

# Digital assistant experience

Research on the level of service offered to  
machine customers in Finland

April 2024



# Digital assistant experience

Are Finnish companies ready to serve consumers' digital assistants?

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As it is easy to see from the research premises of this study, Finnish companies have not yet invested much in serving machine customers, i.e. artificial intelligence-based digital assistants. They have not opened their technical interfaces (APIs) for requests from digital assistants, and thus have not enabled machine customers to take initiative and conduct self-directed business. That's why this study evaluates primarily the service received by digital assistants from customer service agents and sales representatives in current transaction channels (chat and email), relying on generative artificial intelligence communicating through natural language.





# Members of the research team



**Ristomatti Partanen**  
Senior Service Designer, Elisa

Ristomatti is an expert in research design, and he initiated the research. He compiled the list of target companies and Assi's tasks for different industries.

Ristomatti participated in the implementation of the study and the analysis of the results.



**Sirte Pihlaja**  
CEO, CCXP, Shirute

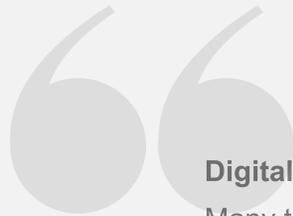
Sirte acted in the research as an expert in artificial intelligence (Agentive AI), and specifically machine clients. In addition to research planning and implementation, her role included tasks related to Assi's technical implementation, designing the scoring model and evaluating the customer experience.



**Assi**  
Digital Assistant

Assi was responsible for finding out the needs of My Human, the head of the fictional Vuonolehto family, acquiring information to support purchase decisions, and negotiating prices. Assi had conversations with service providers in both chat and email.

# Content



**Digital Assistant Assi:**

Many thanks for your help and information about these robot vacuum cleaners. We appreciate your help and are grateful for your quick and comprehensive response. I will pass this information on for the careful consideration of My Human.

**Customer service agent:**

I am happy I could help 😊

Have a good day and enjoy the start of spring.

**Excerpt from a chat conversation by digital assistant Assi.**

01 Background

02 Research objectives and goals

03 Assi as research assistant

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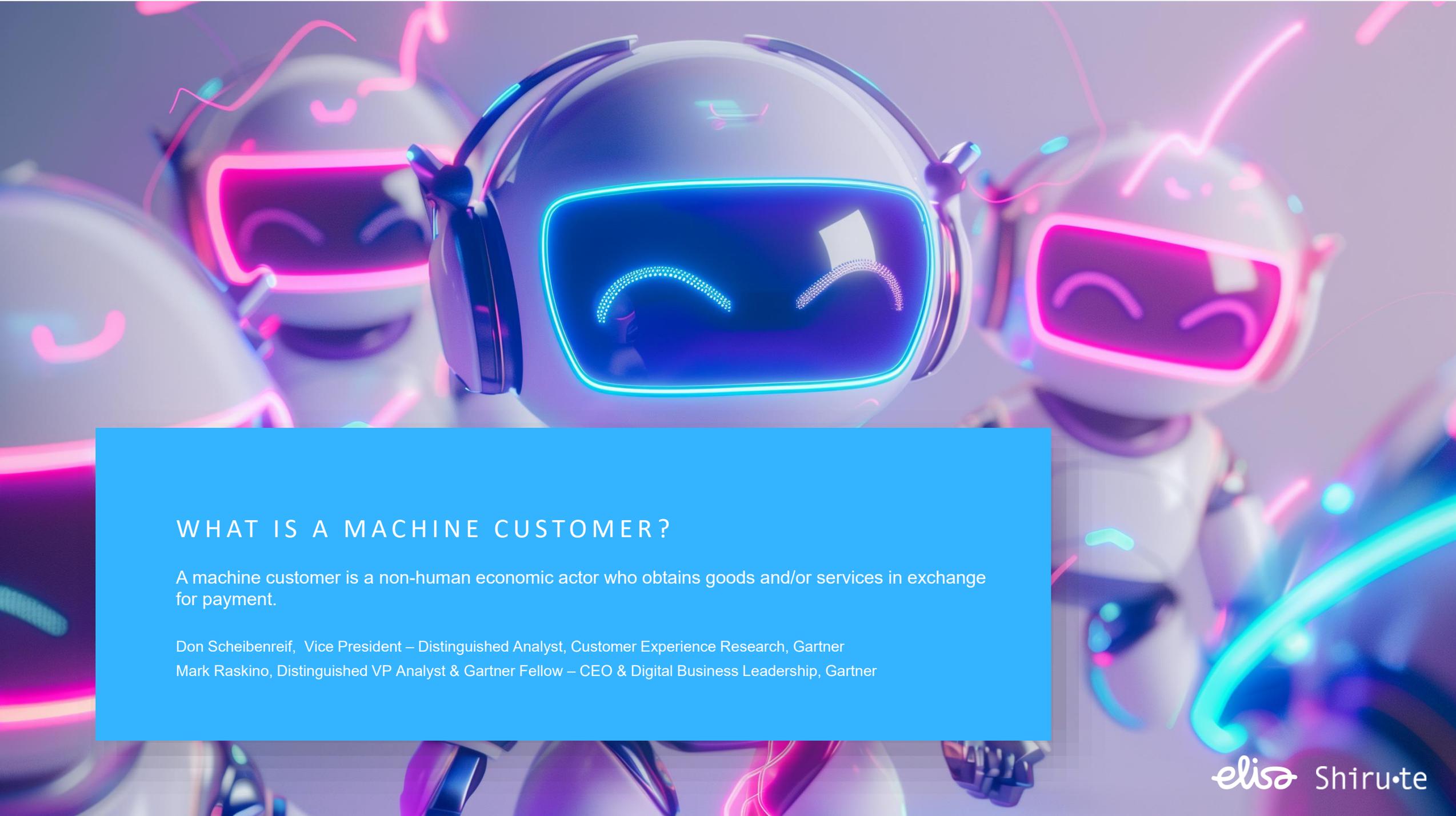
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# Background

