is (Latour, 2005). This research focused specifically on the creation of market attachments (McFall et al., 2017). It analysed the ways in which insurance professionals aim to capture consumers and form more close-knit data-driven relationships with them. Furthermore, it explored how people perceive these attempts and manage their relationships with insurance-related technologies. The results indicate that sentiment and valuations play an important role in the making of these attachments and, consequently, in the market for behavioural life insurance policies.

The three empirical articles show that emotions are central to both insurance professionals' design practices and customers' everyday experiences with technologies. Insurers picture the wants, needs and moods of the customers; they assume that consumers desire a partnership that feels seamless and natural and, at the same time, strive to positively surprise the customers with better services that they were able to anticipate. Thus, a large part of the insurance professionals' attention is geared towards emotion management (McFall et al., 2017) or constructing a data-driven architecture of feeling (cf. Lilley et al., 2017), a technological system that would stir the right kinds of feelings at the right time (guilt, when people need a push, and joy, when a goal is achieved) and respond to consumers' feelings, scanning their unique needs and aligning services to them (tailoring the voice of the app, not pushing activity goals on people who are stressed).

People describe their immediate relations with the devices in affective terms. They discuss the technologies' haptic and visual cues that are meant to persuade them, and, perhaps more importantly, they reflect on the emotions that the devices make them feel. Hence, a great deal of the devices' impact depends on their affective

effects. However, people do not mindlessly obey data-tracking technologies. On the contrary, they continuously negotiate their relationships with the devices. The customers talk about the irritation and frustration they experience when the devices do not see them ‘right’, for instance, when they interrupt them at the wrong time, fail to record a form of exercise and, relatedly, fail to reward them with the insurance bonus they feel entitled to. In these accounts, people vent about the nosiness and pushiness of the technologies; they discuss the devices in very humanized terms, almost like they were a close but irritating relative.

Beyond the immediate relation to self-tracking technologies, people express various emotions when discussing insurance policy, insurance markets and the data economy. These feelings are often mixed, characterized by ambivalence, anxiety and doubt. On the one hand, people feel secure that insurance companies are acting by the book and that their data are used for reasonable purposes only. On the other hand, people feel that digital data are essentially uncertain and prone to breakage, leaving them with mixed feelings about the reliability of new data practices (Lomborg et al., 2020; Pink, Lanzeni, et al., 2018; Pink, Ruckenstein, et al., 2018).

This study shows that data-driven emotion management is difficult; technologies often fail to engender the desired affective response (cf. Lilley et al., 2017). The affective tone of the empirical materials highlights that behavioural life insurance is a still-emerging contested technology. Both insurance professionals and consumers are aware that there is controversy about the ethical soundness of new data practices. Emotions are attached to this controversy; they act as an indicator that the debate is not settled and that the new practices are troubling.

What seems to be at the centre of this tinkering, doing and negotiating are commonly shared values, especially the values of intimacy, autonomy and trust. Insurance professionals use the strategy of ‘partnering’ to become closer to customers and to enact the core value of the behaviour insurance product: intimacy. They, however, are aware that forcing people to engage in self-tracking and interfering too much in customers’ lives could hamper their goals; relatedly, customers accept behavioural policies if they are voluntary but resent the idea that they would not be able to decide for themselves. Hence, the value of autonomy is key. Finally, insurers know that maintaining trust is vital for insurance operations; they underscore the importance of transparency and the role of (self-)regulation in ensuring trustworthy data relations. For customers, the question of trust is more troubling, and new data practices complicate relations, creating novel uncertainties.

Affective responses are important in determining whether a specific enactment of values feels ‘right’ or not. Emotions alert when technologies become too intrusive,

creepy or irrelevant; they act almost like a sensor, notifying when technologies are crossing important boundaries and threatening crucial values, such as autonomy. They also show when the enactment of values is satisfying (for instance, when the technological interventions are experienced as enhancing one's self-determination), thus leaving room for positive emotions, such as curiosity and joy. From this perspective, values are situational, evolving with the practices and the actors taking part in them. This means a move from the either-or positions; values are not something that people 'have' or 'don't have'. Rather, values are done relationally, and they can change and be multiple; there can be *degrees* of intimacy, trust and autonomy.

How this multiplicity of emotion-laden enactments of values is dealt with is important for the success of the technology and/or the market. It is also crucial regarding people's possibilities of having dignified lives with technologies. Respectful co-existence with data-driven technologies requires that the technologies do not tamper constantly with our autonomy but leave 'breathing space' (Minkinen, 2020) for people to reflect upon, tinker and adjust their data relations. This is not to say that issues related to data relations could be solved by increasing individual control. In many cases, data relations are so complex that managing them would be a difficult task for anyone, not to mention people with limited capabilities and resources. Instead, the respect for people's boundaries and the promotion of central values should be a collective concern, inscribed already in technologies, regulation and the larger sociotechnical context.

The operational logic of behavioural products supposes continuous use of self-tracking devices; however, people's self-monitoring practices are usually episodic, with people adjusting their technology use to their life situations and relations, protecting themselves from physical and emotional pain (Gorm & Shklovski, 2019; Kristensen & Ruckenstein, 2018; Lomborg et al., 2018). Hence, behavioural life insurance policies do not self-evidently succeed in 'fitting people, and their varied relations, into the product' (McFall et al., 2017, p. 4), as they do not consider how real-life technology use unfolds. Instead, their efforts to collect as much data as possible are, at least to some extent, informed by the 'data imperative' (Amoore & Piotukh, 2015; Fourcade & Healy, 2017; Sadowski, 2019). Although people are interested in new products, they easily discard technologies. Hence, the attachments between behavioural life insurance policies and customers are not robust, as the products fail to consider people's emotions, values and practices in a satisfying way. This can be bad news for the making of behavioural insurance markets. It, however, reminds of the importance of imagining and crafting mutually respectful data relations that take people's collective concerns and needs as their starting point.

8.3 Limitations and directions for future research

The main limitations of the study have to do with the forms of data that it utilizes. The research is based mostly on interviews and focus group data, which could be seen as a limitation for examining insurance-related practices. From an ethnographic perspective, a thorough examination of insurers' and policyholders' practices would have required more participant observations. Even though I managed to observe the insurance professionals' meetings and ways of working to some extent, an in-depth ethnography would have required a prolonged presence in the organizations. Furthermore, the analysis of policyholders' experiences relies exclusively on focus group data. Observing their everyday practices using the devices could have provided an even better chance to look at how the behavioural products are used in everyday life and how they affect the insurer–insuree relationship. This could have brought out the possible differences between people coming from different socioeconomic backgrounds, for instance, in terms of when and where people are able to engage with the technologies. This would have been also an interesting approach to examine the negotiations related to autonomy, intimacy and trust: in what situations do these concerns manifest and how? Or are they concerns that the focus group approach invites people to ponder? Alas, the research collaborations with the insurance companies did not allow for this kind of research design and given the difficulties of recruiting participants for the focus groups, finding volunteers for this kind of more intensive data collection would probably have been challenging.

Despite these limitations, however, my research demonstrates that practices can also be studied using interviews and focus group data. Following the view that all methods are performative and entangled with interpretations (Atkinson & Coffey, 2003; Savage, 2013; Warde, 2005), the study has gone beyond of the question whether there are discrepancies between what people *say* and what they *do*. It has examined both procedures and representations related to behavioural insurance policies, seeking to understand what people do, feel and mean (Warde, 2005). I have succeeded in providing an in-depth view of the new insurance practices, showing the aims, ideas and procedures related to the development work and analysing the feelings, negotiations and engagements that policyholders experience. However, I would be intrigued to learn how a more ethnographically oriented study engaging in participant observations would test and enrich these findings.

A related limitation relates to the temporal aspects of the interview and focus group data. The data were collected at a particular point in time, which did not allow

us to see how the new operations developed. Future research could aim to map these developmental trajectories and see how the products unfold over prolonged periods of time. The original plan of this research was to do a follow-up on the policyholders, but it proved to be difficult to recruit people; this reflects the low interest and attachment that people have to insurance (Jeanningros & McFall, 2020). Because of this change in plans, I could only study the temporal aspects of people's self-tracking practices through their stories of how their tracking practices had changed. Hence, I was unable to follow the changes that would unfold over the course of the study. I faced the same issue with the insurers: after the research collaborations ended, I was able to follow the development of the policies only through advertisements and websites. Understandably, the insurance companies had no obligation to inform me about every change that occurred during the several years of my study; hence, to a large extent, I had to rely on publicly available sources.

The problem with following development and change is of course typical when studying an emerging technology; the temporalities of technology development and academic research are often vastly different, with product development being rapid and the pace of publication slow. It might well be that some of the practices described in this study are no longer topical for insurance professionals, as the services might have changed a lot. Yet, I do think that this research captures important information about the insurer–insuree relationship and the process of market formation that surpasses the details of technology development. After the completion of this research, I plan to conduct a follow-up study in insurance companies to see what the situation is now, several years after the original fieldwork. The negotiations for this research collaboration are already taking place.

The third limitation related to the scope of this study is that it only touches upon the role of central actors in the behavioural insurance assemblage: the perspectives of middleman data analytics companies that produce the policies' apps and are responsible for data collection and first-stage handling are not included. Multiple open questions remain: what do the data companies do with the data that they amass? They sell the data obviously to the insurers, but it is unclear whether they are combining different data and selling them forward to other companies. As this is a typical business model in the data economy, it would not be surprising if these companies sold repackaged data to multiple actors. Data companies are in the position of determining whether or not a person has met the criteria for an insurance bonus; they are the ones who combine different data generated with devices that have different algorithmic logics. As insurance companies receive very limited data about policyholders, these companies have considerable power; however, they are

often forgotten when behaviour-based personalization in insurance is discussed. As datafication does not happen in the insurance sector solely through the companies' own operations, more research needs to be conducted on the various tech companies participating in the development.

Future research could also expand the scope of this study by exploring more thoroughly how the findings resonate with EU level practices and how they compare to other contexts and markets. The thesis explores the Finnish case in detail, but a cross contextual comparison could improve the overall significance of the study. For instance, comparison of different cases within the EU could show how the legal frameworks manage to steer insurance operations and the overall development of datafication (of health). Furthermore, this perspective could help analyse which values the European regulation attempts to protect and how. These are some of the questions that I strive to explore in my forthcoming postdoctoral research.

8.4 Conclusion

The results of this research allow us to critically reflect which services are worth digitalizing, which kinds of technology relations we want and what is valuable for us in these relations. The data economy imaginary (Lehtiniemi, 2020) that influences insurers' actions supposes that the more data companies are able to gather, the better services they can produce. Thus, this 'optimizing' business model is supposed to create a win-win situation, providing personalized insights to the customers and larger profits to the service providers. However, this research shows that digital services might not always be the best way to co-create value with customers. The policyholders of this study were typically happy with the traditional role of insurance companies as the 'silent' providers of security; they were not that keen on the idea of insurers taking a more active role in their lives. Furthermore, when imagining adequate compensation for their behavioural data, the policyholders discussed real-life services that would give access to personal trainers, nutritionists and medical professionals. Hence, digital services were not the most alluring option for customers; instead, they longed for connections with real-life experts. Finally, data-driven technologies introduce new uncertainties to the insurer-insuree relationship with which insurers must be prepared to deal.

To summarize, this research shows that the techno-solutionist vision of an optimizing data logic that would be easily transferrable across fields does not work

frictionlessly in insurance. Instead, the results highlight that technology development must consider the situational issues at stake in a specific field, including regulatory and market contexts. Furthermore, this research underscores the fact that the datafied arrangements are not self-evidently mutually beneficial. Subjecting oneself to continuous data-tracking does not necessarily lead to perfectly tailored and personalized services. In the case of behavioural insurance policy customers, the benefits were often underwhelming and paired with the uncertainties related to the new data relations. For an individual consumer, the entirety of the data arrangements is likely to be incomprehensible; hence, the imbalance of knowledge and power between consumers and service providers is substantial. Thinking about future developments, it is crucial to consider how these socio-technical arrangements could actually become mutually respectful and consider commonly shared values, such as autonomy, trust and solidarity, in a satisfying way. Different actors, including lawgivers, industries, consumers and researchers, should contemplate and negotiate which enactments of values align with the kinds of developments and futures that we want to support.

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Contested technology: Social scientific perspectives of behaviour-based insurance

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Maiju Tanninen 

Abstract

In this review, I analyse how ‘behaviour-based personalisation’ in insurance – that is, insurers’ increased interest in tracking and manipulating insureds’ behaviour with, for instance, wearable devices – has been approached in recent social scientific literature. In the review, I focus on two streams of literature, critical data studies and the sociology of insurance, discussing the new (i.e. health and life) insurance schemes that utilise sensor-generated and digital data. The aim of this review is to compare these two approaches and to analyse what kinds of understandings, methodologies and theoretical perspectives they apply to so-called ‘behaviour-based insurance’. The critical data studies literature emphasises the exploitative aspects of these new technologies and mobilises behaviour-based insurance to exemplify the negative outcomes of digital health. Scholars from the field of the sociology of insurance empirically analyse the practices of behavioural-based personalisation and study how regulating and ‘doing’ insurance affect attempts to personalise it. I highlight the importance of approaching insurance as a specific financial technology and argue that more research is needed to understand the practices of developing behaviour-based insurance schemes and the insureds’ experiences.

Keywords

Critical research, datafication, insurance, review, self-tracking, science and technology studies

This article is a part of special theme on Insurance Personalization. To see a full list of all articles in this special theme, please click here: <https://journals.sagepub.com/page/bds/collections/personalizationofinsurance>

Introduction

The idea of using wearable technology and (big) data analytics in insurance has gained increasing attention in the latter half of the 2010s. Even large insurers, such as John Hancock, have explored the possibilities of incorporating self-tracked data – for example, data generated by activity wristbands and smart watches – into their policies (Sullivan, 2018). Actors from insurance and tech sectors see these kinds of ‘insurtech’ solutions as disruptors in the insurance market. Some argue that they transform insurance transactions, and perhaps the whole business, from impersonal to more personalised (McFall and Moor, 2018). In the insurers’ and tech companies’ visions, self-tracked data can be looped back to customers to ‘nudge’ their actions (see Thaler and Sunstein, 2009). More specifically, policies aim to manipulate customers’ behaviour and increase

customer engagement by incentivising safe and healthy habits (Falkous and Callaway, 2018). Furthermore, the data could be used in risk calculations and predictive underwriting to offer ‘tailor-made and therefore particularly profitable policies’ (Wiegard et al., 2019: 64). These kinds of solutions that aim at both product and price personalisation (McFall and Moor, 2018) are examples of behaviour-based personalisation in insurance – a process where ‘markets and services are increasingly focused on the behaviour and lifestyle of actors’ (Meyers, 2018: 117).

Faculty of Social Sciences, Tampere University, Tampere, Finland

Corresponding author:

Maiju Tanninen, Faculty of Social Sciences, Tampere University, Kalevantie 4, 33014 Tampere University, Tampere, Finland.
Email: maiju.tanninen@tuni.fi



Behaviour-based personalisation, specifically in the case of health and life insurance policies, can be seen as part of the larger hype around digital health. The expectation is that new digital technologies and extensive data sourcing will enable personalised medicine and lead to better health outcomes and cost efficiencies (Swan, 2012). For instance, wearable devices may help users to gain control of their health and generate savings in health care costs (Swan, 2012). Thus, their implementation in different institutional settings, such as insurance and healthcare, has gained significant interest (Becher, 2016; Lupton, 2016; McCrea and Farrell, 2018). The field of digital health, or ‘mHealth’, has been extensively analysed and criticised by social scientists, who focus on ‘datafication’: ‘the conversion of qualitative aspects of life into quantified data’ (Ruckenstein and Schüll, 2017: 262). Researchers have analysed the emergence of new kinds of data assemblages (Hogle, 2016) and mundane engagements with ‘data doubles’ (Ruckenstein, 2014). They have also discussed inequalities within digitised health, highlighting the asymmetric relations between the ‘data rich’ (e.g., corporations, institutions and governments) and ‘data poor’ (individuals) and the negative feedback loops that algorithmic systems can create (Andrejevic, 2014; O’Neil, 2016; Van Dijck, 2014).

Behaviour-based personalisation in insurance (or so-called ‘behaviour-based insurance’) has also been subject to such research. In particular, critical data studies and the sociology of insurance have discussed these new policies. First, the critical data studies literature highlights the exploitative aspects of behaviour-based insurance. Most of these studies consider the amalgam of insurance and self-tracking technologies as a dystopian version of the ‘wearable dream’ embodying the dark side of the ‘metric culture’: dataveillance, discrimination and exclusion (Ajana, 2017; Christophersen et al., 2015; Lupton, 2016). These oftentimes Foucauldian-inspired studies conduct little empirical analysis on existing behaviour-based insurance policies, but they employ them to represent the negative aspects of datafication. Second, scholars from the field of the sociology of insurance highlight the importance of approaching insurance as a special context for developing personalised solutions. With its practices of risk pooling and underwriting, ‘insurance as we know it’ (Meyers, 2018) is both a collectivising and an individualising technique (Ewald, 1991). A similar dynamic is at play with personalisation – alongside individualising practices, it constitutes a relation between a person and a reference group (Moor and Lury, 2018). Thus, the insurance studies examine how personalisation changes the practices of risk selection and pricing, or

if it changes them at all, and whether the logic of algorithmic personalisation (Lury and Day, 2019) can be combined with statistical conceptions of risk (McFall, 2019). These studies employ perspectives from science and technology studies (STS) and engage in empirical analysis.

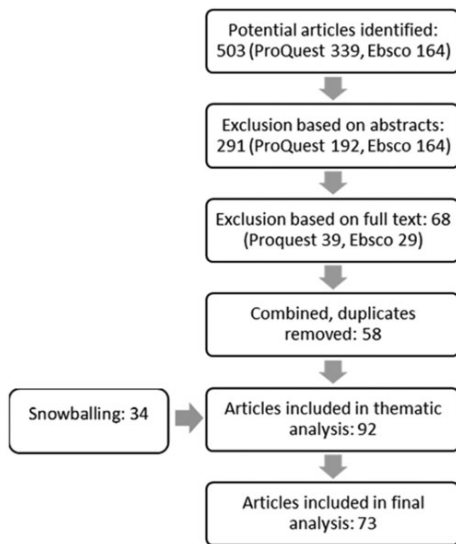
In this review, I map the social scientific research analysing the use of wearables and digital data in (private health and life) insurance. I aim to compare the literature streams I introduced above and propose possible directions for future research. I begin by presenting the methodological tools I used for the analysis and my literature selection process. Then, I discuss the critical data studies literature and analyse what kinds of understandings, methodologies and theoretical approaches its contributors take towards behaviour-based insurance. After this, I review research from the sociology of insurance to highlight how a deeper understanding of insurance technology could help to illustrate the limits and possibilities of behaviour-based personalisation. Finally, I conclude by arguing that even though STS-inspired insurance studies enable more precise and constructive criticism, further empirical analysis on insurance providers’ practices of developing behaviour-based policies and on users’ experiences is needed.

Methodology

To find the relevant literature discussing behaviour-based insurance policies, I conducted searches in the Social Science Database (ProQuest) and Sociology Source Ultimate (Ebsco) using the following search commands: self-tracking, life-logging, ‘quantified self’, self-tracking AND insurance, wearables AND insurance, ‘wearable devices’ AND insurance, ‘wearable technology’ AND insurance, ‘quantified self’ AND insurance, datafication AND health and datafication AND insurance.

