

## **Customer Attitudes Towards Participation and Health Data Sharing in the Digital Transformation of Finnish Insurance**

MICHAEL PERSSON, CASANDRA GRUNDSTROM & GUIDO GIUNTI

**Abstract** The contemporary insurance ecosystem is digitally transforming to meet a myriad of emergent conditions pressured by an increase in available data. A paradigm shift necessitates new business models, digital practices, and customer relationships. To begin to understand the attitudes of customers within the digital transformation context, we conducted a large survey of Finnish insurance organization customers (N = 452). The survey gathered customer attitudes towards three factors of digital transformation: Participation in service development, visions and values of the service provider, and health data sharing. The results of the study offer a descriptive statistical snapshot of the attitudes of insurance customers in the Finnish case context relating to these topics; finding a lack of knowledge about the company digital strategy, a low perceived possibility to participate in the creation of services, a high level of trust, and a reluctance to share health data.

**Keywords:** • Digital Transformation • Insurance • Customer Participation • Health Data • Descriptive Statistics •

CORRESPONDENCE ADDRESS: Michael Persson, M.Sc., Researcher, University of Oulu, Information Processing Science, Tietotalo, Linnanmaan campus, Finland, e-mail: michael.persson@oulu.fi. Casandra Grundstrom, M.Sc., Researcher, University of Oulu, Information Processing Science, Tietotalo, Linnanmaan campus, Finland, e-mail: casandra.grundstrom@oulu.fi. Guido Giunti, M.D., Ph.D., Post-doctoral researcher, University of Oulu, Information Processing Science, Tietotalo, Linnanmaan campus, Finland, e-mail: guido.giunti@oulu.fi.

## 1 Introduction

The European Commission (2018) considers digital transformation (DT) to be the key to unlocking future growth in Europe. To centralize the DT progress in Europe, the Commission proposed the Digital Europe programme, outlining a budget of €9.2 billion (projected through 2027) towards the transformation of Europe's society and economy. DT aims to describe the gradual alignment of the societal and organizational contexts— that is, a fundamental shift of business models, infrastructure, practices, and culture, towards the facilitation of digital factors in improving social and business outcomes. In the context of insurance, a DT process can involve modernizing digital infrastructure such as decentralized blockchain-driven alternatives (Gatteschi et al., 2018). While many of these solutions are currently in a nascent state, and far from market implementation, a significant amount of research and development is reshaping the insurance sector, and the ramifications of its DT are difficult to predict. Notwithstanding, there has been limited empirical research on digitalization in the insurance sector (Eling & Lehmann, 2017), and business leaders are struggling to implement effective digital strategies to leverage digital platforms with their customers (Probst et al., 2018).

The traversal of a successful DT represents a necessity for insurance businesses, and over the last decade has spurred a significant increase in the prevalence of digital strategies in the insurance sector. The expression of digital agendas has been shown to be positively correlated with business success (Bohnert, Fritzsche, & Gregor, 2019). Understanding how the digital strategy is received by customers and stakeholders may be a key factor of success for DT. Eling & Lehmann (2017) identified four major areas of improvement for the DT of the insurance industry: the customer experience, the business processes, the innovation of services and products, and the readiness for competition with other business sectors. Only one of these areas is explicitly concerned with customers, indicating that there may exist a lack of consideration towards understanding the role of the customer in the DT of insurance (Persson, Grundstrom, & Väyrynen, 2018). Tangentially, health data is an evergreen issue in the realm of healthcare insurance, acting as a key commodity and building block of digital service provision, but are heavily legislated and demand a high level of trust and transparency (Grundstrom & Karampela, 2018).

### 1.1 Objective

The focus of this study is contributing to research on DT by gathering data on customer attitudes towards factors of DT. To this end, we undertake a large customer survey as a part of a case study of Alpha, a Finnish insurance organization undertaking DT, expressed by a renewal of their digital strategy and their service offerings (Persson et al., 2018). Through a survey study of their customers, we investigate customer attitudes and perceptions towards health data sharing, the communication and evolution of digital strategy, and customer participation in service development, factors that may represent significant factors in informing the practices and processes of successful DT. As such, the objective of this descriptive statistical paper is to present and describe the data collected through the aforementioned survey of the insurance customers of Alpha.

## 2 Literature Review

In this section, we review aspects of customer participation of DT as well as particulars related to health data sharing.