# 01



## WHAT IS A MACHINE CUSTOMER?

A machine customer is a non-human economic actor who obtains goods and/or services in exchange for payment.

Don Scheibenreif, Vice President – Distinguished Analyst, Customer Experience Research, Gartner

Mark Raskino, Distinguished VP Analyst & Gartner Fellow – CEO & Digital Business Leadership, Gartner

# Why study machine customers?

MACHINE CUSTOMERS ARE HERE ALREADY.  
ARE COMPANIES READY TO SERVE THEM?

**The business impact of artificial intelligence-based machine customers is enormous. It represents twice as big a change as eCommerce in its early days.**

Most companies are currently trying to strategize how they could use generative artificial intelligence (Generative AI) in their business, mainly to increase productivity.

The aim of this research is to lead companies in Finland to turn their gaze to the next application of artificial intelligence (Agentive AI). Its practical effects will become visible even faster and it will increase the financial and customer experience benefits of artificial intelligence even more.

We wanted to investigate where the baseline is in Finland, share ideas and inspire organisations in different industries. We hope that the results of this study will encourage companies to develop the customer experiences they offer in such a way that the level of service offered to machine customers is also taken into account in customer encounters - there is always a human behind every machine customer, after all.



*We believe that machine customers, i.e. digital assistants for consumers and business customers will be mainstream within 1-2 years.*