These searches resulted in a corpus of 503 potential articles. Based on abstracts, I excluded articles that were obviously not related to the research topic, book reviews, short commentaries and letters to the editor. This resulted in 291 articles for the full-text phase. After reading the full text, I excluded all the articles that did not discuss insurance. I then combined the results from the two databases and removed duplicates, leaving me with 58 articles. I snowball-sampled 34 additional articles with reference tracking. This yielded 92 articles for thematic analysis. Thematic inquiry led me to exclude 19 papers due to differences in theoretical approaches and thematic discussions, including 11 (public) health, health ethics and psychology papers;

seven computer science papers; and one law paper. The final selection comprises 73 articles.



Behaviour-based insurance is closely related to questions of digital health; thus, I used Ruckenstein and Schüll's (2017) classification of different literature clusters that study the datafication of health as a methodological tool. This helped me to recognise the various themes discussed in the articles and identify their main theoretical and methodological approaches. Most of the articles (55 papers) seemed to represent what Ruckenstein and Schüll (2017) call the 'datafied power approach', what is also called 'critical data studies' (Iliadis and Russo, 2016) or 'critical digital health studies' (Lupton, 2014). Many of these papers were Foucauldian-inspired, employing the concepts of biopolitics and neoliberal subjectification (Foucault, 1986, 1991) and concentrating on the matters of responsabilisation, surveillance and exploitation. Some of them, however, also drew from neo-Marxist critical social theory, discussing neoliberalism, unwaged labour and surveillance capitalism. I review these papers in the first part of the analysis.

The second-largest group (18 papers) resembled what Ruckenstein and Schüll (2017) termed 'living with data' or 'data-human mediations', as these papers were empirical and/or they employed theoretical insights from STS. This group included STS-inspired insurance studies that discussed behaviour-based

insurance and applicable empirical studies concentrating on self-tracking practices. Here, I also included two review papers with no obvious theoretical emphasis. I discuss these studies in the second part of the analysis. Overall, there was not a clear difference between the two approaches in terms of the journals in which the articles were published. Many of the critical data studies articles appeared in *Surveillance & Society*, but other than that, papers from both clusters were published in journals such as *New Media & Society*, *Big Data & Society* and *Philosophy and Technology*.

Critical data studies and the sociology of insurance are not completely separated, as both streams of literature are inspired by Foucauldian research traditions (and some of the critical data studies scholars, too, draw from STS perspectives). Many earlier sociological studies of insurance employed governmentality perspectives to study insurance as way of governing society (Castel, 1991; Dean, 1999; Defert, 1991; Ewald, 1991). Later, these neo-Foucauldian approaches were used to explore the themes of responsabilisation and exclusion and the ways in which the insurance industry worked by embracing risk (Baker and Simon, 2002; Ericson and Doyle, 2004; Ericson et al., 2003). More recently, this tradition has been continued in the pragmatist stream of literature, employing insights from STS and contributing to the field of the sociology of markets (Callon et al., 2007). These studies approach insurance as a form of knowledge production and follow the various human and non-human actors participating in doing insurance (McFall, 2014; Van Hoyweghen, 2007). In this review, I focus more on these newer STS-inspired insurance studies, as behaviour-based personalisation is analysed using these perspectives. However, I discuss some of the classical neo-Foucauldian insurance studies in the second part of the analysis to highlight the importance of understanding insurance as a particular financial technique.

Insurance in critical data studies

Here, I analyse how the critical data studies literature approaches behaviour-based insurance. First, I discuss the different themes that are apparent in the body of research I examined. Even though many of the themes are intertwined, I have categorised them into three sections to ensure analytical clarity: (1) dataveillance and privacy issues; (2) responsabilisation, discrimination and exclusion; and (3) presumption, unwaged labour and surveillance capitalism. Second, I discuss the theoretical and methodological approaches utilised in the

literature and situate them in the larger field of the datafication of health and healthy citizenship.

Dataveillance and privacy issues

A recurring theme in the literature is that digital technologies enable novel ways of surveillance – or ‘dataveillance’. Instead of being ‘watched from above’, the datafication of new spheres of life submits people to the continuous and distributed monitoring of their behaviour (Van Dijck, 2014). Behaviour-based insurance is used as an example of this kind of logic. Insurance companies, alongside other institutions utilising data, are discussed as constantly tracking peoples’ digital traces (e.g., Hardey, 2019: 1002; Lanzing, 2019: 563; Lupton, 2016; Lupton and Michael, 2017: 255; Maalsen and Sadowski, 2019: 121; Phillips, 2015: 58; Sanders and Sheptycki, 2017: 5; Zuboff, 2019). Thus, insurance is seen as a part of a larger trend in which people are being monitored and externally incentivised, pushed or even coerced to engage in self-tracking in both public and private institutional contexts such as higher education, healthcare and the penal system (e.g., Elias and Gill, 2018; Lupton, 2014, 2016; Rich and Miah, 2017: 91). These institutions taking part in digitised health surveillance are seen as comprising the ‘public health surveillant assemblage’ that reinforces normative understandings of health and disciplines people who do not conform to them (Sanders, 2017: 44).

The critical research raises questions considering data privacy and users’ possibilities to manage their data flow. According to the literature, in the current ‘data-sharing culture’, users of self-tracking devices have little control over the movements of their data (Ajana, 2017: 9–11; Crawford et al., 2015: 490). Scholars fear that aggregated data, such as social media data, medical records and data from health apps, could be sold to third parties such as insurers, resulting in privacy issues and exploitative practices (Cinnamon, 2017: 614; Crawford et al., 2015: 490; Harkens, 2018: 22; Lanzing, 2016: 13; Lupton, 2015b: 448; Smith and Vonthethoff, 2017: 8). Ajana (2017: 11) argues that in societies where health services are increasingly being privatised, ensuring data privacy is crucial to preventing ‘a total transfer of power from individuals and communities to organisations and industries, such as insurance and pharmaceutical companies’. However, because the insurance industry’s right to collect data is often seen as a basic requirement for its operations, the effect of, for instance, the EU’s General Data Protection Regulation (GDPR) could be limited because it only regulates data use, not collection (Couldry and Yu, 2018: 4474). Thus, protections based on traditional notions of ‘privacy’ (such as informed

consent) might not be enough to address this continuous tracking (Couldry and Yu, 2018: 4486).

Responsibilisation, discrimination and exclusion

The critical research asserts that behaviour-based insurance is a way of making the insured more accountable for their everyday actions and health. The policies are considered to be a neoliberal technique that promotes the responsible and productive entrepreneurial self, and they are contested for their lack of attention to the social, cultural and political aspects of health behaviour and digital technology use (Ajana, 2017: 4; Charitsis, 2016: 52; Fotopoulou and O’Riordan, 2017; Lupton, 2015a; Welhausen, 2018). Several studies employ US-based workplace wellness programmes, usually created by health insurers, as a descriptive example of the tendency to increase people’s responsibility for their own health and to normalise certain kinds of bodies and lifestyles (Crawford et al., 2015: 494–495; Elman, 2018: 3766–3767; Harkens, 2018: 22; Hull and Pasquale, 2018; Sanders, 2017: 44). By incentivising ‘healthy’ behaviour, users are trained not only to produce data for the companies to utilise but to produce the right kinds of data to prove that they are mastering their own well-being (Charitsis, 2016: 52, 2019: 140). However, it is suggested that the incentivisation of ‘healthy’ behaviour only draws attention away from the fact that insurers (and employers) have little real concern for customers’ health and a great interest in using their data for profit (Gidaris, 2019: 137; Hull and Pasquale, 2018: 191).

In addition to responsibilisation, behaviour-based insurance policies are seen to tamper with their users’ autonomy. For instance, the (financial) incentives and ‘nudges’ that insurance-related workplace wellness programmes offer are regarded as a violation of people’s decisional privacy and deliberative autonomy, as they interfere with users’ freedom to make their own decisions (Lanzing, 2019: 558; Owens and Cribb, 2019: 33). Moreover, people may have little room to opt out of wellness schemes, even though the rhetoric of ‘choice’ is often employed (Gabriels and Coeckelbergh, 2019: 126; Lupton, 2016: 113). For instance, people who refuse to self-track might be considered as inadequate employees, or they might face higher premiums (Lupton, 2017: 4). Thus, policies might result in ‘unforeseen challenges’ such as discrimination against and the exclusion of employees who do not want to engage with them (Christophersen et al., 2015: 291–292; Hull and Pasquale, 2018; Maturo and Setiffi, 2015: 489).

Furthermore, new insurance schemes are believed to have the potential to differentiate between customers and personalise premiums. The continuous streams of personal data could allow them to calculate more

accurate, or even personal, premiums with real-time rate adjustments (Zuboff, 2019: 214). This kind of personalised pricing might affect conceptions of reciprocity and solidarity, as individualised risk assessment and pricing ‘make possible discriminations that were not detectable previously’ (König, 2017: 4–5). Consequently, behaviour-based insurance policies could create troublesome feedback loops, produce new categories of difference and reinforce existing inequalities (Ajana, 2017: 13; Cinnamon, 2017: 616; O’Neil, 2016: 167). For instance, policies may exclude people with disabilities, as wearable devices only track specific parameters of exercise, such as steps (Elman, 2018: 3766–3767). Therefore, people with ‘bad’ risks, such as illnesses, or people with less resources—who are most in need of insurance – may ultimately not be able to access or pay for policies (Lupton, 2014: 615–616, 2016: 113; Nissenbaum and Patterson, 2016: 89; O’Neil, 2016: 167).

Prosumption, unwaged labour and surveillance capitalism

Finally, critical researchers discuss the ways in which insurers use the data generated by new digital technologies to yield larger profits. This exploitation of customers’ data is discussed in terms of prosumption, (digital) unwaged labour and surveillance capitalism (Charitsis, 2016, 2019; Gidaris, 2019; Zuboff, 2019). For instance, it is seen that when users engage in self-tracking practices and allow their data to be collected, in a way, they are working for the companies (Gidaris, 2019: 135–136; Till, 2014: 448–451). However, even if people are given services in return for their data, they only receive a fragment of the value attributed to this work (Crawford et al., 2015: 490; Sadowski, 2019: 8). This kind of ‘prosumption’ that combines both production and consumption is seen as exploitative, as the customers are not necessarily aware of the labour they are performing, and they are not adequately compensated for it (Gidaris, 2019: 135; Ritzer and Jurgenson, 2010). Furthermore, in the case of workplace wellness programmes, policies transform employees’ leisure time and exercise into a form of unwaged labour, the purpose of which is to lower costs and enhance work performance (Till, 2014). The work day is extended through these wearable devices and activity goals, allowing employers and insurers to make extra profit (Charitsis, 2016: 52–53; Gidaris, 2019: 135–136; Hull and Pasquale, 2018: 201).

Researchers also discuss generating revenue through monitoring, predicting and modifying people’s behaviour in terms of ‘surveillance capitalism’ (Gidaris, 2019; Zuboff, 2015, 2019). In her book, *The Age of Surveillance Capitalism* (2019), Zuboff uses auto

insurance policies utilising telematics devices as an example of this logic. She maintains that the continuous streams of data the tracking devices generate could allow insurance companies to reduce uncertainty and focus on predicting and managing individual risks (Zuboff, 2019: 214). According to Zuboff (2019: 218), the insurers’ aim is to create ‘guaranteed outcomes’ through two operations: (1) looping the data back to the drivers and (2) using it for predictive calculations. The enhanced predictability and personalised calculations of risk might then generate a ‘behavioural surplus’, as premiums could ‘rise and fall from millisecond by millisecond’, creating cost savings and efficiencies (Zuboff, 2019: 214, 217). Zuboff (2015: 85–86, 2019) sees surveillance capitalism as an exploitative and parasitic economic logic that threatens human nature, market democracy and individuals’ sovereignty. She argues that people are mostly unaware of the control and surveillance pointed towards them (Zuboff, 2019: 218).

A datafied power approach to insurance

The arguments made about behaviour-based insurance seem to comply with the general arguments in the critical data studies literature. In line with what Ruckenstein and Schüll (2017: 263–265) call the ‘datafied power approach’, insurance is discussed through issues such as dataveillance, exploitation of personal health data and objectification of bodies. In many cases, the research is Foucauldian-inspired, employing the concepts of biopolitics and neoliberal subjectification (Foucault, 1986, 1991). Some scholars seem to draw from neo-Marxist perspectives, discussing issues such as commodification of personal data and unpaid digital labour. Only a few studies analyse empirical data, but in those cases, new insurance schemes are not at the centre of the analysis. Usually, insurance is discussed along with other institutions utilising personal data and behaviour-based policies are given as examples of the possible negative outcomes of datafication and the self-tracking trend. Some articles borrow empirical examples from media texts, such as articles published in *Forbes* (Olson, 2014; Olson and Tilley, 2014), to highlight the recent developments in and possibilities of behaviour-based personalisation in insurance (e.g., Charitsis, 2016; Fotopoulou and O’Riordan, 2017; Lupton, 2015a, 2016; McEwen, 2018). Generally, the literature is not empirically well informed about Big-Data-enabled personalisation in insurance. The focus is predominantly on the US, context where the Affordable Care Act (ACA) (2010) has encouraged the use of preventive measures and health technologies in insurance and health care (Hull and Pasquale, 2018). This might lead to biased assumptions

about Big-Data-enabled personalisation in insurance, as scholars overlook cases outside the US, where the markets and legal frameworks might be different.

The datafied power approach has been criticised for its lack of empirical attention to the different agencies and goals at play (Ruckenstein and Schüll, 2017: 265). It has also been challenged for being speculative, for configuring the users of wearable devices in unrealistic ways and for ignoring the users' everyday experiences (Sharon, 2017: 116). Because of its strong emphasis on the exploitative aspects of datafication, the datafied power approach rarely considers cases of 'non-compliance, appropriation and existential possibility' (Ruckenstein and Schüll, 2017: 265). This is problematic, as it might reinforce traditional ideas of certain values, such as understandings of individual autonomy as a lack of constraint, while it disregards practices and modes of reasoning that do resist the dominant order (Sharon, 2015: 296, 2017: 106). From an STS perspective, overlooking the viewpoints of the actors involved could make the critique alienating, as it enables critics to occupy a position in which they are always right (Latour, 2004: 239–240). To avoid this, it could be useful to conduct analyses with a 'realist attitude' and to consider the historical situatedness, complexity and diversity of the research objects (Latour, 2004: 231). Hence, an STS- or practice-based approach to self-tracking and behaviour-based insurance could help researchers to study users' experiences, formulate alternative questions and consider how values are enacted in specific practices (Sharon, 2017: 108, 116).

Insights from the sociology of insurance

In this section, I discuss how different aspects of insurance technology limit and enable the creation of behaviour-based insurance policies. Although I am focusing on the insurance and self-tracking literature that utilises STS approaches and engages in empirical analysis, I also discuss select classic neo-Foucauldian insurance studies in the first part of my analysis to achieve a precise understanding of what 'insurance as we know it' is and how insurance functions – or used to function. Thus, I begin by discussing how the basic mechanisms of insurance conflict with the idea of personalised risks and premiums. Second, I analyse how regulation affect the scope of insurers' actions. Third, I demonstrate how the outcome of behaviour-based insurance depends on the practices of doing insurance.

Understanding insurance

'Insurance as we know it' is a collective mechanism for mitigating risk. Insurance standardises uncertain harmful events, assigns monetary value to them and

distributes payment responsibility (Ericson et al., 2003: 5–6; Ewald, 1991: 201–205). In actuarial calculations, statistical methods are used to objectify uncertainty to predictable risks (Ewald, 1991: 201–202; Knights and Vurdubakis, 1993: 730). Insurance only tackles the 'insurable risks' enacted in these calculations – that is, calculable harmful events that cause financial losses and occur randomly in a pool of people (Ewald, 1991: 201; *Insurable Risk*, 2018). Consequently, risks can only be calculated on a population level and are always collective (Ewald, 1990: 146). Following this, insurance is a collective mechanism in which a group of people facing the same risk covers the occurrence of that risk for the 'pool as a whole' (Lehtonen and Liukko, 2015: 158). Because of this, all insurance schemes entail a practical form of solidarity (Lehtonen and Liukko, 2011: 33).

Both the insurance and the tech industry's visions and critical commentaries of these prospects presume a move from this collective model to more personalised enactments of risk, as they believe that behavioural data can override the reliance on traditional group classifications (Becher, 2016; Zuboff, 2019). However, as the concept of risk is inherently collective, it is questionable whether 'individual risks' can exist, or whether determining risk at an individual level is anything else but guesswork (McFall and Moor, 2018: 198). Consequently, self-tracked data could perhaps be used in risk calculations, but it should be embedded into the insurance infrastructure to produce meaningful outcomes (McFall, 2019: 55). Thus, using digital data would likely align with the underwriting practices already taking place in insurance.

In a way, individualisation is nothing new in insurance, as 'insurance as we know it' both creates collectives and distinguishes members by their probability of risk (Dean, 1999: 30; Ewald, 1991: 203). In the underwriting process, a specific probability is determined for every member of the collective using calculative devices such as health questionnaires (Van Hoyweghen, 2007, 2014). The premiums, however, do not vary according to individual qualities, but instead they rely on specific group characteristics (McFall, 2019: 54). Thus, even though insurance individualises risk, it is individualisation that is relative to the other members of the collective (Ewald, 1991: 203).

The underwriting process is not a straightforward technical measure. Studies using STS approaches suggest that alongside actuarial calculations, insurers consider other things, such as marketing and customer relations, when determining premiums (Van Hoyweghen, 2014: 338–339). Thus, underwriting is not an exact science but the outcome of several combined factors (McFall, 2019: 54; Van Hoyweghen, 2014: 346–347). Similar logic is at play in the

behaviour-based insurance policies currently on the market. For instance, the Vitality franchise of Discovery Ltd rewards its customers with bonuses, gift cards and promotional deals if they reach high enough activity levels (McFall and Moor, 2018: 206; Vitality Corporate Services Limited, 2019). Offering bonuses, however, is not the same as using behavioural data to determine and price individual risk; thus, the Vitality scheme resembles a retailer loyalty programme more than a new way of calculating risk (McFall, 2019: 70; McFall and Moor, 2018: 198).

Furthermore, it is unclear whether insurance based on 'individual risks' would be operational – or whether it would be considered insurance at all (McFall, 2019: 70). Insurance technology spreads risk among a pool of insureds who 'join their resources to face future uncertainties' (Lehtonen and Liukko, 2015: 157). This spreading of risk is vital, as it ensures profitability for the insurance company and constitutes insurance as an efficient form of security for the customers (Lehtonen and Liukko, 2015: 157–158). It differentiates insurance from personal savings and has been used to distinguish insurance from gambling (Lehtonen and Liukko, 2015: 157; O'Malley, 2004: 109–110). For (behaviour-based) insurance to be secure or profitable without risk spreading, companies' operational models must be renewed. Interestingly, many visionaries of behavioural-based personalisation are not insurers, but they are 'interested actors' such as tech and consultancy firms (Meyers and Van Hoyweghen, 2018: 128). Therefore, a radical shift in practices seems unlikely, as the insurance business is famously inert to change and is cautious of reputation risks (McFall and Moor, 2018: 198).