### 2.1 Culture and Customer Participation in Digital Transformation

Moving towards a digital paradigm is often facilitated through the proliferation of digital development practices and cultural aspects found in the context of software development and service design (Calabretta et al., 2016; Kettunen & Laanti, 2017). These digital practices are commonly derived from the field of human-computer interaction (HCI) and characterized by ideals of democratic and user-centric rationales and a high focus on user experience. While HCI scholars are likely to argue that customer experience is an outcome that can only be derived from participation (Sanders, 2002), focusing on customer experience appears insufficient to properly outline the particulars of a high level of customer participation.

Tangential to the HCI context, service-dominant logic and value co-creation have been explored as a driver of DT in insurance (Weiß et al., 2016). Value co-creation has a strong focus on the roles of customers as active participants in the value creation process, and consider them resource integrators (Prahalad & Ramaswamy, 2004; Vargo & Lusch, 2004). Customer participation in insurance contexts studied through the lens of value co-creation, has been shown to have a short-term positive effect on brand satisfaction and brand loyalty (Apenes Solem, 2016). Leading to positive effects on the motivation on employees, establishing that “... *understanding how companies can harness the benefits of customer participation is of great importance.*” (Chen, Chen, & Lin, 2016, p. 493) Customer participation has also been found to increase the perceived process value of a service through new knowledge, developing relationships, and pleasurable experiences (Nguyen Hau & Thuy, 2016). Ethical issues around co-creation and organizational performance have also been explored, where exploitative practices are not necessarily rejected because they are explicitly illegal, but because co-creating stakeholders consider them morally reprehensive (Vial, 2019).

The mechanisms and practices which facilitate customer participation in innovation practices have been explored, but the effects of digitally enabled infrastructures on designs and participation is still unclear, and requires more research (Nambisan et al., 2017), although co-creation scholars remain optimistic about virtual or mixed platforms being suitable for co-creative and participatory practices in the future (Sanders & Stappers, 2008).

### 2.2 Health Data Sharing

The efficacy of traditional insurance models are diminished by the predictive power of big data in preventative healthcare services (Pikkarainen et al., 2018; Raghupathi & Raghupathi, 2014). Access to personal data to power preventative services is crucial for organizations towards facilitating DT (Huhtala, Pikkarainen, & Saraniemi, 2015). However, organizations face barriers to accessing personal and health data (Grundstrom & Karampela, 2018; Grundstrom et al., 2018). Notably, there are three key barriers acting both internally and externally to insurance organizations: institutional, legislation, and use and participation (Grundstrom et al., 2018). Legislation as a barrier addresses how insurance organizations are heavily regulated by both national and international regulations such as the *General Data Protection Regulation*

(GDPR) (Grundstrom et al., 2019). The willingness of the customer to share data is affected by two of the barriers: Institutional, through a conflicting understanding of customer propensity towards data sharing and use and participation, through a lack of customer incentives. (Grundstrom et al., 2018). Willingness to share health data is influenced by perceived levels of trust with different stakeholders (King, Brankovic, & Gillard, 2012). Negative perceptions towards insurance companies arise from a lack of understanding of how data will be used, as concern of discrimination against individuals who share data is a highly prevalent stigma towards insurance organizations, where data may be used to prevent insurance coverage (Grundstrom & Karampela, 2018; Weitzman et al., 2012). As data are the driving force behind organizations during DT (Huhtala et al., 2015), understanding the customer's attitudes through metrics of trust and willingness to share health data may prove critical for DT in an organization moving towards a healthcare paradigm.

### 3 Method

In this section, we elaborate on the case study context, the survey and its creation, outline the selection criteria and the channels of distribution, and describe the collection, cleaning, and analysis process of the survey data.

#### 3.1 Case Study Context

The survey is part of a larger exploratory case study (Yin, 2014) of Finnish insurance organization Alpha, summarized in Table 1. The Finnish context is appropriate for this study, considering its advanced position in the International Digital Economy and Society Index (DESI) as having the third most advanced digital economy in Europe (European Commission, 2018). The digital economy is considered a prerequisite factor in DT by the European Commission and Finland is ranked second in the Digital Transformation Enablers' Index (DTEI) suggesting the conditions within Finland support DT (Probst et al., 2018).