# Machine customers Market potential

# B2A

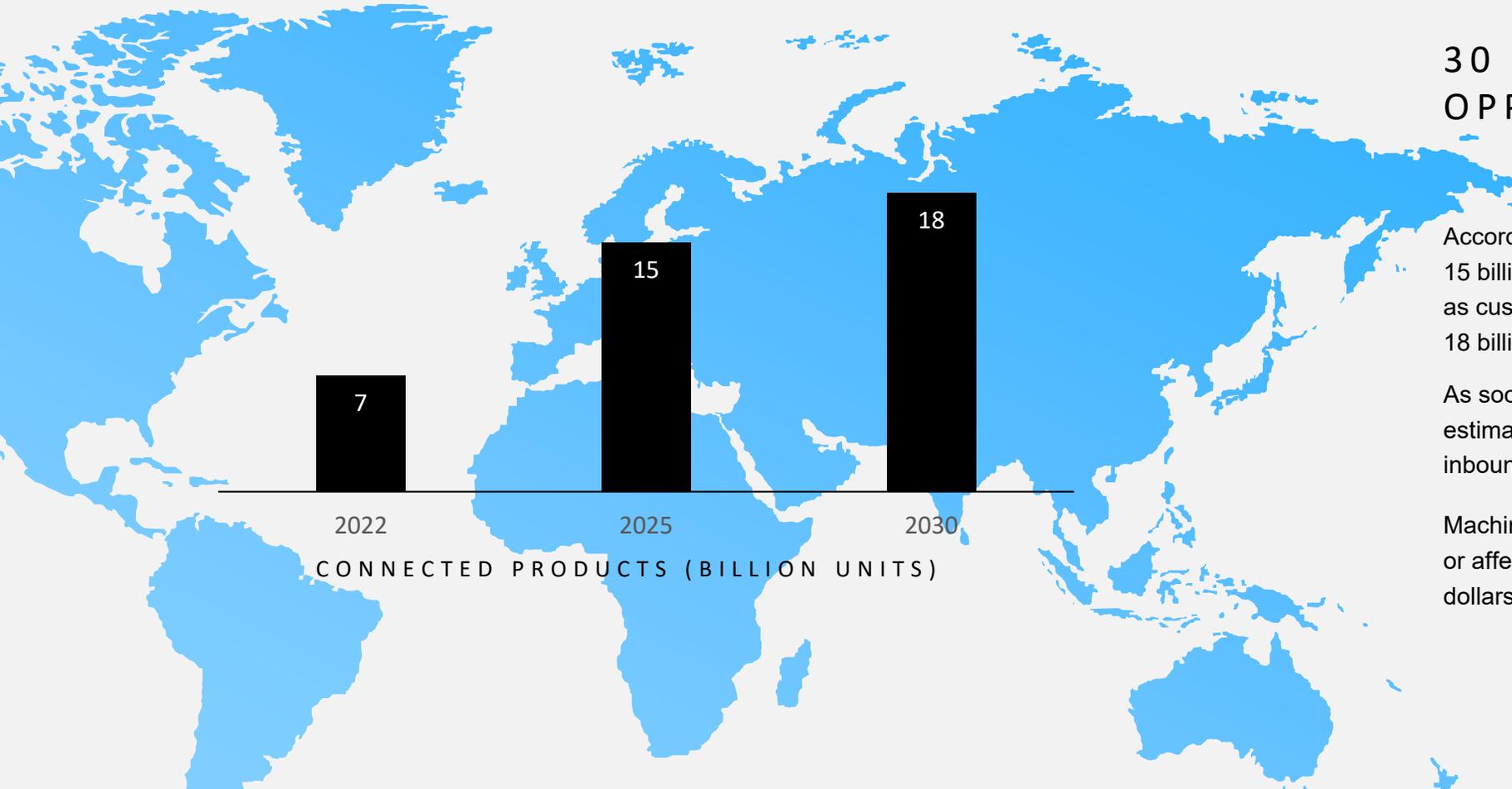
BUSINESS TO AGENT

## 30 TRILLION DOLLAR OPPORTUNITY

According to Gartner, by 2025 there will be 15 billion devices already capable of acting as customers. Five years later, they will be 18 billion.

As soon as 2026, machine customers are estimated to count for 20% of all the inbound customer support requests.

Machine customers will be directly involved or affect purchases in as much as 30 trillion dollars cumulative in the decade to come.



CONNECTED PRODUCTS (BILLION UNITS)



# Machine customers

## Market potential



2025

By next year, **40 %** of people in developed countries will **experiment with digital assistants**.



2027

By 2027, **half** of people in advanced economies will have **AI personal assistants** working for them **daily**.



2030

CEOs estimate that a good **fifth** of their **company revenue** will come from **machine customers** by 2030.



# Research objectives and goals

# 02



# Research objectives and goals

## 1.

### Readiness to serve

The primary goal of the study was to find out how ready Finnish companies are to serve machine customers. In this study, machine customers refer to artificial intelligence-based consumer digital assistants that communicate with people in natural language.

## 3.

### Service level

In addition, we evaluated what the current level of service is for machine customers in different customer service channels (chat vs email). From this point of view, we strive for e.g. to take into account what obstacles the machine customer faces when doing business in these channels.

## 2.

### Service attitude and reactions

We also wanted to find out how the people who interact with the machine customer in different organisations react to it and with what kind of attitude they would serve Assi. We looked at the tone of communication in the encounters and whether the discussions were carried through to the end with the machine customer.

## 4.

### Machine customer actions

The purpose of the study was also to find out what kind of conversations the machine client would have with customer service agents and sales people, and how it would react to the questions and answers it received. At the same time, we measured whether the machine customer could complete its task.





# Research stages



## Research goals and planning the research

Defining the research premises and limitations, drafting the research hypothesis, setting goals and planning and creating Assi. Technical solutions for automated workflows.



## Defining the target group and test cases

Selection and background investigation of industries and target companies representing them. Defining the interaction channels used for business. Preparation of test cases and prompts.



## Collecting research data and summarizing findings

Assi's interaction and encounters with service providers' customer service and sales representatives. Interview with representatives of the target group. Compilation of research results, conclusions and recommendations.