The critical analyses, however, rightly point to the limits of insurance solidarity. As people with similar characteristics are pooled together and increasingly detailed risk classifications are conducted, someone is always left out (Lehtonen and Liukko, 2011: 39, 2015: 165). Thus, insurance creates exclusion alongside inclusion (Lehtonen and Liukko, 2015: 156). The neo-Foucauldian insurance studies have examined the topic of exclusion extensively and suggest that insurance generates 'gated communities of risk' by skimming off the most profitable populations, favouring 'responsible' people and using 'redlining' tactics to exclude certain underprivileged areas deemed high risk from their schemes (Baker, 2002: 39; Ericson et al., 2003: 227–229). This could 'unpool' some of the risk that insurers carry and exclude the poor and high-risk individuals while encouraging the fortunate and wealthy to have even more insurance (Ericson et al., 2000: 534–537; French and Kneale, 2009: 1030–1032; Heimer, 2002: 117). These kinds of exclusionary measures are sometimes understood as practical responses to tackle the problems of moral hazard and adverse selection.

However, neo-Foucauldian scholars point out that insurance is not a neutral technology but a means of distributing responsibility and a site for constituting moral subjects (Baker, 2002; Dean, 1999; Heimer, 2002; Knights and Vurdubakis, 1993; O'Malley, 2002).

Critical data studies researchers align with these analyses, arguing that the refusal to track or the inability to conform to health ideals could lead to discrimination and exclusion from insurance (e.g., Lupton, 2016; Zuboff, 2019). However, empirical evidence on existing behaviour-based insurance policies does not entirely support this conclusion, as policies are still in the pilot stage, and their use of self-tracked data is limited (McFall, 2019: 70–71; Meyers, 2018). Instead, policies create inclusion and exclusion by trying to attract young and health-conscious customers to constitute 'healthy' pools (McFall and Moor, 2018: 206). This, again, is more of a marketing method than a feature of insurance technology. Still, as classifications and risk assessment are at the core of insurance, behaviour-based personalisation could lead to further discrimination (McFall and Moor, 2018: 205). Similar fears were expressed in the 1990s and 2000s during the debate on the use of genetic information in insurance (Wauters and Van Hoyweghen, 2016). In the end, many of the scenarios turned out to be exaggerated, as a lack scientific progress, public opposition and new legislation hindered insurers' use of genomic data (Thomas, 2012; Wauters and Van Hoyweghen, 2016). Given the existing evidence, it is too early to evaluate whether insurers will take up behaviour-based personalisation and whether they can make it work (McFall and Moor, 2018: 205).

Legal frameworks

The insurance industry is a highly regulated field, with legislation targeting the practices of risk selection and underwriting (Meyers, 2018: 119). Insurers can only use 'relevant and reliable' data in risk calculations. Further, the use of protected attributes, such as religion, sexual orientation and ethnicity, is prohibited by anti-discrimination laws (McFall, 2019: 71; Meyers, 2018: 120). The demand for such protections stems from the question of solidarity: Who is seen as eligible for insurance, and what kinds of risks are seen as worth insuring (e.g., Lehtonen and Liukko, 2011; Van Hoyweghen et al., 2007)? Because insurance is generally understood to be an instrument of solidarity instead of discrimination (Prainsack and Van Hoyweghen, 2020), and access to healthcare is defined as a fundamental right (European Union, 2012; WHO, 2017), insurers' attempts to narrow the risk pool have been met with critical scrutiny. In recent years, anti-discrimination regulations have been enacted on

both the national and supranational level forbidding the use of genomic data (Van Hoyweghen, 2007), pre-existing conditions (Hull and Pasquale, 2018; McFall, 2019) and gender (Rebert and Van Hoyweghen, 2015).

The proliferation of anti-discrimination laws has given rise to the debate on the financial viability of the insurance industry and insurers' 'right to underwrite' (Meyers and Van Hoyweghen, 2017: 16). Meyers and Van Hoyweghen (2017: 16) estimated that insurers' interest in behaviour-based personalisation could be fuelled by the introduction of genetic non-discrimination acts (GNDAs) and the anticipation of stricter regulations. Constituting risk groups could become more difficult in the future, and insurers are highlighting the controllability of behaviour and discovering ways to attract 'responsible', young and healthy individuals (McFall, 2019: 68; Meyers and Van Hoyweghen, 2017: 16). Thus, while GNDAs have reconfigured insurance markets by protecting genetic 'risk-havers' from discrimination and by increasing the subsidising qualities of insurance, they have contributed to the idea that lifestyle 'risk-takers', such as smokers, should carry their own responsibility (Lehtonen and Liukko, 2011: 40; Van Hoyweghen, 2010: 441).

Critical researchers often discuss these individualising effects of Big-Data-enabled personalisation using US cases related to the ACA legislation. However, Liz McFall (2019: 70) argues that under current US regulations, it seems unlikely that the envisioned threats of behaviour-based personalisation would become a reality, as the 'protections for pre-existing conditions, and the actuarial devices for reinsurance, risk assessment and risk corridors, purposefully prevent the use of any individual level data derived for pricing'. Thouvenin et al. (2019) assert that, due to strict anti-discrimination and other regulations, attempts to individualise (health or other) insurance contracts by running large-scale Big Data analytics are probably not commercially feasible in the US (and specific to this case, California). Thus, even though the ACA legislation encourages the adoption of wellness schemes and data-driven devices, it does not support their use in pricing and risk selection.

The US context, however, lacks strict data protection regulation, whereas in Europe, the EU's GDPR constitutes the most important restriction for behaviour-based personalisation in insurance (Thouvenin et al., 2019). Still, critical voices suggest that the GDPR has its shortcomings. Marelli et al. (2020: 12–13) highlight four main issues raised in the debate: the inadequacy of traditional data protection principles to regulate Big Data practices, the vagueness of regulatory categories, the problems with the notice-and-consent model and the insufficiencies of controlling data processing operations. These issues highlight

the need for renewed regulations that consider different stakeholders' rights, values and interests. Intensified data collection could create a new kind of solidarity through the understanding that 'we are all' carriers of data and potentially subject to discrimination (Prainsack and Van Hoyweghen, 2020). This could lead to further demand for protections against behaviour-based personalisation (Prainsack and Van Hoyweghen, 2020). However, because individuals', families' and societies' methods of coping with risks are largely tied to insurance mechanisms, a balance between market incentives and societal needs must be found (Blasimme et al., 2019: 7).

Doing insurance

Critical data studies researchers approach insurance as a black box or as a given entity. In contrast, insurance studies highlight the importance of studying the practices of doing (behaviour-based) insurance. For instance, the meanings and applications of the central concept of insurance, moral hazard and the understandings of morality and prudence have evolved alongside changes in the ideological and practical implications of insurance (Baker, 2000; Leaver, 2015; Quinn, 2008). Following these kinds of trajectories and taking a pragmatic stance calls for a richer and empirically rooted approach to insurance. The pragmatist perspectives are well-established in insurance studies, with Ewald (1999: 21) arguing that general insurance does not exist – rather, there are only insurance companies with different strategies for competition and acquiring information. These kinds of perspectives are prevalent, especially among insurance studies that use STS approaches. These studies focus on the effects of human and non-human actions and highlight that the outcomes of insurance depend on how it is assembled in different situations (e.g., Lehtonen, 2017; McFall, 2014; Meyers, 2018; Van Hoyweghen, 2007).

The insurance studies using STS approaches employ various empirical materials and ethnographic methods to analyse insurance practices and new insurance schemes. Meyers (2018) follows the emergence of behaviour-based personalisation and the creation of a 'not-yet' market by conducting participant observations in insurance conferences, interviewing insurance professionals, analysing reinsurers' online platforms and following car insurance experiments. McFall (2019) uses the case of Oscar Health to study how conceptual, regulatory and infrastructural practices act as barriers to risk personalisation. The empirical evidence from these studies shows that there are many practical difficulties in creating a policy that utilises new means of tracking. Thus, the utopian – or the dystopian – idea of personalised insurance is not very easy to achieve.

Instead of personalising risks, behaviour-based insurance policies seem to create future markets by personalising and promoting insurance companies (McFall, 2019; Meyers, 2018).

What is still lacking from both critical data studies and the sociology of insurance is a focus on the insureds' experiences. Furthermore, although insurance studies have analysed the providers' perspectives through expert interviews, documents, blog posts and business conferences (McFall, 2019; Meyers, 2018), more research is needed on the insurance providers' practices of developing behaviour-based policies. The user perspective has been studied in what Ruckenstein and Schüll (2017) call the 'living with data' approach to self-tracking practices and the datafication of health. Even though these studies have not focused on insurance customers, some of their findings might be applicable in the insurance context. For instance, empirical evidence shows that people oftentimes abandon wearable devices, or their use becomes unengaged (Gorm and Shklovski, 2019; Kristensen and Ruckenstein, 2018; Rapp and Cena, 2016). In Schüll's (2016: 323) ethnographic study, an informant affiliated with the UnitedHealth insurance company describes encountering this problem:

Back upstairs at the Digital Health Summit, technology designers, doctors and government representatives continued to brainstorm on how to get personal data technology onto the wrists and into the pockets of more consumers. The accuracy and feasibility of monitoring, they reported, was good and getting better, and data scientists were continuing to refine analytic algorithms; the challenge when it came to self-tracking devices and programs was consistent use – 'getting people to use the damn thing, so that it becomes part of their lifestyle', as the Executive Vice President and Chief Medical Officer of the UnitedHealth insurance company put it.

The idea that wearable devices should be used continuously prevails in their design processes and in the attempts to integrate them into institutional settings (Gorm and Shklovski, 2019: 2506). However, 'episodic use' is an integral part of self-tracking practices, not a technical failure or a 'bug' to be fixed (Gorm and Shklovski, 2019: 2509). In current attempts at behaviour-based personalisation, wearers' non-use of devices is problematic because it complicates insurers' efforts to persuade lifestyle change, improve customer engagement and collect self-tracked data. If the wearables and the incentives are not adequately engaging, policies cannot encourage healthy habits or 'bend the cost curve' – that is, to create cost efficiencies – as a Cigna spokesman stated (Olson, 2014). Furthermore,

the abandonment or irregular use of devices affects the quality of the data, as the data flow becomes inconstant. Wearables can also be inaccurate, and they might not measure all kinds of activity, such as cycling or using a wheelchair (Elman, 2018: 3762; Pink et al., 2018: 7–6). Moreover, insurers must consider the moral hazard related to self-tracking – namely, users' ability to manipulate or hack devices in various ways. Hence, data reliability might be low, or the data can be 'broken' (Pink et al., 2018), making it difficult to use in actuarial calculations and price personalisation. Future research could analyse how insurance providers navigate this difficult context while developing engaging and effective products as well as how customers incorporate policies into their daily lives.

Conclusion

In this review, I have analysed how the recent social scientific literature from critical data studies and the sociology of insurance approach behaviour-based personalisation in insurance. These streams of literature represent distinct research projects with different premises and aims. On the one hand, the critical data studies research is oriented towards an overall theoretical analysis of the datafication of health. Here, insurance acts mainly as an extreme example of the undesired outcomes of this pervasive logic. On the other hand, STS-inspired insurance studies approach insurance as a specific technique and logic with its own preconditions. Thus, behaviour-based personalisation is first and foremost studied in relation to 'insurance as we know it' to see if and how the new technologies change existing insurance practices. In contrast to critical data studies, the overall effects of datafication are not the primary target of these analyses – instead, the focus is on empirically analysing existing insurance cases, practices and regulatory frameworks.

The critical data studies literature uses behaviour-based insurance to exemplify dataveillance, a process in which people are submitted to the constant monitoring of their data traces and pushed to adopt self-tracking practices (Lupton, 2016). Researchers assert that the prospect of using self-tracked data in risk calculations and premium personalisation is exploitative, as it could lead to the discrimination and exclusion of people who do not conform to certain health ideals, or who do not wish to partake in self-tracking (Lupton, 2017). Furthermore, the critical research perceives behaviour-based insurance as a case of surveillance capitalism, an economic logic allowing insurers to yield profits through monitoring, predicting and manipulating peoples' behaviour (Gidaris, 2019; Zuboff, 2019). In contrast, insurance studies highlight several issues in building a functioning behaviour-

based policy. First, risk and insurance are collective concepts – therefore, the idea of personalised premiums is at odds with the basic mechanisms of insurance. Second, the existing insurance legislation in the US and EU hinders the effective use of self-tracked data (McFall, 2019; Thouvenin et al., 2019). Third, the outcomes of behaviour-based personalisation are not deterministic, but they depend on the actors participating in doing insurance. Current behaviour-based insurance schemes are still mostly pilot policies that act as a form of marketing and that help insurance to prepare for the future market (McFall, 2019; Meyers, 2018). Thus, it seems that the dystopian imaginings invoked by the critical research, and the utopian visions of the industry, are not actualised.

It is evident that power and knowledge asymmetries allow insurers to structure the playing field and control many of the conditions of insurance relationships. Behaviour-based insurance could entail many of the problems the critical scholars discussed, such as discriminating against people with restricted mobility (e.g., Elman, 2018). Therefore, critical voices on insurance and new technologies are needed. However, by only highlighting the coercive and exploitative aspects of insurance relations, the critical data studies literature completely overlooks the basic usefulness of insurance. Furthermore, as the critical research rarely engages in empirical inquiry, it dismisses users' experiences and cases of noncompliance. Thus, it might rely on the same understandings as the dominant Big Data enthusiastic discourses, ultimately taking insurers' and tech companies' visions on the 'digital disruption' seriously. Giving credit to these predictions could in fact reinforce this possible future (e.g., Beckert, 2016).

To understand behaviour-based personalisation in insurance, it is crucial to approach insurance as a specific financial technique. STS-inspired insurance studies employ this kind of perspective and analyse the limits that insurance technology, practises and legislation place on new policies. This kind of empirical stance facilitates constructive criticism that does not rely on the dominant discourses. Thus, the solution is not to depoliticise the discussion but to examine how normalisation and exploitation appear in actual practice (Sharon, 2018: 21). In fact, insurance studies highlight that behaviour-based personalisation is already thoroughly political, as it is subject to strict regulation and legislation.

Neither critical data studies nor the sociology of insurance have discussed insurance providers' practices of developing behaviour-based policies and users' experiences in detail. Therefore, more empirical analysis focusing on these topics is needed. Thus far, insurance studies have explored the providers' side through examining official documents, blog posts and business

conferences, for example (McFall, 2019; Meyers, 2018). However, an in-depth empirical analysis on the design processes of new (health or life) policies is missing. Moreover, insurance customers are generally an under-researched area, with only a few studies examining the insureds' experiences (e.g., Lehtonen, 2017). Therefore, research focusing on behaviour-based policy customers is needed to understand how the policies unfold in everyday life. Future studies could analyse how insurance companies aim to become involved in customers' lives and ensure their engagement with their products. They could also investigate how customers negotiate their relationships with new policies. These kinds of approaches would provide an opportunity to empirically test claims from critical analyses. They would also highlight that there are many ways of doing insurance, and that the future of behaviour-based personalisation is open for alternative imaginings.

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ORCID iD

Maiju Tanninen  <https://orcid.org/0000-0003-3274-6360>

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Maiju Tanninen, Turo-Kimmo Lehtonen & Minna Ruckenstein

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Tracking lives, forging markets

Maiju Tanninen ^a, Turo-Kimmo Lehtonen ^b and Minna Ruckenstein ^c

^aFaculty of Social Sciences, Tampere University, Tampere, Finland; ^bProfessor of Sociology, Tampere University, Tampere, Finland; ^cConsumer Society Research Centre and the Helsinki Center for Digital Humanities, University of Helsinki, Helsinki, Finland

ABSTRACT

In the insurance industry, digital technologies have been harnessed in pursuit of three goals: personalising services for customers, obtaining information about them and nudging them towards behaviour that diminishes their risks. This article examines two Finnish companies that use self-tracking practices and sensor-generated data in life insurance products. It investigates the knowledges and practices mobilised in a design process that aims to transform the customer relationship from reactive to proactive. Insurers use three main strategies, *educating*, *incentivising* and *partnering*, in striving to align their aims with those of their customers. Instead of confirming narratives of ‘digital disruption’, this study argues that insurance should be understood as a historically specific technology within regulatory constraints and market frictions. The new policies’ most distinctive disruptive feature is the technological mediation of the customer relationship. Critical voices rightly point out that behaviour-based insurance carries the potential for discrimination and dataveillance. Our study shows, however, that critique remains abstract or even hypothetical if it does not consider existing practices and the difficulties that insurers face when implementing their ideas.

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Introduction

With the development of (big) data analytics and the widespread hype surrounding the market opportunities generated by data-related practices, companies are increasingly employing digital technologies to become intimately involved in people’s lives. Service providers aim to produce digital landscapes or maps that are a sufficiently close fit to reality for people to inhabit (Thrift 2011, Ruckenstein 2017), thereby creating spaces in which the co-existence of customers and service providers feels seamless and authentic. Consequently, through techniques such as social media analytics, targeted advertising and wearable technology, people’s lives are becoming increasingly datafied and entangled with organisations and businesses providing a vast range of services, including life insurance. As Fourcade and Healy (2017, p. 23) observe, ‘the market sees you from within, measuring your body and emotional states, and watching as you move around your house, the office, or the mall’.

The new intimacy of technology development has generated social scientific analysis and criticism focusing on issues such as dataveillance, biopower and biopolitical marketing while emphasising the exploitative nature of technology-enabled governance and value extraction (Van Dijck 2014, Lupton 2016, Zwick and Bradshaw 2016, Charitsis *et al.* 2019). Empirical studies analyse how

CONTACT Maiju Tanninen  maiju.tanninen@tuni.fi

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companies design inhabitable maps that proactively respond to and shape people's everyday practices and aims. For example, drawing on research conducted among technology developers and marketers of personal health technology, Schüll (2016, 2018) examines how algorithmic care is designed as a feature of products used to assist and reinforce chosen behaviours; she detects a thermostat-like logic in these products, which actively regulate users in their daily choices via automated prompts like taps and buzzes. Similarly, Berg (2017, p. 6) observes how designers of wearables approach users 'as vulnerable beings in need of assistance, advice, and actionable guidance'. Digital devices seek an insider position; rather than remaining at the border, they enter the everyday life, scouting, browsing and responding to it.

Through our case study of two Finnish life insurance policies that use self-tracking practices and sensor-generated data – known as 'behaviour-based insurance policies' – we analyse the design aims of a new insurance technology that is supposed to participate actively in customers' lives and manipulate their behaviour. Our goal is to open to exploration the emerging behaviour-based insurance practices in a 'not-yet-market' (Meyers 2018), characterised by actions that anticipate, forge and constitute future markets. We analyse the regulatory context and the existing insurance market and how each affects the design process. Moreover, we examine what kinds of knowledges and practices insurance professionals mobilise to know their customers and facilitate behavioural changes among them. As we show, the companies' goal is to transform the customer relationship from reactive to proactive, to *align* their policies' aims with their customers' daily choices by educating, incentivising and partnering with them.

Critical analyses claim that the new 'insurtech' solutions could result in intensified dataveillance, personalised premiums and real-time rate adjustments that would thus not only reproduce but also strengthen existing inequalities (Gidaris 2019, Zuboff 2019). Such solutions might also enable insurers to calculate risk more precisely and thus lead to excluding people deemed high-risk from coverage (König 2017). These critical analyses, however, tend to have two systematic weaknesses: they rarely consider insurance as a specific technology, and they lack empirical evidence (Tanninen 2020). By contrast, recent studies analysing existing insurance cases indicate that the new schemes are often still in the pilot stage and that infrastructural and regulatory barriers hinder many of the envisioned applications of behaviour-based personalisation (Meyers 2018, McFall 2019). Barry and Charpentier (2020, p. 9) suggest that there is 'a tension between imaginaries of personalization, and the calculative devices currently used to assess risks'; instead of a 'disruptive' individualisation of risk, 'big data' solutions are used in motor insurance, for example, to refine existing classifications and enhance traditional actuarial methods and insurance practices. Therefore, at least for now, it appears that the main purpose of the new products is to *personalise the insurance companies*, rather than their customers; that is, to act as a form of marketing (McFall and Moor 2018).