Case	<i>Alpha</i>
Core business	Insurance
Size (2018)	Employees: ~3600 Customers: ~1.3 million
Market focus	Finland and Åland
Digital transformation overview	Alpha is undertaking a DT through the implementation of an overarching digital strategy, summarized and translated to "holistic life security", in which they aim to renew their service offerings through a shift towards the healthcare and wellness sector, and a more intrinsic and proactive involvement of the customer base towards their own wellbeing.

Table 1: Case description

#### 3.2 Survey Rationale

The topics of the survey were derived from a set of interviews carried out at an earlier stage of the case study, interviews intended to outline the perspectives of the insurance development managers within Alpha towards the role of health data and other contemporary challenges in

the evolution of the company (Persson et al, 2018). Based on the notions of the insurance professionals, we decided that a customer survey would be an useful counterpart to the interviews for understanding the customer perspective of the DT of Alpha.

### 3.2.1 Survey Creation and Structure

The survey was designed to gather customer attitudes and perceptions of company values and visions, customer participation in the service design processes of the company, and health data sharing. Furthermore, the survey has sections relating to demographic data, current services with Alpha, how the survey was accessed, and social media usage. As the purpose of the survey was to gather perceptions of a large number of customers, we opted to formulate a collection of Likert-type statements (Likert, 1932). A Likert-type response format is used when “*the primary interest of the researcher is not to synthesize the stance of the participants per se but to capture feelings, actions and pragmatic opinion of the participants about mutually exclusive issues around phenomenon/s under study*” (Joshi et al., 2015, p. 398). While Likert-type questions normally have 5 or 7 response levels, we chose to use a symmetrical 6-point version. The omission of a neutral response option mitigates social desirability bias (Garland, 1991).

### 3.3 Survey Implementation

During the planning period, we collaborated with insurance organization professionals that presided over the customer channels and the Webropol survey distribution channel. A decision was made to generate interest for the study on social media, and as such the survey saw a one-time posting to the Alpha Facebook page.

#### 3.3.1 Selection and Distribution

The selection sampling decisions were made in collaboration with insurance professionals at Alpha, and together we reached a consensus that distributing the survey to 5000 active customers (roughly 0,45% of their reported customer base) would give us a good chance of emerging out of the process with a statistically valid number of responses amounting to ~7% of the total surveys distributed, or a sample size of N=385. This targeted sample size would allow us a 5% margin of error with a 95% confidence.

The criteria for being selected are as follows:

- Active service with Alpha
- Registered email address with Alpha
- Over 18 years of age
- Given consent to automated marketing

These criteria were met by a vast majority of the Alpha customer base, although the customer database from which the population was selected may have had certain instances of anomalous data. With no explicit exclusionary criteria, the survey was distributed to a fully random selection of the target population. The distribution of the survey started on January 30th, 2018 and lasted until March 6th, 2018.

### 3.3.2 Collection and Cleaning

As the survey process concluded, our total tally of responses amounted to  $N = 513$ , a significantly higher sample than our projected  $N = 385$  — a response rate of roughly 10%. A survey was determined ineligible if the participant was not an active Alpha customer or had reached the survey through social media. The final sample size was counted to  $N = 452$ , a larger sample size than required for the projected confidence level, with a narrower margin of error (4,6%). Through an internal validation process with Alpha, we ascertained that the demographics of our study sample are representative of the customer base of Alpha.

Given the randomness in the selection process, the number of respondents, the narrow margin of error, and the overlap of the selected sample with the full population, we conclude that the dataset is statistically valid.

### 3.3.3 Visualization of Survey Data

The visualization of the data was performed through use of IBM SPSS Statistics version 25. The Likert-type items were grouped into stacked bar charts based on their overall topic, with their frequencies divided into percentages of the entire population. The health data sharing sensitivity items were collated into a Likert scale towards determining a general attitude, through finding the mean of all the items and rounding them to the closest integer, and presenting the negative group (score of  $\leq 3$ ) to the positive group (score of  $\geq 4$ ) in a pie chart. In line with descriptive statistics (Rendón-Macías, Villasís-Keever, & Miranda-Navales, 2016), the results of this study are presented as-is, primarily through representations of frequency, and does not attempt to show strong statistical inferences or reach statistically validated conclusions in this stage.