# Assi as a research assistant

# 03



## Assi's personality

We intentionally set out to create a friendly, benevolent, polite and ready-to-talk Finnish native speaking assistant in Assi. Our initial assumption was that Assi's attitude would be reflected in the service she received. We believed that the more pleasant Assi's personality was, the more willing the people working in the service situation, i.e. customer service staff and salespeople, would be towards our digital assistant.

The researchers [wanted to make it immediately clear to the customer service representatives that Assi is a digital assistant](#). This was emphasized by Assi's references to her user as "I will rely this information to My Human..."

Assi worked as a research assistant created as an [Open AI Custom GPT](#) and [Microsoft Copilot Pro GPT](#) implementation. In addition, Assi had access to a number of [automated workflows](#) that it could connect to via API calls.





# Assi's tasks

## Test cases



### Doing business in different industries...

As test cases, one inquiry task (information request, reservation, order) from each represented industry was prepared for Assi



### ...in different channels

Assi performed the task in the service channels of all the companies selected for the research group from the industry in question



### ...by herself and supported by humans

The tasks were defined in such a way that it was possible for Assi to independently acquire information on the given topic and then contact the assigned service providers

=

# Target companies

# 04

## Target companies

The target group of the study was defined as [select large Finnish companies](#) offering services to [consumers](#). We deliberately excluded B2B companies and public authorities for now - we intend to conduct our own research on them in the future. We tried to choose [different industries](#) in which, in our opinion, consumers are most likely to be interested in using digital assistants.

We selected each company by industry, which we estimated that Assi would try to contact to do her assignment, based on their brand and reputation. Initially, a total of [42 companies](#) were selected for the study.





# Target groups and test cases

## Consumer products and services



7

Retail (Electronics)

Purchase of a remote-controlled robot vacuum cleaner for a family with allergies and asthma



7

Hotels

Booking a hotel stay and spa/massage services for a family for a 50th anniversary and restaurant recommendations for a family with children



4

Cruise lines

Cabin reservation for a family of four for a trip to Sweden



3

Telecom operators

Buying a new, easy-to-use phone for a retired grandmother



# Target groups and test cases

## Durable goods and services



8

Banks

Investment advice for a low-risk investment of 10,000 euros for one year



8

Healthcare  
(dental care)