We recognise the performative power of insurtech developments that shape the possibilities of future markets (Cevolini and Esposito 2020), but our study shows that local contexts and historical continuities are equally important. Finns are provided universal health care at very low cost, and the general welfare system guarantees a decent basic income for citizens exposed to economic vulnerability; thus, private health and life insurance policies are often regarded as forms of extra security (Lehtonen and Liukko 2010). The new insurance policies are influenced not only by the potential market but also by marketing goals that highlight the importance of the customer experience and customer value, using methods, like service design, that focus on collecting detailed customer information and personalising products and services in light of that information. Data analytics is the newest tool for 'seeing' and 'knowing' consumers – to use Fourcade and Healy's terms (2017, p. 23) – and imagining how to improve customer relationships.

As we demonstrate, accessing people's lives and becoming relevant for them is far from straightforward. Market-making is a process that seeks intimacies and alliances in the inter-relationality of people, devices and company aims, yet consumers also ignore and even avoid this alignment of aims. Indeed, as McFall and others argue (2017, p. 14), '[m]arkets are contingent upon the

associated action of individuals in attaching, rejecting, complaining, negotiating, reviewing, modifying, hacking, appropriating and refusing market offerings'. Furthermore, market-making efforts might be based on false premises concerning what a customer is or wants. Despite the goals of personalisation, industry models are still largely built on crude segmentation, resulting in people becoming annoyed and irritated when the market fails to view them accurately; 'targeted' advertisements based on general groupings, such as gender and age, can produce an alienating discrepancy between people's sense of self and the advertising machine (Ruckenstein and Granroth 2020, p. 19–20). Personalisation is never merely personal; rather, it creates a relation between a person and a reference group, whereby an ostensibly personalised individual is constituted by combining different features and including and excluding a variety of contexts (Moor and Lury 2018, Lury and Day 2019).

Below, we argue that new insurance technologies need to be approached as situated entities that come into being in complex market relations and regulatory frameworks. The goal of becoming intimately involved in daily lives requires careful alignment work on the part of a company; rather than being a matter of technical choices, it is a process of negotiation and knowledge production. Exploring the case of behaviour-based insurance allows us to study how knowledges, ideas and practices are inscribed on the digital landscape of new insurance technologies. As such, it offers a corrective to both social scientific criticism and hyper-optimistic industry views that assume a linear development in digital insurance.

Insurance and everyday life

Insurance policies are purchased to secure oneself or one's family, at least financially, against unwanted events. Thus, insurance is fundamentally entangled with many of the most intimate aspects of people's lives, including family relations, health and death. These 'private facts' about consumers penetrate and configure insurance markets (McFall 2014) through two intertwined processes. First, customers' lives are part of the product that is sold. Insurance objectifies undesirable events into calculable risks, pooling similar risks together and assigning them a monetary value. Through an insurance contract, customers gain access to a collective of people that covers the risks for the 'pool as a whole' (Lehtonen and Liukko 2015, p. 158). In the underwriting process, calculative devices like health questionnaires are used to determine people's risk status and turn their lives into economic goods (Van Hoyweghen 2014). Along with these more technical ways of encompassing people's lives, insurance, which is not a self-evident need, has a long history of appealing to people's private facts through affective marketing: the reasons for purchasing a policy must be communicated. In many countries, the traditional model for commercial life insurance marketing has been the home visit by an insurance agent who is presented as the customer's trusted friend or ally, someone who is there to help people manage their lives. By getting to know their customers, these 'insurance men' would channel people's private matters into market transactions. Even early life insurance advertising employed images of family life and the possible death of a spouse or a parent (typically the breadwinning father) as an incentive to take out a policy – a practice that continues today – by mobilising people's affection for their loved ones and attaching it to the insurance product. Hence, the insurance business is based on affect: not only images of fear, risks and precaution but also trust and even love are crucial to the marketing machine (Zelizer 1979, O'Malley 2002, Lehtonen 2014, McFall 2014, Sjöblom 2016).

Although insurance marketing employs affective elements, closeness and intimacy do not extend to the customer relationship (Baker 1994), with insurance often regarded as something technical, contractual and cold. Insurance providers tend to see this as problematic. As their only contact with their customers might be the annual bill, they understand that their interaction with the insured is usually rather weak. Thus, improving customer relations through the use of digital tools and the 'turn to lifestyle' (French and Kneale 2009) are deployed as ways to gain a competitive edge in the intense fight for market share. The understanding here is that the traditional aims of the

personal insurance business – establishing frequent positive connections with the insured, making insurance more interesting and improving customer loyalty – could be achieved through digital tools (Falkous and Callaway 2018). Meanwhile, the tech and insurance industries perceive that insurtech solutions could help manage the risks of serious illness and death through manipulating people's behaviour (Falkous and Callaway 2018); finally, the data generated through tracking devices such as wearables and smartphones could be used in actuarial calculations to improve risk selection (McCrea and Farrell 2018, Wiegard *et al.* 2019).

Fieldwork in insurance

Our case study focuses on two Finnish behaviour-based insurance policies introduced in the latter half of the 2010s that offer 'smart' features only as an additional service; that is, at their core, they are still regular life insurance policies. We call the service providers of these products Company X and Company Z. These companies aim not only to encourage their customers to engage in self-tracking practices but also to gather users' activity data, generated by either wearable devices or smartphones. Insurers then harvest the data with the help of third-party data analytics service providers that produce the mobile applications, gather the data from the customers' devices, analyse it and transmit specific parameters (such as anonymised mass data and data on customers' activity levels) to the insurance companies.

The policies differ from each other in the ways they aim to nudge and reward their clients. While Company X offers a selection of health services provided by its partners as a bonus, Company Z concentrates on financial rewards: customers with high activity levels receive bonuses in their insurance coverage. Although both policies are already available on the market, the companies continue to refine them; the current products are regarded as starting points for developing customer-friendly and responsive insurance policies.

The empirical materials for this paper consist of 16 semi-structured interviews with company employees who work on the products (8 women and 8 men) conducted in May 2018 and February 2019. The data also includes participant observations of insurance professionals' meetings. Our project as a whole also included research on user experiences of the new insurance technologies. The companies were open to a mutually beneficial research design whereby we could collect the data for our project and the companies would gain insights into their customers' experiences. Thus, the data was gathered in collaboration with the insurance companies, which helped us obtain access to a field that is often difficult for academics to enter.

Principal fieldwork for the study was conducted by Maiju Tanninen (MT), who observed and co-operated with the insurance companies for several months, discussing the project and organising the interviews in regular interactions with personnel from Company X in 2017–2018 and Company Z in 2019. During the fieldwork, MT had to strike a balance between the roles of collaborator and independent scholar. The insurance professionals, however, seemed to welcome an outsider's gaze on their operations, as they openly discussed issues involved in the design work and were eager to hear academic perspectives on those matters. The employees interviewed had different professional backgrounds, and their tasks ranged from product design to actuarial calculations. In addition, MT had the opportunity to interview some of the senior managers at each company.

This paper is based on a close reading and thematic analysis of the transcribed interview materials and fieldnotes. The preliminary coding and analysis of the data was conducted manually by MT. During this preliminary analysis, extracts were singled out in which the insurance providers discuss the customer relationship and their strategies for influencing customer behaviour. Then, in the next phase, authors analysed the extracts in joint data sessions. As the insurance providers often had a strikingly uniform way of speaking about issues related to the customer relationship, the authors generally agreed with each other in the analytical process, with each adding details and thematic framings to the other's observations. The final analysis was based on the work conducted in the data sessions and refined during rounds of writing and rewriting. The questions asked of the

data concern the kind of knowledges and practices mobilised to facilitate behavioural change among customers and transform the customer relationship from reactive to proactive. To protect our informants' privacy, we omit the names of the interviewees and, in some examples, do not identify whether they are from Company X or Company Z.

The context of developing behaviour-based insurance

The insurance professionals listed numerous frictions connected to the introduction of behaviour-based policies, noting especially the strict regulation which, in many ways, limits their options. Furthermore, as the market for behaviour-based insurance policies is only starting to emerge, these new products meet with obstacles both inside insurance companies and on the market. In the sections below, we look into regulatory constraints and market frictions as factors that partly constitute the context for product development; this is in contrast to most literature in the field, which sees the putatively linear development of digitalisation as the only relevant context.

Regulatory constraints

The insurance sector is highly regulated in Finland, as national laws, EU directives and the Finnish Financial Supervisory Authority (FIN-FSA) establish the playing field for the industry. Finnish legislation complies with the Solvency II Directive, a general European insurance regulation that harmonised insurance practices across the EU in 2016. Furthermore, anti-discrimination regulations enacted at the EU level regarding, for instance, the use of genomic data (Van Hoyweghen 2007, Liukko 2010) and gender (Rebert and Van Hoyweghen 2015) are mirrored in Finnish regulations. While strict regulation is needed to protect consumer rights and ensure company solvency, it limits the introduction of insurance innovations; for example, Finnish law states that insurance companies cannot engage in practices not directly linked to insurance (The Finnish Insurance Companies Act 2008/521 § 14). Within these limits, however, some predetermined functions can be permitted in what the act calls 'additional activities', which, our informants explained, requires them to be able to demonstrate how the practices of collecting self-tracked data and offering wellness services are related to risk management. Under the regulation, therefore, the law forces insurers to attend to behavioural changes, as they are the only way to justify new operations.

Finland's insurance law and data privacy regulations – principally the European General Data Protection Regulation (GDPR) – control data collection practices. Finnish insurance companies can only gather data that is essential for a specific policy. In our case studies, they used third-party data analytics companies that turn raw data into anonymised mass data or filter specific insights, such as customers' activity scores, from the larger data set. By choosing to collect limited data, the insurers practice a form of self-regulation that they believe decreases customers' suspicion about the product and 'keeps the supervisor [FIN-FSA] off the companies' back', as one interviewee put it.¹

Although the insurance professionals regard the relatively small data set gathered from the users adequate for the policies' purposes – that is, for developing the product and evaluating customer activities – difficulties remain, especially in regard to the promise of big data. The models for 'big data analysis' suggest that data should no longer be collected but *ingested*; that is, *everything* could be possible data ($n = \text{all}$; Amoore and Piotukh 2015, p. 345). Here, however, the logic is different, since the insurance companies must work with a small and predetermined data set. As the data is limited, policy features relying on real-time analysis of data-streams, such as personalised premiums (Gidaris 2019, Zuboff 2019), might prove to be difficult to create (see also McFall 2019, Meyers and Van Hoyweghen 2020).

Finally, Finnish tax law hinders insurance professionals' efforts to incentivise ostensibly healthy behaviour since it could treat rewards like premium discounts and gift cards as augmenting customers' incomes. Company Z solved this problem by offering bonuses in terms of insurance coverage

instead of lowering premiums. Although our informants believe this kind of ‘big jackpot’ is more motivating than small premium discounts, some professionals hold the view that immediate rewards are needed to ‘keep up the customer’s interest’. At the time of the interviews, however, it remained unclear whether providing them would even be possible.

Market frictions

In addition to regulation, the insurance professionals reflected on the challenges to their work posed by the current market situation. As behaviour-based insurance is a new and quite unusual product, the professionals developing it have a dual marketing task: they must sell the idea both inside their companies and on the outside market. Informants from both insurance companies discussed the difficulties of working inside a large corporation. As insurance companies have traditionally been deemed conservative and slow to move (McFall and Moor 2018, p. 198), they are not regarded as the ideal context for developing experimental products. Thus, some insurance professionals recounted that they engage in ‘continuous lobbying for the new ideas’ inside their own firms.

The insurance professionals estimate that many of the envisioned features of the new policies, such as personalisation and rewards, might be difficult to implement in the existing information infrastructure, describing a path dependency: when one information system is chosen, it is difficult to depart from it, as system updates are both laborious and expensive. An interviewee from the higher management describes the situation as follows:

The technical experts say that you cannot build such interfaces into the old systems ... and we know what massive projects these investments in information systems can be, it [the last update] took years ... and the price tag was horrendous.

Interviewees also reflected on the difficulties they face introducing behaviour-based insurance to the market. Both companies have conducted market research which, according to our informants, indicates that consumers are resistant to the idea of behaviour-based insurance. As private life insurance policies are voluntary in Finland, this kind of aversion could be detrimental. Still, the insurers are confident about being able to tackle the issue with ‘the right kind of communication’. At the time of the interviews, however, neither company had sold as many policies it had hoped.

Despite the difficulties posed by the regulative framework and the market situation, insurance professionals believe that behaviour-based policies are the right way to move forward. As others have already pointed out (Meyers and Van Hoyweghen 2018), the new policies are seen as a possible way to guarantee the ‘insurers’ right to underwrite’: that is, the right to calculate an actuarially fair price for policies in an increasingly restrictive regulatory context. Thus, digital technologies are believed to alleviate the problem of adverse selection (the imbalance of high-risk individuals to low-risk individuals) by enabling risk selection despite anti-discrimination regulations. This belief was expressed by the CEO of the one company during a staff meeting in the form of a rhetorical question: ‘In the future, do we want to insure people who don’t engage in self-tracking?’ Furthermore, our informants speculated on the possibility that data giants, including Google and Amazon, could enter the insurance market; thus, behaviour-based policies are a means to tackle competition with possible newcomers. Yet, as it stands, regulation not only in Finland but also in the EU would make the data giants’ entrance to the European insurance market difficult. The Solvency II Directive requires insurers to base their actuarial calculations on reliable data, and social media, search engine and other indirect behavioural data collected by companies like Google may not qualify, even though insurers already use this kind of ‘external data’ to support insurance pricing (Jeanningros and McFall 2020, p. 4–5). This does not, however, exclude the possibility that data giants will introduce insurance-like products that bypass current regulatory frameworks, especially the GDPR (see Marelli *et al.* 2020).

Navigating behavioural change and customer engagement

Inside the insurance business, behavioural modification is regarded as a difficult task. The insurance professionals told us that they had to try to find ways to influence their customers' actions while manoeuvring in a context where the tools for behavioural change are heavily regulated and the very idea of behaviour-based insurance raises suspicion. When asked about managing lifestyles, the professionals emphasised that the aim of the insurance product is not to control the customers 'in the wrong way', as a sales director from Company Z stated:

Well, let's say that controlling is wrong. It makes it evident that customers are not free to make their own decisions. We think that if they give us information about their activity, then it is our task to encourage them. ... It is not that we are trying to control the customers in the wrong way but, rather, to provide them with tips.

Here, the sales director is describing the insurance companies' dual task. They aim to push people to lead healthier lives, as accomplishing this would benefit both the service providers – by lowering their indemnity rates – and the customers, who would be able to enjoy more balanced daily lives, but the insurers must give the impression that customers decide for themselves and are not being manipulated. Therefore, the lifestyle management provided by the companies must be designed in a manner that appeals to consumers' sense of self-determination.

To overcome this tension, the insurance professionals posit behaviour-based policies as platforms that offer a variety of wellness services from which people can choose, as explained by a department manager from Company X:

This [the wellness services] does not cause any extra costs for the customer. We only expect that the customer would commit to the concept, and even this is not an obligation but, rather, we hope that the customer would commit to it and permit us to use her wellbeing data as [part of] mass data, not even on an individual level. That is the customer's contribution. In return, the customer gets this amazing collection of services and tools with which she can but is not obliged to change her lifestyle, get support, feel better and have a higher quality of life.

In addition to highlighting the 'amazing collection of services and tools' that the policy offers, this extract demonstrates the careful balancing act between control and freedom. The department manager stresses that the policy gives access to a *free, additional service* that does not obligate the customers in any way but provides *an opportunity* to make lifestyle changes. However, the company *expects* and *hopes* that the customers would commit to the policy and give permission to use their self-tracked data, if only in the aggregate.

A similar dynamic appears in the rewards structure of Company Z's policy. Associations with the 'wrong kind of control' are minimised by planning rewards so that they do not appear to punish customers, even those who fail to reach the activity goals. For instance, should customers be inactive or decide to opt out of behaviour-based insurance, they retain the basic coverage level; they lose only the benefit of higher insurance coverage. Of course, this does imply that the inactive customers in fact pay more or receive less coverage and that the basic level is thus punitive. The image, however, differs from models that openly punish customers for lower activity levels.

In the next three sections, we discuss in greater detail insurers' efforts to influence their customers' behaviour and participate in their lives while navigating between regulatory constraints, market realities and the need to appeal to customers' sense of self-determination. More precisely, we examine the different knowledges and practices that the insurance professionals apply in the design process. Their ideas are influenced by, among other things, health recommendations, scientific and popular understandings of (measuring) wellbeing, personalised medicine, behavioural economics, persuasive technology, gamification, service design, positive psychology and (life) coaching. This rather eclectic collection of knowledges and ideas behind strategic thinking is mobilised to solve the problem at hand: facilitating behavioural change without coercing customers. In the design process, bits and pieces of different theories and practices are creatively combined to align the

companies' and customers' practices with each other. We see these as falling into three main operative categories that involve customer relations: *educating*, *incentivising* and *partnering*.

Educating

The insurance professionals envision that behaviour-based policies could influence customers by increasing self-awareness and contributing to health education. Professionals from Company Z wondered whether the customers' lack of knowledge might explain their unhealthy behaviour: in the words of one marketing manager, 'Do people really know enough [about health], or, if they knew the basic stuff, would they neglect these things?' This idea of insurance companies educating people about ostensibly good behaviour is hardly new. Throughout their history, insurance firms have tried to affect people's behaviour with a range of practices, including home visits, advertising and awareness campaigns (cf. Zelizer 1979, O'Malley 2002, Lehtonen 2014, McFall 2014, Sjöblom 2016).

Our informants treated self-tracking practices as the most efficient way for companies to increase health awareness. The insurance professionals believe in the ability of wearable devices to *know* better than people do. They assume that people have false or at least biased ideas about their behaviour and that the devices could reveal 'the hidden truth', as a project leader from Company Z explained:

We often think that we are doing things, but we might not be doing them. ... Just by measuring activity people can reflect on their behaviour and become inspired; for instance, to walk to work as it makes them feel good. And, eventually, it becomes a habit.

The promotion of self-tracking has forcefully communicated the idea that self-knowledge is established with data flows and data analysis (Ruckenstein and Pantzar 2017). Similarly, insurance professionals rely on the notion that self-tracking practices teach people new things about their own actions, which aids in behavioural change. The measuring technologies predominantly target the effects of everyday routines, such as steps taken and periods of inactivity. This kind of narrow focus on repetitive everyday movements is influenced by the limitations of self-tracking devices. The insurers justify their perspective with recent research findings and news articles documenting the hazards of everyday immobility, such as sitting for long periods of time. The focus on inactivity is aligned with the policies' largest potential target group, which professionals from both companies define as 'people who are interested in improving their health but [are] not yet doing much'.

In addition to activity tracking, the insurance professionals envision how other aspects of well-being, such as eating habits and sleep, could be included in self-tracking projects. Both companies had piloted more encompassing services. For instance, apps that calculate daily calorie intake based on manually recorded meals were tested, but they had failed to find satisfactory solutions when fieldwork ended; to name a few difficulties, reliably recording what was eaten turned out to be difficult, the systems were too full of bugs and, more generally, the communications between health-tech start-ups and established insurance companies concerning the different partners' varying needs were not always smooth. Thus, for the time being, the policies use more traditional health education, including sending daily bulletins about wellbeing-related issues. This information is delivered by the insurance companies' partners, such as the Finnish Society for Medicine and various health tech start-up companies.