## 4 Results

In this section, we outline the results of the study. Unless otherwise noted, the data presented in this section represents the full participant group ( $N = 452$ ). Positive responses are coded in blue, and negative responses are coded in gray, and the Likert items are presented as gradients from 1 (Strongly disagree) to 6 (Strongly agree), left to right.

### 4.1 Demographics

Gender	Frequency	%	Age	Frequency	%	Education	Frequency	%
Male	224	49,6	18-24	11	2,4	Primary school	32	7,1
Female	227	50,2	25-34	43	9,5	High school	145	32,1
Other	1	0,2	35-44	87	19,2	Some college	30	6,6
			45-54	99	21,9	Bachelor's degree	146	32,3
			55-64	104	23,0	Master's degree	98	21,7
			65-74	86	19,0	Doctorate degree	1	0,2
			75 +	22	4,9			
<b>Total</b>	<b>452</b>	<b>100,0</b>	<b>Total</b>	<b>452</b>	<b>100,0</b>	<b>Total</b>	<b>452</b>	<b>100,0</b>

Table 2: Demographics of survey participants

The demographics of the survey participants can be viewed in Table 2. Some outliers in the data are Gender: “Other”, N = 1; Education: “Doctorate degree”, N = 1. Respondent age groups appear to follow a normal distribution, with fewer respondents on either extreme than in the middle, and the gender divide is near-equal “Male”: N = 224, “Female”: N = 227.

### 4.2 Customer Attitudes Towards Participation and Culture

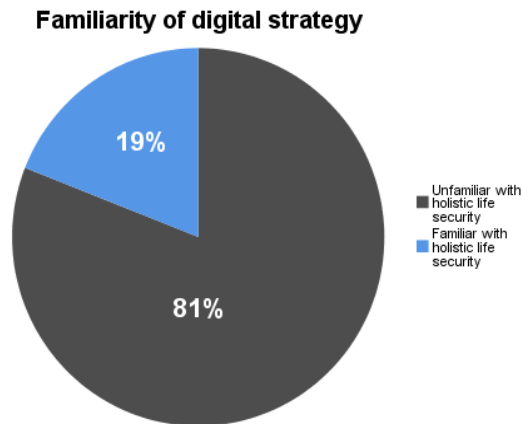


Figure 1: Familiarity of digital strategy

We asked the participants how familiar they were with “holistic life security”, the moniker given to the digital strategy enacted by Alpha. The question was formulated through the Likert-type statement and seen in Figure 1. We refactored the negative responses (Strongly disagree,

disagree, and slightly disagree) into “Unfamiliar with holistic life security”, and the positive responses (Strongly agree, agree, slightly agree) into “Familiar with holistic life security”. This refactoring was done for clarity of presentation, justified through the fact that the percentage of “Strongly disagree” alone was twice as large as the sum of the positive responses (38% to 19%). As we can read from the Figure 1, over 80% of their customers reported being unfamiliar with the digital strategy of Alpha. The development of their new digital strategy and its intrinsic concern with the customer (Persson et al, 2018) as well as the expression of digital strategies having positive correlations with business success (Bohnert et al, 2019), makes this question relevant to understanding certain facets of Alpha’s DT processes.

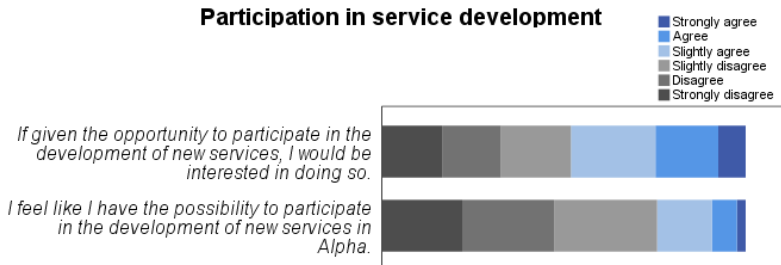


Figure 2: Participation in service development

Regarding participation in service development, we asked about two key concepts — whether the customer would be interested in participation, and whether the customer perceives a possibility to participate in the development of new services with Alpha (Figure 2). Roughly half of the respondents were positive towards participation given the opportunity, while only a quarter of them perceived the possibility of participation.