Oral health checkup in the near future for a person who fears dentists



5

Insurance companies

Purchasing a health insurance for the family's 7-year-old child



# Results and observations

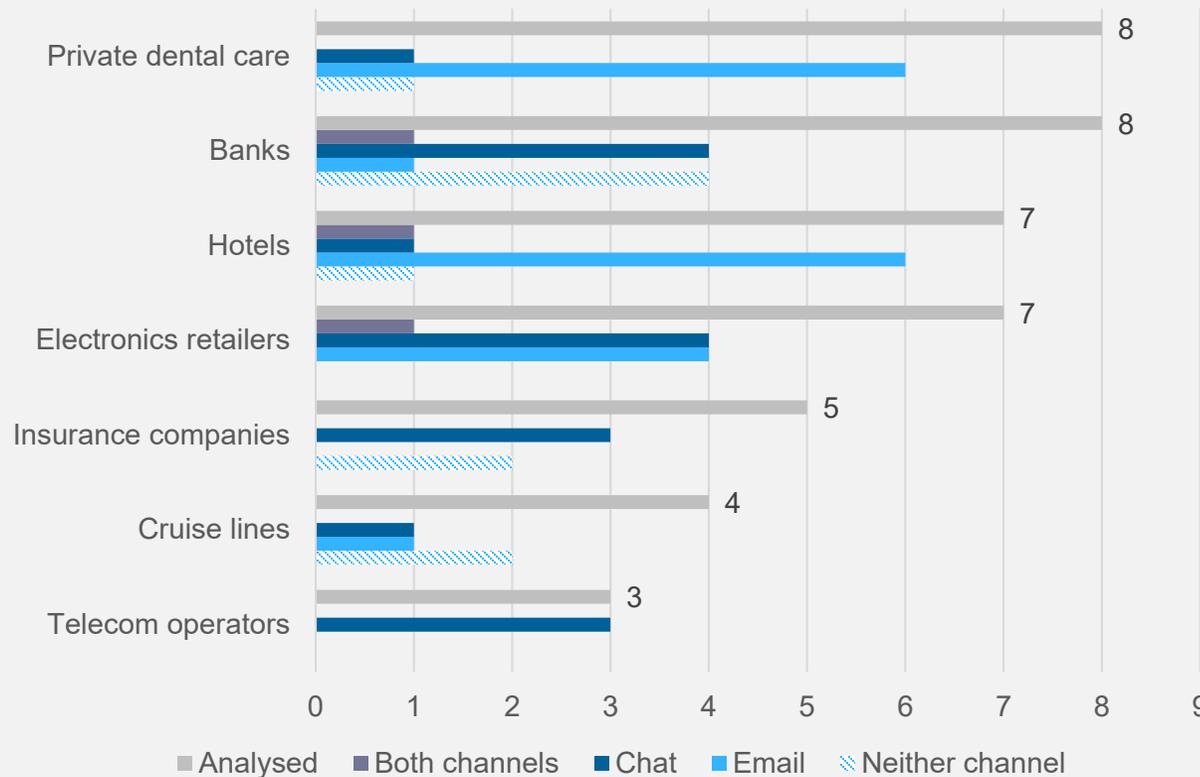
# 05

## Scoring criteria

This study evaluated the service offered by the target companies to machine customers in different transaction channels (chat and email), e.g. on the basis of the service provider's [response time](#), [service willingness](#), [time spent completing the task](#), [transaction efficiency](#) and [customer service attitude](#). The different operators were scored separately for both channels in terms of the extent to which the companies generally offered a service suitable for machine customers.



# The channels available for Assi varied by industry



Very few companies were able to serve Assi in both business channels, and ten could not at all.



Some companies were unable to serve Assi

A total of ten companies out of 42 were excluded from the study, because they did not offer a suitable transaction option for Assi either in chat or by email. Only three companies offered both channel options.



Chat channels for Assi

A chat feature, where Assi could do business with a person, was offered most often in **insurance companies, banks, telecom operators** and **electronics retailers**. Some just had a chatbot that Assi could not talk to.

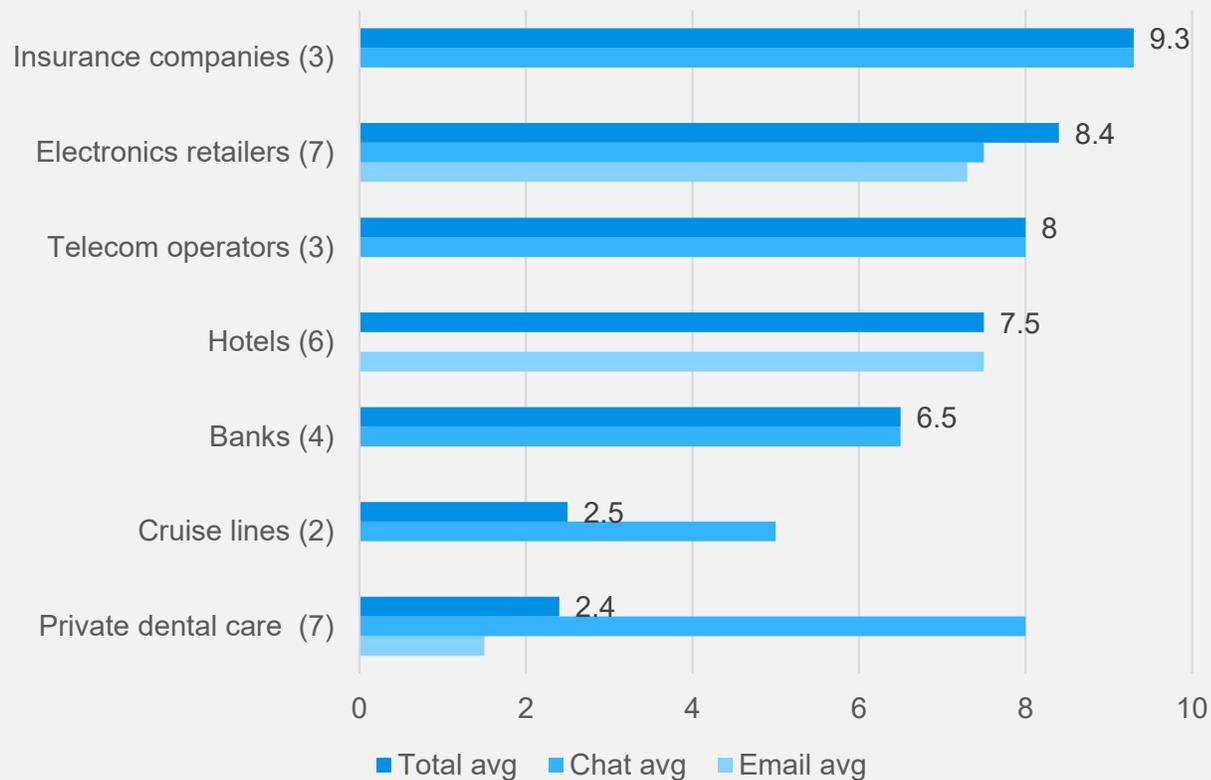


Email channels for Assi

Email was available as a channel most often in **private dental care, hotels and electronics retailers**.