The insurers' faith in the transformative power of new technologies and the data they generate could be seen as a *dataistic* stance on self-tracking devices (van Dijck 2014), effectively executed with sensor technology and the implementation of feedback loops (Ruckenstein and Pantzar 2017). Feedback loops can incorporate a variety of everyday practices, including walking, exercising, sleeping and eating; the idea is that consumers obtain information in a format that is easily comprehensible and actionable. In this process, customers are invited to establish a relationship with the device so that it could assist or enhance their health management. However, these educational endeavours treat people as free actors – or rational 'econs' (Thaler and Sunstein 2009) –

who have the ability to choose the best option when enough information is available. Thus, the aim of influencing behaviour by increasing customers' knowledge relies on their self-determination. Some insurers, however, regard educational measures as inadequate and feel that other strategies are needed to *motivate* people, a theme we turn to next.

Incentivising

In addition to educating endeavours, the insurance professionals we interviewed aim to influence consumer behaviour by offering financial *incentives* and creating a choice architecture with behavioural *nudges*. Schüll (2016, p. 328) describes the nudge as a 'curious mechanism' that both presupposes and pushes against personal autonomy, observing that 'it assumes a choosing subject, but one who is constitutionally ill equipped to make rational, healthy choices'. Here, people's lack of knowledge is not regarded as the reason for their poor choices, but rather the way in which the things that motivate them are turned into available choices.

The companies' views of financial incentives aimed at affecting customers' motivation differ slightly from each other. The professionals from Company Z think that the self-tracked data offers an 'objective' way to determine bonuses for insurance coverage. They regard this as an issue of asymmetric information and moral hazard; without ostensibly objective measures, people might exaggerate their activities and undeservingly gain benefits from a policy. A similar focus on 'objective' data came up, for instance, in the case of a Belgian pay-as-you-drive car insurance experiment in which 'real' evidence on the effectiveness of the digital tools needed to be provided to fulfil regulatory requirements (Meyers and Van Hoyweghen 2020). This approach emphasises the role of financial rewards and treats bonuses as a policy's main motivating element. Like the strategy of educating people, the incentivising approach relies on customers' self-determination, with customers imagined as able and willing to change their behaviour if 'better' choices reward them. Thus, the notions of choice and freedom are at the core of Company Z's policy.

In contrast, Company X professionals maintain that self-tracked data could in fact entail a moral hazard as people could cheat the devices by, for instance, attaching the sensors to power drills or pets. At the time of the interviews, the policy's rewards structure was not yet operational, but the professionals discussed linking rewards to other measures like accomplishing daily tasks or following behavioural change programmes. A service designer from Company X put it as follows:

We have thought about gamification, as we would like to offer the customers a chance to earn premium discounts. This would mean that you should perform some tricks during the year or the period of insurance, things that are related to your wellbeing. We are not demanding anything crazy. We have planned some puzzles or challenges of the day so that every day you would get a new little task. And eventually, when you check your task daily you will get used to the fact that there are always some brain teasers available: 'solve this problem or walk or do 10 squats or whatever'.

The service designer envisions a model with addictive and gamified 'daily little tasks' that people would become eager to accomplish. The incentivising strategy is defined by the idea that the goals of the people and those of the motivating service are seamlessly aligned. As Pols *et al.* argue (2019, p. 101), this kind of alignment is crucial for frictionless engagement with technologies, as it provides tools for 'self-induced nudging into self-prioritised activities'. In this case, the behavioural change relies on (sometimes unnoticed) cues and design features, such as small rewards for reaching goals, or buzzing from the activity wristband that emphasises that a certain behaviour is desirable.

This kind of 'libertarian paternalism', internalised by insurance professionals, claims to preserve the core value of individual autonomy. As remarked above, Schüll (2016) describes the subjectivity enacted through nudging devices in a paradoxical way as a 'passive, choosing self'. In other words, people are imagined to be willing to engage actively with the device, but after that choice, they are expected to follow orders.

Yet, the insurance professionals from both companies are not entirely convinced of the transformative effect of nudges. This is especially apparent when, reflecting on their own wearable device use, they note the irritation they feel about the interruptive and pushy elements that are supposed to motivate them as users. These accounts of frustration point to the fact that the nudges are too intrusive; yet at the same time, they seem to be too weak to create genuine behavioural change since the user can simply choose to switch them off. Thus, relying simply on this type of nudge is not seen as a commercially viable strategy or at least the only strategy to be used.

Partnering

In addition to the strategies of educating and incentivising, the companies agree that behavioural change is achieved through personalised services and rejuvenated customer relations. The insurers envision that, with active participation in their customers' daily lives, the policies would encourage people to adopt healthier habits, thereby preventing the occurrence of costly events, as a service designer from Company X explained:

I think the best possible outcome would be for this [behaviour-based insurance] to change the approach from reactive to proactive. Now, insurance is necessary only when something happens. But here the approach is different. We are thinking about how we could prevent bad things from happening. The best-case scenario is that the customers could think of us as a partner who stands by their side throughout their lives.

The new customer *partnership* is envisioned as succeeding at least partly on the basis of the policy features discussed: self-tracking practices, financial incentives and nudges. The service providers, however, also envision an intimacy beyond the scope of these features. Professionals from Company X share a desire to accompany their customers 'throughout their lives' and want to be able to repeatedly and regularly 'surprise the customer in a positive way'. To create a *relevant customer relationship*, the insurers aim to develop personalised services that *target the right help at the right moment*, as a Company X service designer speculated:

If we tell you that we are collecting your data to give you personalised tips and advice, are we then able to react to the changes in people's lives? For instance, if there are times when you are sleeping poorly, can we really react to them, like, 'Hey, there's something going on in your life, as you are sleeping badly; take this advice'.

The insurance providers have visions of becoming permanent participants in their customers' lives and providing positive and relevant feedback at all times. Once self-tracked data or customers' choices become visible through the app, the companies could recognise wellbeing deficiencies and then provide a response through personalised feeds. This vision, however, is difficult to realise. Since the policies are so new, the service providers do not have much data to work with and, at the time of the interviews, it had only started to become apparent to them how much work deep personalisation would require.

In addition to personalising content, the insurance professionals highlight the importance of adapting the tone of a policy to customers' different needs by mapping them onto design personas, a tool commonly used in service design. For instance, when helping a 'busy working mother' to reach her activity goals, the app requires an encouraging, empathetic and recovery-focused voice. In contrast, an 'engineer-like person' is more likely to simply monitor their data and to expect straightforward feedback. Yet, it remained unclear how appropriate these (often stereotypical) personas were when compared to real customers and how they could be best deployed in service development. Indeed, it is striking how far from the promise of individualisation the existing behavioural insurance products appear to be (Meyers and Hoyweghen 2018); instead of achieving personalisation and fine-grained risk categorisation, they only seem to be able come up with relatively crude stereotypes. Until the kind of targeted profiling that service designers and insurance companies dream about is available, it is believed that the policy's general voice should simply be upbeat, as

a marketing manager from Company Z stated: ‘The communications need to be encouraging. The tone of voice and every such thing matters’.

Finally, the insurers’ operations are inspired by current trends in wellness, positive psychology and (life) coaching. For instance, informants from both companies frequently used the Finnish coaching term *oivallutta*. This expression is not easy to translate into English, but it has to do with the act of making customers become aware of their emerging capabilities in a given situation: ‘the point is help people to see the possibilities [*oivallutta*], not so much coercing them or requiring anything’. Although its definition remains slippery, *oivallutta* refers to the companies’ information-intensive practices, such as self-tracking and sharing health advice, although it is also used to describe the insurers’ aim to create a space where they can act as a life coach or a personal trainer, providing tools that help customers reflect on their own behaviour and achieve self-control. Behaviour-based life insurance products, however, differ from coaching as they entail normative ideas of desired behaviour (Ericson *et al.* 2003, p. 246). The goal is for customers to adhere to set standards for healthy behaviour, deriving either from well-established authorities or from less-defined sources, including the partnering health start-ups and wearable device manufacturers.

Compared to previously mentioned strategies using the idea of individual autonomy, the insurance professionals seem to take a more relational stance: they envision that behavioural change could be achieved by creating a partnership that would allow their customers to enhance their autonomy through reflecting and learning. In practice, however, the insurers’ ideas appear to leave little room for consumers’ independent reflection and action; rather, the company is imagined as a kind of nanny that rushes to take care of their needs. Unless customers see how they personally benefit from a service, the company’s closeness could easily be experienced as intrusive and creepy (Lupton and Michael 2017, p. 267). It is not far-fetched to surmise that, for the recipients, this kind of attentiveness could soon feel invasive and alienating.

Discussion

We have demonstrated how the insurance professionals developing behaviour-based insurance products aim to manipulate people’s behaviour and participate in their everyday lives. We have categorised different measures which strive to align the companies’ targets with their customers’ lives as educating, incentivising and partnering strategies. The means of educating, such as self-tracking practices, aim to increase the customers’ knowledge of their health, the incentivising features work to motivate the customers with financial rewards and micronudges, and the partnering tools are envisioned as providing emotional support and creating a relevant relationship between the customer and the insurance company. The insurers emphasise that they respect personal autonomy, that their objective is not to force consumers to do anything and that they are not seeking to provide ready-made answers; rather, they merely want to offer tools for health management. Behaviour-based policies are thus framed as platforms that the customers can use in their own efforts to improve lives.

The tools for supporting behavioural change and customer engagement are proving complicated to develop, as the policies’ strategies of educating, incentivising and partnering replicate some common false premises. For instance, the insurers recognise the intrusiveness and annoyance of micronudges and do not perceive them as adequate solutions for customer engagement; furthermore, it is a struggle to tailor the products to each customer’s needs and maintain relevant relationships with each customer. Our case underscores the impossibility of truly personalising products: the personalised ‘you’ is always related to others and, as the insurers’ design personas demonstrate, often relies on rather crude groupings and combinations of features (Moor and Lury 2018, Ruckenstein and Granroth 2020).

The most profound false premise, however, is the idea of the continuous use of tracking devices. Our interviewees reported gaps in the data they gather, which are caused by ‘missing’ customers who have stopped or never started tracking their activity, resulting in a ‘brokenness’ of the data

(Pink *et al.* 2018) that could hinder future data analysis or even prevent it altogether. Data analysis deals poorly with no data or data that does not reveal its biases; therefore, the companies' objective is to have the customers use the devices regularly and over the long term. Furthermore, continuous engagement is believed to have a positive effect on the customers' wellbeing and on the customer relationship. However, while expectation of uninterrupted use is common among device developers and the institutions employing them, the tendency to engage in episodic use is an *integral part* of self-tracking practices, as Gorm and Shklovski (2019) have shown; thus, the companies' goals do not align with real-world usage. Instead of focusing on fixing a policy's bug or finding the right combination of education, incentives and partnering, the insurers may be forced to acknowledge that continuous self-tracking is not a realistic goal.

Conclusion

Insurers think that insurtech solutions have the potential to transform the insurance business: digital technologies could offer new ways of being present in customers' lives and managing and calculating risk. This potential for market disruption is also recognised in critical analyses that claim that the new technologies could lead to intensified dataveillance and management of the lives of those taking out insurance policies. Market developments are, however, never universal or linear developments, and it is vital not to embrace techno-deterministic notions of technologised futures. Rather than confirming a digital disruption, our case points towards continuities in the way the insurance business approaches – and will approach in the near term – customer's lives and manages and calculates risks. The strategies of educating, incentivising and partnering build on established insurance practices. Insurers have long engaged in various educational measures that have sought to reduce the occurrence of insured events through increasing customers' risk awareness. As insurance premiums vary between insured according to their risk status, insurance as we know it already differentiates prices for customers. Thus, while additional rewards might make this kind of incentivising structure more visible, they are unlikely to revolutionise insurance pricing (McFall 2019).

The most distinctive disruptive feature of the new policy is the technological mediation of the customer relationship. As customers are invited to allow self-tracking devices to scan, record and report their lives, the relationship between company and customer transforms. The idea of being present in the customers' lives is deeply rooted in the insurance business: for instance, to achieve industry goals of collecting premiums and selling more insurance, doorstep agents were supposed to act as the customer's friends and allies. Yet, it does make a difference that the means of mediation is new. While marketing materials have traditionally been used to persuade people to trust the insurance agent, consumers are now urged to invite digital recording tools into their lives. In light of our research, the possibility of sharing with the insurer intimate details about life has limited appeal, but it does open a new page for the insurance business.

Our empirical cases emphasise that insurance comes into being as a specific technology with its own history, principles and regulations, aspects that are often neglected by critical research (Tanninen 2020). At least in the Finnish cases, the insurers' motivations for designing behaviour-based policies are much more varied – and cautious – than critical analyses suppose. Insurers are not merely striving to create a controlling surveillance system to punish and exclude people who have a higher risk status. On the contrary, their main goals are to engage their customers, to appear not merely up to date but even path-breaking in regard to technology and the tools used for developing customer relationships and to prepare for future markets. That being said, the critical voices rightly point out that behaviour-based schemes have the potential for discrimination and dataveillance. Empirical research, however, is needed both to refine this criticism and to recognise which problematic practices are already in place, which are in the realm of possibilities and which exist merely as speculations born out of techno-deterministic hype.

Note

1. Even though the insurance companies do not access much of the data and an insured's identity is by law strictly confidential, using the product requires the customers to enter into a rather messy data relationship. It might not be clear to customers that their data is circulated through the data analytics companies and the companies that manufacture and produce the wearable devices and the wellbeing services – and, perhaps, used for these companies' own purposes. This exemplifies the inadequacies of the GDPR in regulating emerging big data practices and the shortcomings of the notice-and-consent model (see Marelli et al. 2020).

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Notes on contributors


Maiju Tanninen is a doctoral researcher at Tampere University, Faculty of Social Sciences. In her ongoing PhD research, she studies the (new) datafication of life insurance markets, focusing on both industry practices and consumers' everyday experiences with the emerging technologies. She has recently published articles in *Big Data & Society* and *Sociologia*.


Turo-Kimmo Lehtonen is Professor of Sociology at Tampere University, Finland. His present work centres on two different topic areas, one of which is insurance and the management of uncertainty, and the other the role of waste in the contemporary way of life. In addition, Lehtonen has written extensively on social theory. His recent publications include papers in the journals *Res Publica*, *Political Theory*, *Cultural Studies*, *Valuation Studies*, *Distinktion* and *Theory, Culture & Society*.

Minna Ruckenstein is an associate professor at the Consumer Society Research Centre and the Helsinki Center for Digital Humanities, University of Helsinki. Her research focuses on the emotional, social, and economic aspects of datafication. Funded research projects, involving doctoral candidates and post-doctoral researchers, focus on algorithmic culture and the re-humanizing of automated decision-making. She has published widely in international journals including *Annual Review of Anthropology*, *Social Science and Medicine*, *Journal of Cultural Economy*, and *New Media and Society*.

ORCID

Maiju Tanninen  <http://orcid.org/0000-0003-3274-6360>

Turo-Kimmo Lehtonen  <http://orcid.org/0000-0002-6063-2056>

Minna Ruckenstein  <http://orcid.org/0000-0002-7600-1419>

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14 The uncertain element

Personal data in behavioural insurance

*Maiju Tanninen, Turo-Kimmo Lehtonen,
and Minna Ruckenstein*

Introduction

The expectation that Big Data and Insurtech could disrupt the insurance industry has gained popularity in recent years. Insurance companies all over the world are experimenting with auto, health, and life insurance products that aim to utilise policyholders' behavioural data for various purposes, including product and price personalisation, marketing, and possibly even risk calculations (Cevolini & Esposito 2020; Jeanningros & McFall 2020; McFall 2019; Meyers 2018). These developments fall under the phenomenon of datafication, which suggests 'taking all aspects of life and turning them into data' (Mayer-Schönberger & Cukier 2013, p. 35). Today, data is everything in life that can be digitally traced: from steps, friendships, and driving habits, to breathing, purchases, and daily movements. Digital data's potential for economic value creation lies in its circulation and ability to create relations; data becomes 'lively' (Lupton 2016) in activated market relations. Thus, valuable data is potentially everywhere, but it is more uncertain in that it is 'messier' than before; it cannot be handled and confined to certain predefined uses in the same ordered way as before.

Many of the envisioned disruptive qualities of data, such as personalised pricing and individualised risk profiling, are not and will probably never be feasible because they are subject to strict regulation and contradict some of the basic mechanisms of insurance (Barry & Charpentier 2020; McFall 2019; Tanninen 2020). Yet, the potential to utilise 'messy' and 'lively' data about 'everything' (Thrift 2011) does open new prospects for insurance companies, especially regarding the insurer–insuree relationship. With behavioural data, insurers gain a new kind of access to people's lives which could allow them to develop more selective and close-knit customer relationships (Tanninen et al. 2021).

In this chapter, we look at these (potential) developments from the consumers' point of view and analyse how they experience behaviour-based life insurance products' attempts to create new kinds of data relationships. Our findings highlight the hesitation, confusion and doubt that people have towards the data practices included in the new policies. They also showcase

how the notice-and-consent model, utilised, for instance, in the General Data Protection Regulation (GDPR) enforced in the European Union, is an inadequate means to ensure trustworthy data practices.

Experimenting with digital data requires insurers to leave what appeared to be the ordered world of ‘pure’ and insulated statistical information in which they are comfortable operating. Although insurance has never been only about statistical data and actuarial calculations (Ericson & Doyle 2004; McFall 2014; O’Malley & Roberts 2014; Van Hoyweghen 2007), the ability to amass and use longitudinal data sets has been a self-evident characteristic of insurance companies to the degree that these operations have been normalised. Data has been defined by certainty in the sense that its uses and movements have been strictly regulated and predictable. However, with the new operations, insurers face novel uncertainties that involve regulatory instability and data existing ‘in the wild’ because it flows in the ‘real world.’ Before they can wholeheartedly embrace these new developments, insurers need to experiment with the promise they offer. Even if the data cannot be fitted into neat actuarial categories and statistical analyses, it is seen as a potential new tool and resource, whose value lies in correlations, probabilities, and predictions. Furthermore, it is hoped that digitally tracing what people do will give insurance companies visibility into their lives and offer the possibility to gently manipulate or ‘nudge’ (Thaler & Sunstein 2009) customers’ everyday behaviour in a direction that would be more cost-efficient for insurers in the long term.

As we will demonstrate, however, all this requires that the new practices are seen as valuable and trustworthy by policyholders. If entering the messy realm of digital data is a leap of faith for insurance companies, it is equally so for their customers. Paradoxically, although insurance is intended to provide security and mitigate risk, it can create new anxieties and uncertainties for the consumers (Booth & Harwood 2016). Insurance is an opaque technology to begin with, and the actual trade-offs of a given contract are difficult to estimate. Behaviour-based insurance further complicates the insurer–policyholder relationship, as activity data collected by smartwatches and smartphones and lifestyle interventions aim to gently push people towards healthier and safer habits. In other words, even if people’s daily lives are already permeated by messy data practices in the realms of digital services, retail, and social media, creating new kinds of relationships with an entity like an insurance firm is far from straightforward.