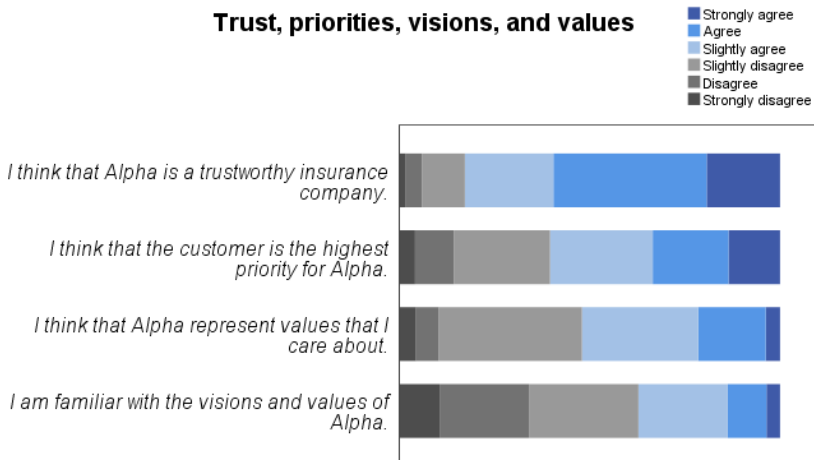


Figure 3: Trust, priorities, visions, and values



Towards measuring the customer perception of the organizational culture and values of Alpha, we presented the survey participants with four Likert-type statements (Figure 3). Despite being relatively unfamiliar with the visions and values of Alpha, and neutral in the belief that Alpha represents values that they care about, a large majority of the customers held Alpha to be a trustworthy insurance organization, and a slightly smaller majority agreed that the customer base is the highest priority for Alpha.

### 4.3 Customer Attitudes Towards Health Data Use, Sharing, and National Rights

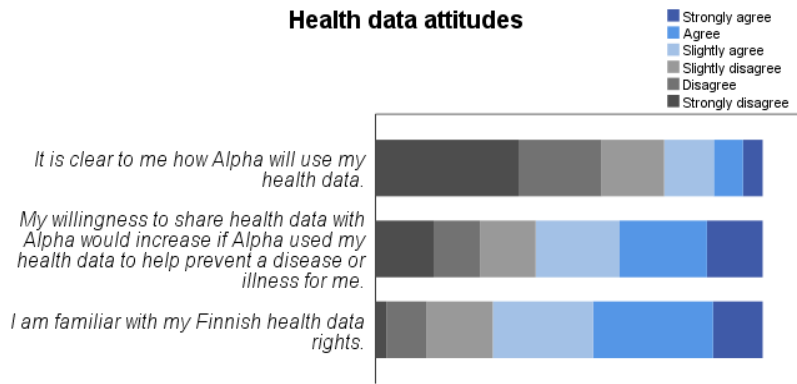


Figure 4: Health data attitudes

Statements regarding the use, the sharing, and national rights of health data were presented to customers in the form of the Likert-type items shown in Figure 4. First, clarity of use, intended to find how transparent Alpha was in communicating health data use, which a large majority of customers indicated to be poorly understood. Second, the willingness of customers towards health data sharing with Alpha assuming their data would be leveraged to create positive health outcomes for the customer, was examined. Under this caveat, around 60% of the customers were positive towards the sharing of their health data with Alpha. Lastly, we asked the customers to gauge their awareness of their Finnish health data rights, which roughly 70% of the customers considered themselves familiar with.

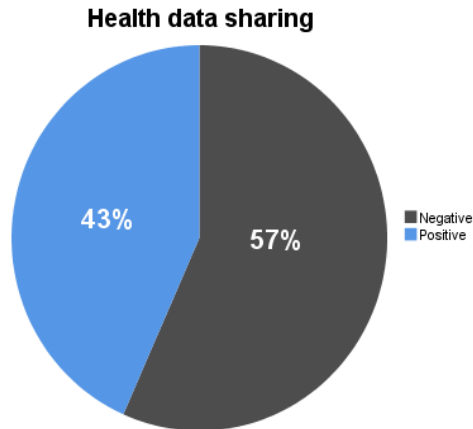


Figure 5: Willingness to share health data (mean)

Within the health data section of the study, we also asked the customers to evaluate 12 different types of health data to be shared. These categories of data were aggregated from other health data sharing sensitivity types from mixed methodology research in survey and questionnaires (King et al., 2012; Weitzman et al., 2012) and combined into a scale of general customer health data sharing attitudes (Figure 5). The customer attitudes towards health data sharing are skewed towards the negative.