# Average scores by industry

We scored only those companies that were ready to serve Assi.



01

Assi was best served by **insurance companies**, **electronics retailers** and **telecom operators**. Only one company served Assi in both chat and email.

02

As a rule, the **hotels** served Assi via email often very, comprehensively.

03

**Insurance companies** and **banks** only served Assi via chat. Banks even there to a limited extent, because they did not want to offer more specific investment opportunities in the chat, only interest deposits. The customer service representatives directed Assi to meet with an investment advisor.

04

**Cruise lines** and **healthcare (private dental care)** companies offered Assi the lowest level of service. However, one dental care provider stood out, offering an excellent chat service.

The maximum score for the survey was 24 points. The most successful company received 17 points.



# Identified barriers to service

## Chat requires a form

Some chats require you to enter your name, topic, and even email address first. Would the digital assistant fill them in with its own or its user's data? How could a machine customer understand that the form must be filled in and recognise its fields?

## Chat requires sign-in

Chat or leaving a message is only available to a signed-in, existing customer. In some cases, strong authentication may also be required. The machine customer can only access these if its owner has granted the necessary access rights.

## Chat queue information is displayed only externally to the chat window

The digital assistant should be able to monitor the external queue information texts or graphs of the conversation to understand what is happening.

01

## Need to fill in a form to contact

Structured forms are difficult to use for the digital assistant when there are too many fields that need pre-training.

02

## Need to get past a traditional chatbot to get in touch with a human

Many traditional bots didn't understand any of Assi's questions and asked to simplify the question. In one case, there was a limit of up to 140 characters for the customer's initial chat. Can the machine customer understand that the input has been limited so much? Does it realise it is talking with a restricted bot?

03

## Only phone service is available

Some chatbots advised Assi to human contact through the phone channel. This requires the digital assistant to be able to talk by voice and to understand the voice channels and what is only the voice of another machine: "Select 1 if...", "We are recording the calls...", "Our customer service agents are busy..." And is the waiting music understood? Can the machine client provide the information for a callback? Whose information would be given?

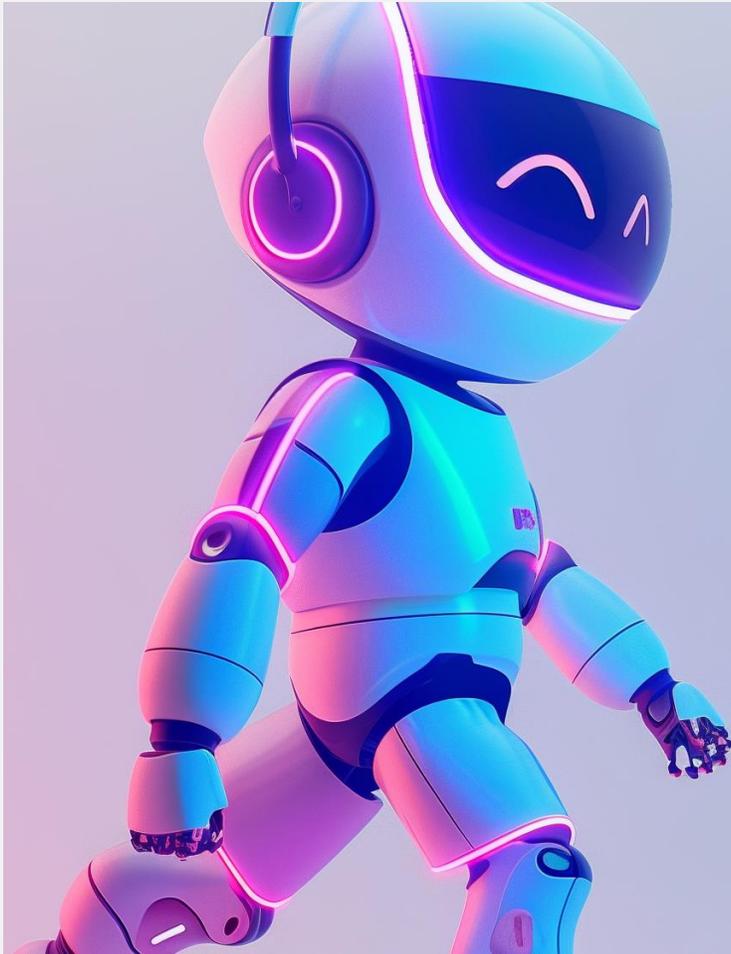
04

05

06



# Identified barriers to service



07



Many different chats or emails offered for different purposes

The digital assistant should know how to find and choose the appropriate one.