To shine a light on how existing and potential policyholders see insurers’ attempts to form relationships with them through personalised data collection, we analyse issues raised by data use through a case study of two Finnish behaviour-based life insurance policies. Our main aim is to discuss the uncertainties related to data practices. These uncertainties, we argue, are fundamental to understanding the contextual nature of datafication processes. Obtaining value out of digitalisation requires that data flows can be secured; people need to trust that the operations will benefit

them. For insurers, trust is a requirement for transactions, which are usually understood as an assumed aspect of the customer relationship. Our research suggests, however, that rather than being a given, trust needs to be continuously performed, situated, and embedded in everyday practices (Lobo-Guerrero 2013; Tranter & Booth 2019). In the context of behavioural insurance, it is particularly contested, as customers evaluate the degrees of trust and the overall dependability of data practices; mistrust towards the overall data ecosystem could affect the insurance policies' perceived reliability (Steedman et al. 2020).

Behaviour-based insurance is voluntary and competes with regular products in the private insurance market. Thus, consumers can choose whether to purchase a behavioural policy and submit themselves to data collection. Unlike in the world of social media, for instance, where people have entered into firm data relations, in the realm of insurance they are still considering the harms and benefits of a possible data relationship now and in the future. As Langdon Winner (1980, p. 127) argues, 'the greatest latitude of choice exists the very first time a particular instrument, system, or technique is introduced.' Below, we demonstrate the ongoing negotiations that people participate in to make sense of the data relationship with the insurance company, as it has not (yet) become intertwined with their lives; it is still easier for most people to hesitate and refuse to give up their data.

In the following sections, we first introduce our research site and methodology. Then we discuss our findings in three sections: firstly, we analyse customers' reasons for adopting and using a behaviour-based policy. Secondly, we look at how people make sense of the policies' trade-offs and what makes a 'good deal.' Finally, we discuss the doubt, hesitation, and uncertainty that new policies raise. We conclude by arguing that uncertainties related to the behavioural policies' data practices undermine their trustworthiness. Insurers, thus, need to deal with this uncertainty if they want to include 'lively' digital data in their operations.

Research methodology

Research site and focus

Our case study examines two Finnish behaviour-based life insurance policies, introduced to the market in the latter part of the 2010s by insurers we anonymise as Company X and Company Z. In Finland, citizens are provided universal health care at a very low cost and, if exposed to economic vulnerability, a decent basic income. Thus, private health and life insurance policies are often seen as a form of 'extra security' that 'supplement' the structures provided by the welfare state (Lehtonen 2014; Lehtonen & Liukko 2010). The Finnish insurance market is highly regulated as national laws, the Finnish Financial Supervisory Authority (FIN-FSA), and EU directives set limits for industry operations. Especially the GDPR restricts

insurance companies' experimentations with behaviour-based personalisation in insurance (Thouvenin et al. 2019). Still, the GDPR has faced criticism for its ability to govern the current developments in the field of digital health (Marelli et al. 2020).

The new products by Company X and Company Z combine regular life insurance policies with 'smart' features, including activity tracking conducted with wristbands, smartwatches, or smartphones and eHealth services, such as online health questionnaires and coaching programmes designed by partnering companies. Data tracking is not (yet) deeply integrated into these types of insurance product or the practices of risk pooling, underwriting, and pricing. Instead, insurers frame the new services as additional benefits. For both Company X and Company Z, the policies serve as a response to recent developments, as they experiment with digital data in order to develop more engaging and personalised insurance products. At the time of the interviews, the policies of each company differed in approach. While Company X concentrated more on making available access to eHealth services and did not have an operational reward structure, such as providing premium discounts or cashbacks for active customers, Company Z's policy highlighted financial incentives: it offered its customers bonuses on their insurance coverage if they earned enough 'activity points' to fulfil certain policy requirements.

The behavioural data collected and used in the policies is generated either by tracking devices, such as activity wristbands and smart watches, or by smartphones. In both products, the data is then circulated through a health analytics company that 'purifies' the information of excessive details and glitches and selects certain variables for the insurers' use; the latter seek to collect enough data to fulfil the policies' purposes and comply with insurance regulations. By partnering with analytics companies and eHealth providers, the insurers position themselves as platforms for wellbeing services (Tanninen et al. 2021). The platform structure, however, constitutes a complex network of data relations.

Method and analysis

The empirical materials used for this article consist of 11 focus group discussions that Maiju Tanninen (MT) conducted with actual and potential customers of behaviour-based life insurance products in autumn 2017 and spring 2019. Each focus group had two to eight participants, and overall comprised 46 customers and potential customers, 24 women, and 22 men, ranging in age from their late twenties to their sixties. The discussions spanned from 45 to 90 minutes and were recorded and transcribed.

The policy customers included both people who had already held a behaviour-based policy for some time and individuals who had only recently obtained one. In addition, some informants only had a regular life insurance policy, either because they had not chosen the smart features or they had

not started to use them. In fact, some of our informants had purchased a behaviour-based policy but did not remember this before being reminded of it in the focus group. Finally, MT also interviewed people who did not have life insurance policies from the companies but were seen as potential customers by the market research panels through which they were recruited. This group of informants acted as a comparison group for the insurance clients.

The data was collected in collaboration with the insurance companies as part of a larger research project. We promised to report customer insights that emerged in the focus groups to the insurance companies in order to obtain access to the field, and, especially, establish contact with policyholders, a group that is otherwise difficult, if not impossible, to reach. Because of legal restrictions, we were not allowed to recruit the customers ourselves. Instead, they were contacted by the insurance companies. This could have been a problem in terms of our results' validity if the insurers had determined the 'right' informants for us. However, as recruitment proved to be difficult, the selection of participants ended up being quite random.

The collaborative research design required MT to balance the roles of independent scholar and collaborator. For instance, she needed to emphasise in the focus groups that she did not represent the insurance company. This was generally clear to the customers, but on a few occasions, MT was still addressed as a company representative.

The preliminary analysis of the transcribed focus group discussions was conducted by MT. With the help of automated coding, MT searched for extracts which entailed the concept 'data.' After this phase of research was complete, MT carefully read the interviews and checked the selected extracts, adding or removing excerpts when needed. The selected extracts were imported into an Excel spreadsheet which MT used to conduct more precise thematic coding by hand. Through reading, comparing, and rereading, MT classified the extracts into different thematic categories that represented experiences with personal data and behaviour-based insurance. These codes included 'interest,' 'suspicion,' 'imaginary,' 'privacy,' 'reliability/trust,' and 'user experience.' This coded data was discussed and analysed by the authors in a joint data session. The initial analysis was drafted by MT based on the data session outcomes, and the final analysis was developed jointly by all authors through rounds of writing and rewriting.

Findings

Adopting the policy

Although behaviour-based insurance policies have previously been discussed in a variety of studies (for a review, see Tanninen 2020), these have typically overlooked the policyholder's perspective. Specifically, why do people opt into these new policies and make the crucial choice of purchasing the technology? In our focus groups, people answered this question

by talking about how the policy appeared to offer something interesting enough for them to acquire, though multiple reasons were provided. Tech-savvy customers were simply keen on trying out the policy, curious about its mechanisms and eager to see its future developments. Others were attracted by the self-tracking features, which they envisioned would help them understand and manage their daily routines, such as sleeping and exercise. Many informants found the policies' (potential) bonuses compelling, providing them with an opportunity to obtain extra coverage or other benefits.

Still, notwithstanding the novel features on offer, the need for insurance remained the main reason for purchasing a life insurance policy, including one with behaviour-based features. Acquiring new kinds of information on one's own life and the possibility of using self-tracking technology were seen as additional benefits, not something essential. What mattered most was the security that insurance offers. However, the 'smart' features appear to have sparked interest and affected the final decision to purchase a policy from a specific insurance provider and thus, in some cases, those features served primarily as marketing devices (see McFall 2014).

In the focus groups, a positive attitude towards and curiosity about the policies were mixed with reservations. The pronounced ambivalence should not have come as a surprise, even for Finnish insurance companies. In fact, their own market research, which was made available to us as researchers, had shown that people are generally quite apprehensive about behaviour-based life insurance products. Though people had voluntarily taken out policies, their outlook was not solely positive. Even if the informants were interested in the products and thought that they were beneficial, they remained fearful and even suspicious about the effect that the new instruments could have on policyholder privacy and on their relationship with their insurance company. Notions of smart insurance appeared to be characterised by more general 'data anxiety' (Pink, Lanzeni & Horst 2018) or 'data ambivalence' (Lomborg et al. 2020).

In the sections below, we discuss in greater detail how the customers speculated about the use of personal data in behaviour-based life insurance policies and reconciled their positive and negative feelings. The oscillation between attraction and concern is not only a characteristic of the insurer-insuree relationship but has also been documented in other kinds of data relations. In all cases, the key question has to do with boundaries: when does 'dataveillance' become too intrusive and creepy (Lupton & Michael 2017; Ruckenstein & Granroth 2020)? The informants see personal data as an asset on which they can capitalise to obtain better services and benefits. As they have chosen to purchase behaviour-based insurance voluntarily, they accept data collection. Yet, they are left with mixed feelings. People were by and large not suspicious of the precise policy that they had taken out or the company that sold it, and they generally thought that they retained their self-determination as to the degree of disclosure of their private daily routines and actions. Still, they did fear a loss of control over their personal

information and struggled to make sense of the complex data relationships that these policies create.

Bargaining data

The financial incentives and rewards incorporated into behaviour-based life insurance were in principle attractive to the customers. They compared the behaviour-based instrument to car insurance products that reward accident-free policyholders with bonuses. The smart policy was seen as a similar mechanism that compensates people for staying healthy. Most of the customers that participated in the focus groups considered these reward structures to be fair. This is in part because the companies do not, at least openly, punish unhealthy or inactive policyholders. Instead, all customers retain their basic level of coverage (or premiums) and can gain bonuses (or discounts).

However, due to their experiences with the tracking devices, some customers doubted whether the self-tracked data was reliable enough for assessing activity levels and determining rewards. The inaccuracies and deficiencies of such data are widely known (Gorm & Shklovski 2019; Pink et al. 2018), and our informants also reflected on the devices' inability to measure their activities correctly; the data did not resemble their 'real selves' (Lupton 2020). Thus, even though people did not oppose the policies' rewarding structures per se, they had concerns with the trustworthiness of the behavioural data. Two of Company Y's customers, Teemu, an IT professional in his late 30s and Anne, a sales manager in her 40s expressed their concerns as follows:

TEEMU: But how they are going to measure it [health]; that is the tricky question. What data is it based on?

ANNE: Yeah, that should truly be something trustworthy. It cannot be merely the device: it's not enough.

TEEMU: Yes, it can't remain open to interpretation.

Unlike car insurance, where eligibility for bonuses is checked annually, in smart insurance the idea is that policyholders' risk scores could be assessed and determined based on real-time data (Meyers & Van Hoyweghen 2020; Zuboff 2019). However, at least in our case study, this idea appears to be unfeasible in life insurance due to both consumer objections and technological and regulatory limitations (Tanninen 2020; Tanninen et al. 2020). Many of our informants recognised that the usefulness of behavioural data stems from longer time series such as monthly averages. This was also the approach in Company Z's policy, which rewarded its customers based on their average score over a period of several months. As the final estimation was based on this longer time frame, policyholders appeared more accepting of small inaccuracies in their data.

Still, people did not deem it enough to be rewarded only after reaching the goals specified in policies. Instead, the focus groups revealed that, despite any inaccuracies, people's personal data has innate value regardless of their activity status, and a policy's terms and conditions should be attractive enough for them to give out their personal information. Clearly, people can regard their data as a form of currency with meaningful purchasing power, echoing demands made by technology developers to combat informational asymmetries. For instance, Lanier (2013) argues that as commercial agents profit from digital traces, a portion of their gains should be distributed to the data subjects as remuneration for providing their data. This view resonated with how Matti, a paramedic in his 40s, approached the matter.

I don't think people like the idea of being monitored, or, at least, I don't like it. But if you got some support and guidance for, say, exercising – or could there be a discount for the gym, a personal trainer or dietician services [included in the policy]? I don't like the idea that in return for being stalked and monitored and being subjected to data collection and data distribution, I would get just a [premium] discount.

In the focus groups, people not only assessed existing practices but also went further. They began to imagine 'good' and 'bad' deals with insurance companies and to think about their own bargaining power. For instance, Marjo, a 45-year-old university lecturer who did not yet have a behaviour-based policy said that she 'could maybe take the smart features as a freebie if the insurance price remained the same.' Another interviewee, Eero, a chef in his 50s reflected that if he 'got a great deal with some [wellbeing] service provider,' he might allow the insurance company to gather his data. Thus, customers expected something in return for their personal data, even when they were *not* conforming to the activity or health goals set by the policies.

An especially striking finding in the interviews was that, in a world of digital services, consumers appear to value especially highly connection with, and help from real-life experts. As Matti's statement above exemplifies, people were interested in receiving guidance from medical professionals, dieticians, and personal trainers who could help them interpret their data and plan health interventions based on it. Only on some occasions did customers feel that it would be sufficient to have their data interpreted by a robot or an artificial intelligence application – a finding that must be a disappointment, considering the insurance companies' ambitions for the data economy of the near future (Grundstrom 2020). Instead of a novel, largely automated circulation of information that would enable cutting labour costs for insurance companies, our focus groups appear to imagine that the new data circuits will create more personalised services based on *human* interpretation and interaction.

The fairness of the (current) trade-offs between the data, rewards, and services was reasoned about in varying ways. Some felt that the exchange

was fair, as they could get an increase in their insurance coverage or use the eHealth services attached to their policies. Others did not find the trade-off appealing enough, especially when it comes to financial rewards. This was discussed by Ossi, a customer service agent in his 30s and Hanna, a project manager in her 40s.

OSSI: A discount of five euros per year? That won't do it.

HANNA: I would just be wondering if I am selling my soul for five euros.

Obviously, small rewards neither motivate people to pursue policy goals nor compensate them for the collection of their data. Furthermore, the reference to selling one's soul for five euros vividly highlights the depth of apprehension and mistrust that people can have towards data collection. For Hanna, the actual trade-off is not clear. Will she be selling her soul to the insurance company for a relative pittance and signing up for something that might harm her?

Along with the modest financial rewards, some customers also criticised the services included in the policies. Mikko, an engineer in his 40s, said, 'the data collection is totally fine by me, but they should use it and loop it back to me so that I could get something concrete in return.' Here, the issue is not so much the mistrust placed in the data collection but the lack of a proper 'feedback loop' (Ruckenstein & Pantzar 2017) to build actionable insights with the data. As the services were not seen as advanced or tailored enough, the companies' promises of personalisation remain unfulfilled. One of the core promises of the data economy fails if the new information that is disseminated does not reach the customer in a meaningful way. Thus, instead of truly personalising prices or services, the 'smart' features only appear to help companies stand out from their competitors at the point of sale (McFall 2019; McFall & Moor 2018). Partly because of their lack-lustre experiences, a number of our informants had stopped using the policies' behaviour-based features or used them only in a desultory, unengaged way. Hence, customers were dropping out of the schemes and becoming traditional life insurance clients or, in some cases, the collection was still occurring through the mobile app without the customers' active participation or interest.

Data doubt

As the thoughts about room for bargaining above demonstrate, ideally, people want to be able to control the insurer–insuree relationship and set limits on the smart policies. The informants hoped the trade-off would be beneficial: they required something in return for their data, and some opted out of the behaviour-based services if these were not sufficiently engaging. Furthermore, they found it important to retain a sense of autonomy and feel that they *chose* the forms in which their data is tracked. Kaisa, a HR

specialist in her 40s, discusses personal choice as a precondition for the decision to adopt the technology. Acknowledging the fact that she had agreed to data collection, she thinks that ‘it’s OK.’ Yet, ‘in a broader perspective,’ she does not view such practices as ‘a good idea,’ especially if it would be ‘mandatory and compulsory.’ That would be too ‘controlling’ and too ‘top-down.’ More generally, our informants tended to underline the importance of smart policies and data tracking being voluntary: the data collection and ‘nudging’ policy features were considered acceptable if they were chosen by the policyholders.

Although people might accept the current state of a policy that they had taken out, similarly to Kaisa’s case above, they feel unease regarding the smart policies’ abilities and potential effects. Those possible negative effects were the subject of speculation in the focus groups, sometimes with humorous and exaggerated overtones. For instance, informants shared vivid visions of insurance companies’ monitoring their behaviours, movements, and similar parameters in real time, essentially becoming unwelcome guests or even stalkers. In these exaggerated narratives, insurers would interrupt everyday situations ranging from relaxing on the sofa to having a night out by giving not only unsolicited (health) advice but also direct commands, scolding, and physically forcing the customers to return to healthy habits.

Yet, importantly, the customers were not certain which of the forms of surveillance were actually already taking place and which were only imaginary. The limits of data collection were unclear. For instance, people did not know whether the insurers received their location information and generally lacked specific knowledge of what data was being collected. This uncertainty is attested by Antti, a bank clerk in his 30s:

Now I am not really sure which data is going there [to the insurance company]; I have just accepted that the information is transferred and which info is included. Are they [the insurance company] using just the data on the activity points? Is that enough for them, or are they receiving something else as well?

As Antti’s example shows, uncertainty can exist and persist even when customers have signed an insurance contract and accepted its data policy. This doubt might be related to the policies’ platform structure, as the mediation provided by the data aggregator companies and eHealth service providers complicates the data relationship. All these service providers have their own data policies for customers to accept, which makes it hard for them to keep track of who is collecting what data and all the purposes for which it is being used (Draper & Turow 2019).

The interviews made it clear that customers want to feel certain that, even if the insurance companies control the data, they would not accidentally disclose it for inappropriate uses. Despite the uncertainty related to the

question of what data is being collected, the interviewees generally thought that insurance companies are trustworthy custodians of data since they have a long history of dealing with sensitive information. Still, they thought that digital data has an inherent uncertainty and is prone to security breaches (Pink, Lanzeni & Horst 2018). In a way, digital data and its movements were seen as uncontrollable, which could lead to unwelcome surprises.

For instance, the interviewees discussed the possibility that hackers could steal their data and use it for criminal purposes. They also speculated how corporate acquisitions could make their data become much more widely available than was originally intended. Moreover, people imagined how their data could come to haunt them in unexpected contexts, such as targeted advertisements, which many customers used as a reference point to make sense of the data's possible movements. Targeted advertising is something that people experience in their everyday lives: their clicks, choices, and purchases are looped back to them, sometimes creating good matches but other times resulting in annoying and even creepy encounters (Ruckenstein & Granroth 2020). Advertising is a concrete example of how personal data can be used for commercial purposes, perhaps without people being aware of it. The movements of data are just as undesirable; in the worst cases, they violate policyholders' sense of intimacy and self-determination.

Conclusion

Our study highlights the data ambivalence that is prevalent in customers' relationships with behaviour-based insurance policies and the practices those policies support. The informants were curious and interested in the products and perceived voluntary self-tracking practices not only as acceptable but also as positive. Yet, their sense of self-determination was undermined, to varying degrees, by the fact that they were not certain of what kind of data was being collected and to whom it was being made available. The analysis shows that the ambivalence extends beyond the immediate relations between people and their personal information. Uncertainties, anxieties, and apprehensions are associated with insurance, and the data economy at large, and the relationships embedded within these. Where will the data travel? Will it change the insurance terms and conditions? Will it harm me in the future?

These uncertainties undermine the policies' trustworthiness. Although people often regard self-tracked data as non-personal 'background noise' (Ajana 2020), they express concern about data movements and leakages. Our case study highlights a generalised confusion regarding what information is being collected and by whom. In practice, privacy policies are difficult to understand – even for people working in that field – and it is clearly a lot (too much) to ask people to familiarise themselves with details involved in all of their data relationships. The lack of awareness and confusion exemplifies the limitations of the notice-and-consent model used, for instance, in

the General Data Protection Regulation enforced in the European Union. In light of our study, the model is inadequate in ensuring trustworthy practices, as it fails to consider people's everyday realities and hesitation when engaging with the policies (see also Marelli et al. 2020).