## 5 Discussion

In this section, we will summarize the descriptive statistical results of the study and outline possible implications for research and practice for DT.

### 5.1 Customer Participation

The significant difference we can see between the perceived ability for a customer to participate and their reported willingness to participate is an interesting venue for further exploration. If customer participation is more limited by the customers feeling that participation is not possible than it is by their willingness to participate, it suggests that the onus is on Alpha to transform their company culture and digital practices towards leveraging customer participation in their DT process in general, and service design processes in particular, in line with the notion. Engaging their customers with their digital strategy may be a good first step towards this objective, as the survey revealed that a significant majority of customers lacked familiarity with the aforementioned strategy. As the value networks of an organization grow increasingly complex during a DT process, adopting agile customer-inclusive practices (Kettunen & Laanti, 2017) and developing ways to sustain the advantages of co-creation (Apenes Solem, 2016) may be critical to the success of a DT process. We believe that the customer perspective is a dimension of DT that stands to benefit the managerial practices and understanding of the field going forward.

## 5.2 Trust and Knowledge about Organizational Values

Examining the organizational culture is an important factor towards understanding the relationship between an organization and their customers. Studying the interplay between factors of participation, data sharing, and trust, some cursory patterns appear. For instance, there appears to exist an inherent trust in Alpha, despite a limited understanding of their visions and values, and an even more restricted understanding of their digital strategy. This suggests either that knowledge of Alpha's visions and values is not of strict importance for customer trust, or that customers trust Alpha despite not being having insight into their organizational culture. Since potential feedback loops between organizational DT and customer behavior and expectations are under-researched (Vial, 2019), more customer/stakeholder-focused research is required to move towards an understanding of these relationships and their impact on the DT process.

## 5.3 Health Data Sharing

The survey focused on different areas of health data, including sharing and use of health data, and familiarity of health data rights. Access to data is crucial for organizations and therefore understanding the customers' attitudes towards health data sharing in the context of private insurance organizations is crucial for DT (Huhtala et al., 2015). Minimal acts of transparency for intended health data use by Alpha is a central component of establishing trust between individuals and private organizations (Grundstrom & Karampela, 2018; Weitzman et al., 2012). The overall attitude towards sharing different types of health data, such as past medical history, is slightly more negative (57%) than positive (43%). However, this aggregate is not as negatively inclined as other studies have shown. Examining the results of a Canadian study, 67% of patients did not want private insurance organizations to have access to health data (Perera et al., 2011). Willingness to share health data was reported by customers as likely to increase on the contingency that Alpha would personalize preventative actions for diseases in the customer's lifetime. Finally, the reported familiarity of health data rights for customers was very high, which could potentially be explained by the survey being contemporary with the heavy publicization of the upcoming GDPR.

## 5.4 Conclusions and Future Research

In this process, we set out to contribute to the theories of early stage DT, which represents not only something of a renaissance of service provision but also a shift in the relationships between customers and service providers. The customer survey offers a snapshot of customer perceptions related to potentially impactful factors for successful DT in the Finnish insurance service context: customer participation, trust, knowledge regarding organizational values and digital strategy, and health data sharing.

The resultant data of this survey study are planned to be juxtaposed with the qualitative interview studies of the service developers and managers gathered as a part of the case study of Alpha. Furthermore, the Likert-type items found in the survey will be subject to statistical interpretation and validation in a future study.

Towards a more holistic understanding of the practices and processes of DT, further customer-based studies are required, in a wide variety of digital ecosystems. We strongly encourage

contributions to an explicit customer perspective of DT through research and collaboration with insurance companies and other service ecosystems. More actionable customer research is needed to be able to create a better understanding of the impact of customer attitudes towards participation and data sharing as factors of digitally transforming an organization.

## 5.5 Limitations

As this survey was carried out as a part of a case study of a single insurance organization in a single context, the results cannot be easily generalized to a wider geographical scope. The survey data is also not subject to statistical interpretation within the scope of this paper, which makes the contribution less actionable. Finland is similar to other Nordic countries in its high prevalence of social policy compared to many non-Scandinavian contexts, which may be reflected in the levels of trust its citizens appear to hold towards the insurance sector.

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