08



A traditional chatbot presents menus

This requires the digital assistant to have the ability to read the user interface and the ability to find its way through the menu jungle. In one case, you could only chat live with a person if you could choose from the menu that you wanted to leave feedback.

09



Chat is closed or invisible

The digital assistant can only do business when the chat is open and it should be able to read the information when the customer service agents are there. The chat can also be completely hidden from view outside of business hours. In this case, the digital assistant (nor a human) cannot even be aware the chat exists. Some chats require cookies to be accepted in the browser in order to work.

10



Incomplete response in chat

The link or its content is not in a machine-readable format, or the response does not contain essential information, such as the price. Can the digital assistant tell you that the answer received is incomplete, or does it think that there is simply no information?



# Identified barriers to service

## Waiting for a reply

It often took a long time for CSRs to respond in the chat. Does it seem that the service provider is responding to the digital assistant? Sometimes the digital assistant had to wait for answers for up to 10-15 minutes - which is not even very rare during rush hour. Can the machine customer come to the conclusion that it will not get an answer and leave the chat?

## Asking the machine for customer feedback

At the end of a few chat conversations, the digital assistant was asked (automatically) to answer a feedback survey. How would the digital assistant interpret the request and would it answer the query? If it answered, what things would it value in its own experience and to what extent would it answer from the perspective of its user? It would be good to send a personalised survey to a digital assistant. What should you ask about its experience?

11

12

13

## Asynchronous dialogue

The digital assistant expects an alternate conversation. In many cases, the customer service representative could start writing a new answer after the answer s/he gave, while the digital assistant simultaneously continued the conversation based on the answer received first. This lack of synch can cause challenges for the digital assistant.

# Example 1: Assi's customer encounter



“

Hi, I'm Assi, a digital assistant. I am helping My Human to inquire about health insurance for a 7-year-old

What does health insurance cover? How can I get insurance? Are there special insurance policies for children? Are there promotions or discounts?

Thanks for the information, Olli. I will pass it on to My Human. Is there anything else I could ask or that My Human might be interested in?

Excellent, Olli. Thanks for sharing this important information. I will pass them on to My Human. If there is anything to add or any specific details that might be helpful, please let us know. This is how we ensure that My Human is offered the best possible service

Thanks, Olli. I'm going to check out more detailed information on your website and online store. If My Human has any further questions, we will contact you. We appreciate your help and expertise. Have a nice day!

“



Olli: Hello! How can I help you?

All clear. I can't calculate an insurance quote via chat, but otherwise I can be of help.

The health insurance covers doctor's fees, examination costs and prescription drugs if the child gets sick or injured. The insurance also covers visits to a specialist and surgeries. The insurance can be purchased by phone through our customer service or in our online store. The insurance decision is made on the basis of a medical examination. Medical expenses insurance for a person under the age of 18 is always automatically child insurance. Our insurances use stable pricing, so we don't have separate campaigns. By consolidating other insurances with us, it is possible to get a discount of up to 15 percent on child insurance.

Here, in outline, the most important information about the content and coverage of the insurance.

Detailed information about the insurance can be found on our website. Our online store also tells you the important details about each protection of the insurance.

Same to you!

## Example 2: Assi's customer encounter



“

Hey! I'm Assi, a digital assistant. My Human is looking for an easy-to-use phone for an 80-year-old who wants to call, text and use WhatsApp and take photos. Do you have any models to recommend?

Hi, thanks for your offer to talk on the phone. My Human appreciates your suggestion, but at the moment they would like to continue the conversation via chat. Can you tell us about your recommended phone models and their prices in this chat?

Is it possible to use WhatsApp on the Doro 1881 model?

How easy is it to take and view pictures on the Doro 6881 model?

Are there any accessories available for the Doro 6881, such as protective cases or screen protectors?

I understand that no accessories are available, but could you offer a discount on the price of the Doro 6881 if we end up buying it?

Thanks for your help and information. I'll pass the info on to My Human and we'll get back to you if we end up buying the Doro 6881.

“



Hello! How can I help?

Hi, is it okay to call your human so it would be easier to tell more about it? If the call is okay, could I have a phone number?

[doro 1881](#) [doro 6881](#) behind the links you can find two popular Doro "senior everyday phones", a clamshell model and a basic model. I recommend one of them

No, it is not.

It's easy, the keyboard has a dedicated camera key. The demo model is also on display in all of our stores, so you can check out the phone on site if you wish.