The customers' lack of knowledge is also related to questions of information asymmetry. The processes of datafication are built on informational asymmetries, but in the insurance context the concept usually refers to customers withholding information that is crucial for underwriting, thus increasing risk for adverse selection, that is, the disproportioned selection of high-risk individual in the pool (Baker 2003; McGleenan 1999). Social scientists have, however, pointed out that the asymmetry works the other way around, as well: insurers have much more information about a given instrument and the associated population values and averages than the customer (Van Hoyweghen 2007). Behaviour-based life insurance policies are no exception. We have demonstrated how customers struggle to make sense of the wider context of the policies and how they lack certainty on precisely what they are signing up for. Thus, the information asymmetry places policyholders in a vulnerable position, as it is very difficult for them to reliably estimate the policies' possible effects. At present, this unequal arrangement might be partly related to the policies' experimental nature; even the insurers themselves do not know what will become of the new operations and thus cannot communicate it clearly to customers (Jeanningros 2020; Meyers & Van Hoyweghen 2020; Tanninen et al. 2020).

Thus, what is at stake with uncertain data for both the insurance companies and in the data practices is how trust will be maintained or created under these new conditions. The interviewees wanted to feel secure that even if insurers (or the information technology and wellness companies that mediate the insurance practice) controlled their data, they could obtain a reasonable reward for that fact. Yet, such a transactional logic does not in and of itself guarantee trustful relations. It was hard for people to evaluate what the price of their behavioural data should be. Furthermore, customers wanted to be sure that the data would not be used for inappropriate uses such as online crime or questionable commercial practices and found it difficult to assess who to trust.

Our case speaks to the need for a careful building of trust as the insurance industry moves onto the terrain of the emerging data economy. The data relationships that insurers promote need careful planning and following through to become genuinely trustworthy. Otherwise, the industry faces the risk of raising a new kind of mistrust in people, evidence of which we can already see in the empirical material presented here. We have demonstrated how people find it difficult – if not impossible – to assess how to trust insurance, especially in the long run. If digital data is an uncertain, lively, and messy element, the insurers need to make sure that they can handle that uncertainty. Otherwise, the insurance industry as we have known it will no longer be viewed as capable of responsibly managing sensitive personal information.

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PUBLICATION IV

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Trouble with autonomy in behavioral insurance

Maiju Tanninen¹  | Turo-Kimmo Lehtonen²  | Minna Ruckenstein¹ 

¹Centre for Consumer Society Research,
University of Helsinki, Helsinki, Finland

²Tampere University, Tampere, Finland

Correspondence

Maiju Tanninen, Centre for Consumer
Society Research, University of Helsinki,
Snellmaninkatu 10, 00014 Helsinki, Finland.
Email: maiju.tanninen@helsinki.fi

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Abstract

In this article, we study how people define, negotiate, and perform autonomy in relation to digital technologies, specifically in connection with behavioral insurance policies that involve forms of data tracking and health services. The article builds on focus group discussions, which we treat as a dynamic site of ethico-political deliberation to test ideas, talk about boundaries of acceptable control, and envision future scenarios. The ethico-political deliberations assess the legitimacy and usability of new behavioral tools. Concern over the nature and limits of autonomy is activated when people discuss how wellbeing-related decisions are delegated to algorithmically controlled systems. We argue for appreciating autonomy as a relational and ambiguous notion that is sensed and enacted in collaborations with devices in the form of distributed autonomy. Moreover, as reflected by the experiences of the insured, “autonomy” cannot be analyzed solely in the form transmitted by the liberal tradition; that is, as a clear-cut entity that can simply be “had”, “exerted”, or “controlled”. Consequently, research, ethical considerations, and governance initiatives should pay attention to how values are “done” in the affect-laden technologically mediated relations and practices.

KEYWORDS

autonomy, datafication, ethico-political deliberation, insurance, self-tracking, values

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1 | INTRODUCTION

Current socio-technical developments characterized by the proliferation of digital infrastructures and data-intensive automated services have created a situation in which commonly shared values ranging from solidarity and autonomy to trust and equality are viewed as under threat (Prainsack & Van Hoyweghen, 2020; Sharon, 2018). Not coincidentally, debates around privacy, fairness, transparency, and accountability are multiplying. These in turn promote legal, regulatory, and ethical frameworks and new governance initiatives (Marelli et al., 2020). The recent proposal for harmonized rules on artificial intelligence in the EU (European Commission, 2021) is only one regulatory attempt to exploit the socio-economic benefits and mitigate the harms related to algorithmic systems.

The latest governance initiatives are ambitious in their goals but leave much to be desired from the perspective of the social sciences and humanities. They typically employ limited conceptions of value that ignore decades of research that would enable an exploration and reimagining of the different facets of values invested in current algorithmic systems (Graeber, 2001; Sykes, 2018). Rather than retaining the flexibility of ethical considerations to react to emerging practices in data-intensive automated technologies, ethics can be reduced to codes of conduct (Rességuier & Rodrigues, 2020). For instance, predetermined and narrow notions of values are located within algorithmic operations (fairness as a statistical property of models), ignoring how they are situationally understood and practised in the larger contexts in which algorithmic systems are embedded (Lanzeni & Pink, 2021).

The present socio-technical moment calls for social scientists to intervene in the ongoing debate by drawing on anthropology, sociology, and the interdisciplinary field of valuation studies to examine how values are deployed in situated practices rather than in the abstract. In a practice-based understanding, values are located in the complex ways that technical arrangements mediate human agencies and vice versa (Dussauge et al., 2015; Fourcade, 2011; Helgesson & Muniesa, 2013). In the present study, we exemplify what this broader notion of values adds to the ongoing debate on algorithmic systems by studying behavioral life insurance products in Finland. We demonstrate how one value in particular—autonomy—becomes mobilized in relation to such insurance products, as they push against notions of what insurance should do. We “stay with the trouble”, as the much used trope by Donna Haraway (2016) goes, to appreciate the nature of autonomy as an emergent and relational value that responds to the shifting circumstances of people's lives.

After a long historical evolution, autonomy as a concept has come to dominate the contemporary discourse on liberty, freedom of will, and self-determination (Honneth, 2015; MacPherson, 1962; Sulkunen, 2009; Taylor, 1989). Instead of regarding “autonomy” as something universal and thus immutable, we suggest an alternative approach in which autonomous conduct “varies conceptually and materially over time” and is shaped by the prevalent “cultural equipment” with which it is performed (du Gay, 2005, pp. 395–396). Consequently, the idea of autonomy also provides an invaluable lens to examine how people situate themselves in the emerging socio-technological landscape through their personal experiences.

In the context of behavioral insurance, that is, insurance products that include forms of data tracking and behavioral intervention, autonomy often operates as an appeal to self-determination and is treated in a manner akin to what Michel Foucault (1978) defined as the juridical notion of power. The juridical understanding of autonomy is also a built-in feature of conventional insurance (Ewald, 1986) and resonates with the experiences people have with behavioral insurance. Thus understood, “autonomy” is an entity that a person can “have” or “exert” and that others can “control”. At the same time, the juridical understanding of individual autonomy is insufficient for examining how autonomy emerges or is threatened in insurance-related practices. For this, we need a relational understanding of autonomy that stems from practice-based understandings of values and feminist ethics (Mackenzie, 2008; Mackenzie & Stoljar, 2000; Westlund, 2009). This broader notion of autonomy helps answer the question of what exactly algorithmic technologies—in this case novel forms of insurance—are doing to us and what we are doing to them. Here, we seek to understand how socio-technical change “creates new ways for people to be”, in Ian Hacking's words (1986, p. 161). Importantly, the novel forms of becoming with insurance are intimately tied to “the space of possibilities” (Hacking, 1986, p. 165) where autonomy is shaped by algorithmic relations. These relations are defined by

intensive human-machine interactions that make holding on to clearly bounded juridical notions of self-determination difficult, if not impossible (Cevolini & Esposito, 2020; Hayles, 2017; McFall & Moor, 2018; Sharon, 2017).

Below, we examine how experiences with behavior-based insurance products inform us about defining, negotiating, and “doing” autonomy. We argue that in addition to appreciating the work that the juridical notion of autonomy does in guarding the limits of self-determination, we need to examine relational understandings of autonomy in the specific context of socio-technical arrangements. The first approach, which aligns with current regulatory perspectives, delineates a field where autonomy materializes in a fairly orderly manner, as people protect and nurture their free will and make informed decisions about using technology. By contrast, the second approach forces us to consider the situational and contextual aspects of autonomy, which are more difficult to perceive, let alone manage. Together, the two approaches demonstrate how people try to get a grip on the current socio-technical landscape, one technological relation at a time. Their discrepancies demonstrate the limitations of current regulatory and ethical approaches that ignore the emergent, relational, and distributed aspects of autonomy. Thus, we offer a way forward in the current debate by identifying which aspects of autonomy can be clearly bounded and which need a more reflexive approach.

2 | BEHAVIORAL INSURANCE AS AN EXEMPLARY SITE

While the industry celebrates the potential of new technologies to enhance and strengthen individual autonomy as service providers seek to gently guide people to make better decisions, others doubt such empowering effects. For instance, hypernudging—the use of data-driven personalized choice architectures that strive to affect consumers' behavior—has been criticized as a form of manipulation (Yeung, 2017) and an invasion of people's decisional privacy (Lanzing, 2019; Zuboff, 2019). What is notable in light of our inquiry is that both enthusiastic and critical perspectives appeal to the value of individual autonomy (Sharon, 2015, 2017). As we show below, the relevant understanding of autonomy that emerges in practice calls for a broader approach; we need to circumvent the tendency to draw conclusions about algorithmic technologies based on dichotomous responses. To do so, we examine the value of autonomy by way of two behavior-based life insurance policies introduced to the Finnish market in the late 2010s by insurers we call Company X and Company Z.

The studied insurance policies combine regular life insurance with digital services produced by partnering with health analytics companies and include forms of self-tracking conducted with smartphones, activity wristbands, or smartwatches. In practice, the Finnish insurers gather the data generated by the different devices with the help of the analytics companies, which “purify” the information of excessive details and glitches and select certain variables for the insurers' use; through this arrangement, the insurers seek to collect enough data to fulfill the policies' purposes while still complying with insurance regulations.

The insurance companies' incentives to promote behavior-based policies are threefold: first, the information collected could be used to fine-tune risk management; second, the policies function as a marketing tool to improve customer relationships and retention; and finally, if the new devices help users engage in healthier practices, the number and total amount of claims can be expected to decrease (Jeanningros, 2020; McFall 2019; Tanninen et al., 2021). Because of legal, market, and technological constraints, the data produced by means of tracking activities are not deeply integrated into the insurance mechanisms of risk pooling, underwriting, and pricing. As Jeanningros and McFall (2020, p. 2) note, “self-tracking data is of marginal importance” in the health and life insurance sector. Still, the data are used in the bonus structure of Company Z's policy: if customers reach a certain activity level, they are guaranteed a modest increase in their insurance coverage. Company X, meanwhile, was at the time of us conducting the research planning a reward structure for its policy but relied more than Company Z on the “hypernudges” embedded in the health services to which the policy provides access.

The Finnish insurance products represent a wider business trend characterized by rapid change and fervent experimentation: especially in the fields of car, health, and life insurance, companies invent and test new forms of business that employ the presumed advantages of digital mediation in consumer relations (Barry & Charpentier, 2020;

Cevolini & Esposito, 2020; Meyers & Van Hoyweghen, 2020). Yet, the two policies studied here are not so much instances of something widespread in a new insurance field; rather, they are experimental sites where novel developments are tested. The successful merger of established financial rationality and new digital infrastructures, including self-tracking practices, cannot be taken for granted: failure is an option. Rather than anticipating an inevitable expansion of behavior-based insurance, we are interested in the way it probes the limits of autonomy and raises questions about the kind of society we want to inhabit and who we want to become in the process.

In exchange for reporting customers' experiences and perceptions to the companies, we were able to form a connection to policyholders, a group that is otherwise difficult to reach. The data for the present research were gathered by Maiju Tanninen (MT), who conducted a total of 11 focus group discussions in autumn 2017 and spring 2019. As legal restrictions limited information sharing, the insurance companies recruited study participants. If the companies had purposively chosen them, this could have negatively affected the validity of our results. As recruitment proved to be challenging, however, the selection process turned out to be quite random.

The participants included individuals with behavior-based policies and those with regular life insurance policies. Additionally, MT facilitated three focus groups with people who did not have life insurance policies but were perceived as potential customers by the market research panels through which they were recruited. Each focus group had between two and eight participants. Altogether, 46 people took part (24 women and 22 men), ranging in age from their late twenties to their sixties. The discussions spanned from 45 to 90 minutes and were recorded and transcribed. In the analysis, participant names were pseudonymized.

3 | FOCUS GROUPS AS SITES OF ETHICO-POLITICAL DELIBERATION

Focus group discussions have the advantage of facilitating interaction between participants and inviting a greater variety of communication than individual interviews (Kitzinger, 1995). Group discussions enable people to compare and nuance their viewpoints; the multi-vocal accounts that result are not only richer but also more speculative than standard interviews. Still, the interactional nature of focus group discussions is often disregarded, with data treated as a set of multiple individual interviews: researchers might choose extracts of what a given person has said and ignore the situation in which those utterances were made. This focus on single statements may stem from the market research history of focus group discussions; in that setting, the method's main purpose was to generate tradable and "authentic" individual opinions (Lezaun, 2007). Robert Merton, a focus group pioneer, however, envisioned the method as suitable for examining "every sphere of human behavior and experience", not just the interests of market research. He emphasized how interaction among participants "served to elicit the elaboration of responses" and introduced "new leads stimulated by others" (1987, pp. 555, 562). In fact, researchers have increasingly highlighted the need to consider the interactional context of focus group discussions and the conversational dynamics at play; it is difficult to understand *what* people are saying if one ignores *how* they are saying it (Grønkjær et al., 2011; Halkier, 2010).

Our analysis draws on these insights, as we are particularly interested in the collective action and imagining that occurred in the focus groups. In practical terms, we treat the discussions as *ethico-political deliberation*: participants tested their ideas, discussed the boundaries of (real and imagined) mechanical control, and envisioned future scenarios. We have allowed the interactional dynamics to guide our exploration, focusing on the moments when conversation sped up and began to take on a life of its own. This typically occurred when participants jointly speculated on the future of data-driven technologies, often enthusiastically and humorously, building on one another's utterances. We have treated intensified interactional pace as an indication that crucial issues were at stake; the fact that people so often elaborated on others' remarks suggests that they contemplated a wide repertoire of ideas, meanings, experiences, and fears related to this type of technological development.

Thus, we see the focus group as a particularly useful setting for examining an emerging technology with unsettled ethical and political aspects; it works as a "provocative containment" that both produces and displays

social reality, surfacing “something not readily available” while handling it in a “clearly demarcated place” (Lezaun et al., 2013, pp. 279–280). In our case, the moments of excited discussion appeared to revolve around tensions between free will and the controlling measures that the new technologies could support. Importantly, it was not our original aim to generate discussions around autonomy; rather, complex ethico-political deliberations surfaced organically in the conversations, emphasizing that autonomy was viewed as under threat from the intrusive nature of new forms of insurance. In everyday speech, people rarely use the term “autonomy”, as it is a taken-for-granted value that organizes talk rather than something that needs to be defined. What we recognize as “autonomy” emerged and became explicit in the focus group discussions when people spoke of self-determination, free will, doing something voluntarily, being in control, or feeling that they are under surveillance. For our analysis, we refer to a discourse-centered approach, arguing that the discourse circulating in a social entity constructs the world in which the entity—in this case autonomy—situates itself (Urban, 1991). It is typical of all values to become invigorated and observable when endangered, and the talk about autonomy vividly makes this point.

Below, we stay with the trouble of autonomy and trace the tensions, negotiations, and practices that constitute self-determination in the case of behavioral insurance. This line of inquiry offers possibilities for richer assessments than, for instance, the critical data studies approach (Tanninen, 2020). As we are not constrained by an essentialist understanding of individual autonomy, the focus of the critique shifts from the question of whether a particular technology supports or hinders individual autonomy to the question of whether this way of doing autonomy is even desirable. Our approach enables more appropriate ethical considerations than abstract ethical principles: instead of simply branding an entire technology as corrupt and thus perhaps overriding users' viewpoints, a more flexible approach can demonstrate which practices are subject to doubt, ambivalence, and fear and thus why they are worth criticizing.

In the sections below, we first examine *how people discuss* the limits for acceptable manipulation in the context of behavioral insurance. The analysis reveals two contrasting yet simultaneous desires: people “rationally” emphasize their individual autonomy even as they humorously imagine cases of extreme control and express their willingness to distribute some of their decisional power to external forces. The second form in which autonomy comes into being in our analysis focuses on the practical negotiations concerning how living with insurance-related technologies should be arranged; here, we examine *what takes place in these relations* and how autonomy is sensed and enacted in collaboration with devices. We discuss cases where tracking technologies help people achieve their goals and others where the alignment between consumers and policy objectives is ruptured; that is, the moments when policy features previously experienced as useful become intrusive and annoying.

4 | THE IMPORTANCE OF CHOICE

In general, the focus group participants did not treat the policies' data tracking features as too invasive or an intrinsic threat to self-determination. Instead, they reckoned that activity tracking and the health services included in the policies could positively impact their wellbeing. At the same time, the new data relationships created by the insurance schemes did raise uncertainty about the limits of control. In the policies of both Company X and Company Y, the “smart” features are framed as additional services whose use is voluntary. The self-chosen nature of monitoring appears to be key to its acceptability. Maria and Anne, both Company X customers, agreed that they would not opt for a behavioral insurance policy “if you were obliged to give [your data], wear the [activity] wristband and be monitored”, as Maria put it. For her, existing behavioral policies “feel much nicer” because “there is the opportunity to say no”. Anne added that the ability to choose allows “you to retain your self-determination” in the insurance relationship. For both women, the ability to choose thus ensured that the data tracking features would not become overly controlling.

In addition to overall acceptability, consumer choice was regarded as ensuring the fairness of the insurance policies' existing and potential reward structures. Rewarding people based on their activity levels seemed reasonable if policies are voluntary (rather than part of social security) and support only positive incentives (instead of punishing

people). Samuel, a Company Z customer, thought that it was “quite logical” and “fair” for a private life insurance scheme to financially incentivize its customers, as purchasing that policy is a “voluntary decision”. However, fellow Company Z customers Henri and Camilla challenged Samuel's opinion of the policies' fairness. Henri worried that if data tracking were to become a mandatory element of services, people “won't be able to choose anymore”. For Camilla, the policies already seemed “a little bit unfair” toward chronically ill people, who have a limited ability to move—and thus simply cannot choose to strive for the policy goals. By the end of this interactional sequence, Samuel affirmed the others' concerns. Although he first employed an understanding of deservingness that aligns with the idea of “actuarial fairness”—the notion in the insurance industry that all should pay or be rewarded according to their level of risk—he later agreed with the others, thus underlining the deliberative nature of the focus group context.

Even as the participants emphasized the importance of choice, they also highlighted their ability to assess the limits of these new data relationships, especially their relationships with individual data tracking devices. These devices' basic functionalities imply that they enter the users' intimate space and “nudge” them into alternative behaviors; thus, the question of how receptive and compliant a user is to the devices' output becomes highly relevant to the device–user relationship. Oliver, a Company X customer, underscored that he had not “enslaved himself” to activity tracking—contrary to his colleagues whose need to fulfill daily activity goals no longer sounded “that healthy” to him. Thus, unlike his co-workers, Oliver framed himself as capable of managing his relationship with the algorithmic tools. Similar stories recurred throughout the discussions. The participants talked about family members, friends, and acquaintances as incapable of setting healthy boundaries for how the devices control them. By contrast, they perceived themselves as able to maintain a balance between the devices' feedback and their own free will. This is a common phenomenon: people routinely evaluate themselves as more capable than others of controlling their behavior (Dogruel et al., 2020).

In addition to discussing individual tracking devices, focus group participants emphasized their self-sufficiency in relation to the insurance companies' aim to create more intimate and proactive customer relationships through these behavioral policies (Tanninen et al., 2021). For Samuel, the “traditional deal”—where insurance companies simply cover costs when something unexpected happens—was “perfectly fine”, and he did not want “the insurance company's helping hand”. Henri, a fellow Company Z customer, joined the conversation, declaring that he could “manage [his life] quite well”; hence, insurance companies' intensive involvement was not needed. Still, both Samuel and Henri consider the insurance infrastructure an important form of security; they are not so self-reliant as to opt out of insurance altogether.

These examples suggest that the focus group participants underscored the importance of self-determination, the ability to choose, and individual autonomy in general; these values emerged in the discussions as crucial for self-understanding and collective sense-making. People tended to perceive themselves as freely choosing individuals, capable of managing their lives and determining the limits of their data relationships. Aligning with the logic of choice, as elaborated by Annemarie Mol (2008), “autonomy” appears here as a clear-cut entity; the individual carefully weighs and balances the consequences of choices made. Although submitting themselves to nudges and having distributed some of their decisional power to external devices, the insurance customers presented themselves as unwilling to submit to forms of control.

5 | THE DESIRE TO BE CONTROLLED

Alongside an emphasis on individual choice, the participants collectively imagined scenarios in which technologies would force them to manage themselves better. These darkly humorous visions of coercive power present a different rhetoric for dealing with the trouble of autonomy: they enable people to discuss the difficulty of managing their health. For instance, Patrik, who did not have a behavioral insurance policy, imagined a controlling mechanism very similar to the ones that existing self-tracking devices use, such as a reminder to move after a given period of immobility. However, instead of using typical cues like vibrations or buzzes and relying on their affective impact (such as guilt

for not reaching the activity goal), in Patrik's vision a device would either "electrocute the wrist" or have "a spike that goes under the skin"; "the longer you sit, the deeper the spike would go". Similar tongue-in-cheek ideas of extreme control were introduced by many participants, who enthusiastically pictured penalizing tools that would prevent them from engaging in unhealthy habits. These visions, of course, do not prove or even seriously suggest that people would welcome such measures. Instead, they were playfully testing the limits of acceptable control while talking about the difficulty of self-management with intensified requirements of governing their own health.

Some participants, such as Helena, who was not a behavioral policy customer, imagined all-encompassing systems that would carry the full burden of self-governance. She envisaged technologies completely overseeing the management of her wellbeing, such as a tool that would help control her weight by communicating how her eating relates to her exercise habits and calories burned. Thus, instead of merely receiving information about her activity, she would prefer easily understood and actionable advice which she could passively follow. Here, the technological imaginary resonates with the desire to rely on digital technologies to alleviate demands on one's time and to offer motherly guidance and care (Schüll, 2018). Devices are regarded as taking over the customer's will, and the burden of self-management is distributed to external forces.

The ongoing ethico-political deliberation became tangible in the discussions in relation to the desire to retain a sense of decisional power. When discussing in a humorous tone visions of extreme mechanical control, participants reiterated the idea that submitting to controlling elements must be voluntary, with opting out always an alternative. This is exemplified by a lively conversation between customers of Company X:

Laura: You would get a small electric shock from the wristband if you went to a fast-food restaurant.

Daniel: Yeah, "don't touch that bun!"

Jenni: It would be quite nice if you could decide on the control yourself. It would count your calories and when you reached the limit, it would give you terrible shocks; you would only be allowed to drink water.

Laura: Yeah, either you would go for a walk or...

Jenni: As long as you are the one controlling it. If the device starts to control your life, it feels like "hmm, who is the one deciding?" If artificial intelligence takes total control, it could have mistaken ideas about your life and not take everything into consideration.

While the participants here imagine controlling mechanisms, Jenni questioned the ability of datafied tools to "see" people properly, anticipating that these devices would not be capable of considering important aspects of human life. The exaggerated visions show that the trouble with autonomy in behavioral insurance is not solved by setting definitive limits for controlling measures. Instead, two contrasting desires are at stake. On one hand, focus group members emphasized their individual autonomy, insisting that they want to determine their own actions freely, regardless of insurance companies and any self-management tools on offer. On the other, they used visions of extreme mechanical control to express the difficulty of self-management and their willingness to accept outside help. The friction between these two desires remains unsettled: the extreme visions playfully poke and test the limits of acceptable control and disturb the straightforward story of individual autonomy.

In the next two sections, we delve more deeply into the intricacies of autonomy by analyzing the practical negotiations regarding arrangements for the relationships between policyholders and insurance technologies. Even in the speculative discussions and elaborations presented above, people struggled to set strict limits on what should remain under an individual's control and what the devices should be allowed to manage. We see here an active balancing of the right "mix between active and passive" (Gomart & Hennion, 1999). By focusing on everyday experiences with the devices, we can further demonstrate that questions of care and control and related activity and passivity comprise a messy, highly contested area that is subject to ongoing, situated negotiations.

6 | DOING AUTONOMY WITH TECHNOLOGIES

We follow the experiences of two Company X customers to demonstrate how tracking technologies can be understood as helping users achieve their goals. They first wore the activity wristband offered by the insurance policy but then upgraded to more sophisticated devices: Anton uses a smartwatch to track both activity and sleep, while Leo measures his daily activity and running practice with a smartwatch and a separate heart rate monitor. Leo's device is still attached to the insurance policy, but Anton no longer shares his data because his new device fails to communicate with the company's platform. Previously, though, he actively used the insurance-provided tools.

The men discussed the devices' ability to remind them of wellbeing-related tasks: getting enough sleep and ensuring daily mobility. Anton described how the smartwatch pushes him "not to spend the whole evening watching TV or reading"; it helps him keep in mind that he has to reach "the sleeping goal". Here, Anton was not referring to the device's specific nudging features; instead, simply knowing that not sleeping enough would be registered by the smartwatch appears to help him go to bed on time. The more proactive nudging elements were discussed by Anton and Leo in relation to daily activity. Both found the smartwatches' alerts to take breaks from sitting and immobility useful; for instance, Leo described how being reminded in his "static job" is "a good wake-up call" that urges him to move when the tracker "beeps after an hour".

When the nudging elements align successfully with the will to pay more attention to immobility, users of controlling gadgets can be relieved of the duty to recall the need to move. This kind of alignment is crucial for well-adjusted engagement with devices, as it provides tools for "self-induced nudging into self-prioritized activities" (Pols et al., 2019, p. 101). Furthermore, the devices can enable new norms and justifications for doing wellbeing: how taking breaks from sitting is a healthy decision.

The nudging elements, however, do not act through a straightforward stimulus-response mechanism, even if they are in principle designed that way. Instead, a great deal of functionality is attributed to their affective impacts, as was evident when Anton and Leo discussed how they feel about tracking. Leo did not acknowledge a guilty conscience for not reaching his activity goals but did say that a low score "motivates [him] to go for a run or a walk" to raise the activity bar "at least a little bit". For his part, Anton has "set the daily activity goal on purpose to a high level" that he will not reach if he acts in his "usual way". Setting a high bar effectively means seeking an encounter with an unpleasant feeling, as if its possible appearance is what gets Anton up and moving. Yet, reaching the demanding goal will also be more satisfying, giving Anton a heightened sense of achievement. Anton's case points to self-nudging with negative (and positive) affects at play. Without unpleasantness, he might not do the extra exercise that eventually brings him joy.

These experiences highlight the fine line between autonomous decisions and the devices' control. For instance, Anton's decision to "self-nudge" reveals a messy skein of relations. The activity goal that he has chosen was probably a pre-selected option in his tracking device. In addition, the insurance policies' wellbeing apps have their own goals, which are determined by the companies that handle the data. Finally, the insurance companies fortify the established targets; this is especially true of Company Z, which rewards its customers based on "activity level". Similar dynamics are at stake with the supervision of the activity targets. The device does the monitoring for the user; it is an externalized gaze, although in the end it is still the people who watch themselves and act (or do not act) on their own data. Externalizing the gaze, however, can help (or hinder) attaining personal goals. As a participant in another focus group put it: "It creates a feeling that you are constantly under a watchful eye. Some are motivated by it; some just get more anxious and depressed". Finally, the insurance companies participate in the (experienced) surveillance: the firms collect data and, perhaps more importantly, the customers imagine how insurers are—or could be—monitoring them.

Many participants, however, made no connection between their everyday tracking activities and the insurance infrastructure, even in cases where the monitoring tools were provided by the company as part of a policy. The data gathering related to self-tracking operates silently and in the background, as it is embedded in the larger-scale digital infrastructure, arranging relations between individuals, devices, and health analytics platforms (Star & Ruhleder, 1996). At the same time as the digital infrastructure maintains these relationships, it efficiently conceals

them, with the result that focus group discussions rarely addressed the actual insurance policies. Pauli, a Company Z customer, was an exception in this regard; he explicitly referred to his insurance policy when discussing his tracking activities. Asked by another participant whether it is “a depressing experience to look at [the data]”, Pauli responded that “it is pretty easy to reach the points for the first level of [Company Z’s] policy” just by walking to work and back home. What is at stake for Pauli is not so much his personal health but the activity level that makes him eligible for the insurance bonus. He does not actively strive to reach the level; it more or less happens without his trying and is thus a nice fringe benefit. Clearly, in Pauli’s case the externalization of control does not evoke intense affects and, thus, Pauli is an example of a successful alignment of customer and policy goals: he reaps the benefits from the policy, and the company has a customer with healthier habits.

These examples show the different ways in which users, data tracking devices, and insurance policies become intertwined: within this complex web, it is not clear who sets the goals and does the monitoring. What is important for this kind of coexistence to work is the feeling that the customer is benefitting from the policy and thus the devices’ output: the technologies support achieving health—or insurance—goals. This way, the technologies actively participate in doing a user’s sense of self-determination.

7 | INTRUSIVE, ANNOYING, AND WEAK CONTROL

Instead of helping people reach wellbeing-related goals, the insurance-provided self-tracking technologies and their nudging elements—blinking lights, buzzes, beeps, and so on—can become a source of disturbance and irritation. The devices do not readily recognize what is happening in customers’ lives. Our participants described the tracking technologies’ deficiencies in measuring activity: the devices do not register cycling or walks when pushing a stroller, but they do record knitting as physical activity. These inaccuracies were often a laughing matter in group discussions, but they were also a source of genuine frustration, especially when poor device performance prevented policyholders from reaching the activity goals that trigger an insurance bonus.

In addition to failing to recognize physical activity, the devices disregard another important aspect of wellbeing; namely, the need for relaxation (except for sleep). Camilla and Henri, a married couple with small children, discussed how Camilla’s employer-provided activity wristband ruined their evenings with its repeated interruptions:

Henri: When you had the activity wristband, it was a bit annoying when it started to blink and push that “it’s time to walk now” [laughter].

Camilla: Yeah, in the evening when we’re watching Netflix and...

Henri: Nice and relaxed, when the kids have gone to bed...

Camilla: And then I’m like “okay, maybe I’ll take it off now; maybe I deserve to lie on the couch for a couple of hours”.

The irritation that Camilla and Henri reported highlights the device’s inability to align its rhythm and suggestions with everyday sociality. It tries to force its internal logic on people’s lives and thus fails to recognize the complexity and contingency of human experience and what really matters at a particular point in time: the tracker ruins the pleasurable moment of unwinding by causing negative feelings of annoyance and guilt. That such feelings arise points to the fact that in these moments the mechanical intervention has gone too far: the nudges and suggestions feel intrusive. Thus, the same tracker features that in one situation are a welcome intervention can in another be viewed in a negative light and violate the sense of self-determination.

Ultimately, the devices attached to the behavioral insurance products do not exert an especially powerful hold over customers. This became apparent when some participants reported that they had simply stopped engaging with the insurance-related tracking tools. For others, their use had become habitual. The devices teach people about their daily rhythms; thus, when a person tracks their behavior for a sufficient period, they may no longer need the

information that the device has to offer. Some, however, reported that they had stopped tracking because of lackluster experiences with behavioral policies. They were not sure whether their tracking practices really mattered, as they did not receive substantial feedback from the insurance company; what little communication there was felt deeply impersonal. Because they did not receive reminders when they stopped using the devices, some began to think that the tracking features were merely a marketing gimmick without any real effect. Finally, research participants recounted having simply forgotten purchasing a behavioral policy and only remembered it in the focus group. This was true for Hanna, a Company Z customer who said that the behavioral policy “was very easy to start using” but in the end, as she did not investigate it “very carefully” and “did not understand how the collection of activity points worked”, she stopped using the device and “completely forgot” that she even had it. These kinds of experiences were shared in several focus groups: some people had not been engaged to begin with, and if the policies were not attractive or readily comprehensible, people had simply stopped using the tracking features. As the insurance contract does not make tracking activities mandatory—and cannot do so, per EU regulations and Finnish law—there is no way to force people to use them.

8 | CONTINUING TROUBLE WITH AUTONOMY

The industrial hype concerning digital technologies, including new algorithm-based behavioral tools, has raised critical debates and promoted ethical precautions and attempts to regulate the rapid developments in this sphere. Thus far, however, it is largely an open question how the new devices actually change people's practices and their relationships with financial products like insurance. In this paper, we have explored how the use of data tracking devices in life insurance policies both widens and narrows customers' scope of action. Our main finding is that when decisions are delegated to algorithmically controlled systems, the notion of autonomy becomes activated in a new manner in the insurance context. In their daily lives, people tend to think little about their traditional insurance policies. As Jeanningros and McFall (2020, p. 12) point out, “one of the most interesting things about insurance is that it's not interesting”. For the industry, an important promise of algorithmic tools is that they make insurance more engaging by enabling closer communicative relationships between companies and customers (Tanninen et al., 2021). However, as we have shown, the mediation of insurance relations by behavioral tools brings with it a heightened awareness of the (threatened) limits of autonomy. In other words, these new technologies have the unintended consequence of *forcing* people to consider the situational dynamics of autonomy and to engage with questions related to self-determination. Insurance becomes interesting—yet not as insurance, but as trouble with autonomy.

In the focus group discussions, autonomy was revealed to be a complex concern. On the one hand, individual autonomy was regarded as an entity that can be “had” and “exerted”, offering a criterion for demarcating acceptable control. This juridical form of autonomy reproduces the historically rooted liberal traditions and structures in how the insurance industry and its regulators approach the issue. On the other, our empirical materials make clear that this approach fails to recognize the richness of the trouble that people have with autonomy when they weigh the pros and cons of persuasive technologies. From this perspective, we have analyzed how autonomy is sensed and enacted in relations and collaborations with devices. Instead of taking autonomy as a self-evident entity, we have demonstrated how it is defined, negotiated, and done in practice. These findings are particularly important for establishing that both industry insiders and social critics tend to have limited views of the notion of autonomy, with the former suggesting that these new tools enable people to become freer to choose how to take care of themselves and the latter merely decrying the controlling elements that are evident in the technology. What both perspectives miss is the ambivalence displayed in real-world situations where autonomy is constantly experienced and negotiated.

The methodological strength of our study thus lies in rooting the analysis in ongoing ethico-political deliberation. We demonstrate that rather than a struggle between pure individual autonomy and total submission to the machine, what is at stake is a more contextual zone of contrasting desires and situational negotiations and practices. One can

be more or less autonomous in particular situations, not only in relation to other people, institutions, and technologies, but also in an entangled interaction with these other actors—and with their help.

Overall, our analysis shows that if consumers feel that they benefit from tracking features and retain final decisional power over their self-monitoring practices, they are open to behavioral insurance policies and at times even find them interesting and enjoyable. However, aligning user aims with the goals of the insurance arrangement is difficult to achieve and sustain: tracker qualities that are experienced as helpful at one moment can easily become unwelcome at another. In the latter instances, the upsetting side of control rapidly becomes visible; instead of serving as an external aid that helps people reach goals and enhance self-determination, the device fails to understand their everyday aims and needs. This causes unpleasant feelings and disturbs the socio-technical enactment of autonomy.

9 | CONCLUDING REMARKS

We have called for social scientists to intervene in the current socio-technical debate by substantiating that shared values are emergent and respond to life's shifting circumstances. This means that the disturbing effects and affects caused by technologies need to be considered when algorithmic systems are evaluated and implemented. Our analysis confirms that autonomy as a notion cannot be solely related to rational sensemaking; instead, emotional responses act as indicators of whether a desirable version of autonomy is being “done” in a particular situation. We have highlighted the role that affective orientations play in determining the limits of acceptable control and suggested that we can use emotions and affects as navigational aids when evaluating the new ways for people to be that emerging technologies promote. In personal reflections, autonomy refers to a sense of being in charge and prepared for whatever comes next. For algorithmic encounters to appear gratifying, people must feel that their self-determination is not unpleasantly infringed. Losing autonomy temporarily or partially is not an unpleasant experience if it supports an overall appreciation of what lies ahead. One can be told what to do by a self-tracking device and still feel that one is in command—if one has actively and freely chosen to obey. However, the more consumers are pushed and prodded by algorithmic techniques, including behavioral modification tools, the more they experience trouble with autonomy. Mechanical encounters that do not support the alignment of technologies with users' goals trigger reflections on whether free will is truly free and whether practices and desires are genuinely self-chosen.

The coexistence of different conceptions of autonomy and the richness of affective discourse in our site of behavior-based insurance illustrate the need for regulatory and ethical approaches to remain sensitive to different and even contrasting versions of values. In the longer term, rewarding engagements with technologies can only be maintained with alignments that respect notions of personal autonomy. Efforts to safeguard commonly shared values from the negative consequences of algorithmic technologies remain ineffective if they rely on rigid and predetermined understandings of values, disregard their affective dimensions, and provide only sharply demarcated codes of conduct. In line with Rességuier and Rodrigues (2020, p. 3), we see that straightforward ethical principles are not adequate for analyzing and understanding complex issues like autonomy if they do not regard their attachment to intricate relations, emotional landscapes, and socio-technical systems. Research, ethical considerations, and governance initiatives should all actively create space for considering how values are done in various situated practices and which of those enactments are desirable. This means considering how people actually operate and feel in technologically mediated relations rather than simply promoting regulatory measures based on expected, even ideal, behaviors. The qualities that make us distinctly human—like the ability to reflect on choices and actions and our ambivalent pursuit of self-determination—should not be bypassed in regulatory debates. Paying attention to moments of alignment and friction with algorithmic systems offers much-needed guidance for thinking about how to steer ourselves toward more liveable socio-technical futures where people's boundaries, values, and wills are respected.

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DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ORCID

Maiju Tanninen  <https://orcid.org/0000-0003-3274-6360>

Turo-Kimmo Lehtonen  <https://orcid.org/0000-0002-6063-2056>

Minna Ruckenstein  <https://orcid.org/0000-0002-7600-1419>

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