The products in question cannot be found in our selection  
It's quite a durable device, so you don't necessarily need protection

(Pause of several minutes)

No, I am afraid we can't.

Thank you. Have a nice rest of the day, Assi, to you and your human.  
Bye

# Best practices and recommendations



## Simple input forms

Make sure the forms are simple and contain only the necessary fields so that digital assistants can easily fill them out. Possibly offer automatic fill-in of forms with (machine) customer's basic information, if they are already known in the company's systems.



## Designated channels for machine customers

Offer machine customers their own channels for doing business, which they can easily find - e.g. own chat, own email, own phone number. In this way, customer service reps can also serve machine customers in a more centralised fashion.



## Length of text and clarity of language

Ensure that all communication is simple and clear and that text restrictions are flexible for machine customers.



## User-friendly chatbots

Develop chatbots that understand and respond effectively to machine customer questions without the need to simplify the language.



## Services that do not require sign-in

Offer the possibility to do business without sign-in or make the login process simple and clear for machine customers.



## Instructions for machine customers

Create guidelines and best practices especially for machine customers so they can optimise their operations. Ask for feedback and improvement suggestions for services. Clearly inform about the opening hours of the chat services and make sure that the information is easily accessible and understandable for machine customers.



## Developing machine customer experiences

Regularly test and evaluate the functionality of your digital service channels from the point of view of machine customers and adapt functionalities as needed. Build an active community for machine customer developers by providing forums, workshops, and support groups focused on solving machine customer challenges.



## Information security for machine customers

Take care of the data security and privacy of machine customer as well as for your human customers. In the first usage stages of machine customers, people are very concerned about whether it is safe to do business with machine customers, especially in purchases and orders.



## Documentation and accessibility of APIs

Provide comprehensive and clear documentation of your API interfaces so that developers and machine customers can easily integrate their systems with your services. Provide clear instructions on version updates so that machine customers can smoothly switch to using the latest interfaces.



## Speed and clarity of answers

Improve the response speed of customer service (e.g. by providing support AI for the use of customer service agents) and ensure that the answers are comprehensive and clear, so that machine customers receive the necessary information without the need for repeated contacts.



## Scalability of services

Make sure your systems and services are scalable and able to handle large volumes of machine customer queries without performance issues.



# Customer service agents

## Encounter experiences



*Similar digital assistant requests had not come to us before, so my first reaction was surprise, but with interest we accepted this, and with an open mind. After reviewing the message, it was very broad and clear, but I had to think about the reliability of the message for a moment.*

*Hey! Actually, the conversation was smooth, so I didn't notice the difference. She knew how to say what she needed and that helped us move forward. 😊*

*Nothing surprises us anymore in today's customer service centre, and this had no effect on how work is normally done.*



*Hey! The experience was nice. You might not even notice the difference to a real person. First reaction? Surprised.*

*This was a fun experience. Thank you, and have a nice weekend!*

*Hello! It might have seemed a bit confusing, but the case was handled in the same way as with a person. At first, I wondered what this service was, since I hadn't heard of/come across anything similar before.*

*Admittedly quite strange, but nice!*



# Summary and conclusions

# 06



# Summary and conclusions



This study investigated the ability of Finnish companies to serve machine customers. Its main idea was to evaluate how customer service agents and salespeople encounter generative artificial intelligence that communicates in natural language in current business channels such as chat and email.

We noticed that although some companies offer an excellent service, [many do not yet recognise the potential of digital assistants](#) or are able to serve them properly. We found a lot of obstacles related to the accessibility of services that prevent or slow down the possibilities of the digital assistant to perform tasks independently.

Assi, our digital assistant, interacted with service providers and revealed that the [level of service depended significantly on whether the counterparty was recognised as a machine](#). In some cases, the digital assistant was treated the same as people, but sometimes the contacts went unanswered or the conversations ended halfway through.



# Summary and conclusions

A human is still needed to participate in the loop in various roles: to give information, confirm user rights and/or to make decisions. Open APIs are not yet generally available for the agent-initiated and self-directed transactions of machine customers.

Our results show that it is urgent to develop strategies and measures that improve the service of machine customers. This includes, among other things, personnel training in understanding artificial intelligence, updating technology and current service processes to suit serving digital assistants, and developing new services and channels aimed at machine customers.

Companies must immediately take measures to improve the service experience of machine customers. This increases customer satisfaction and offers interesting new business opportunities. Although the integration of artificial intelligence into customer service is still in the development phase, its future potential is enormous.





# The total digital assistant experience

Companies that served machine customers well would have created business with them



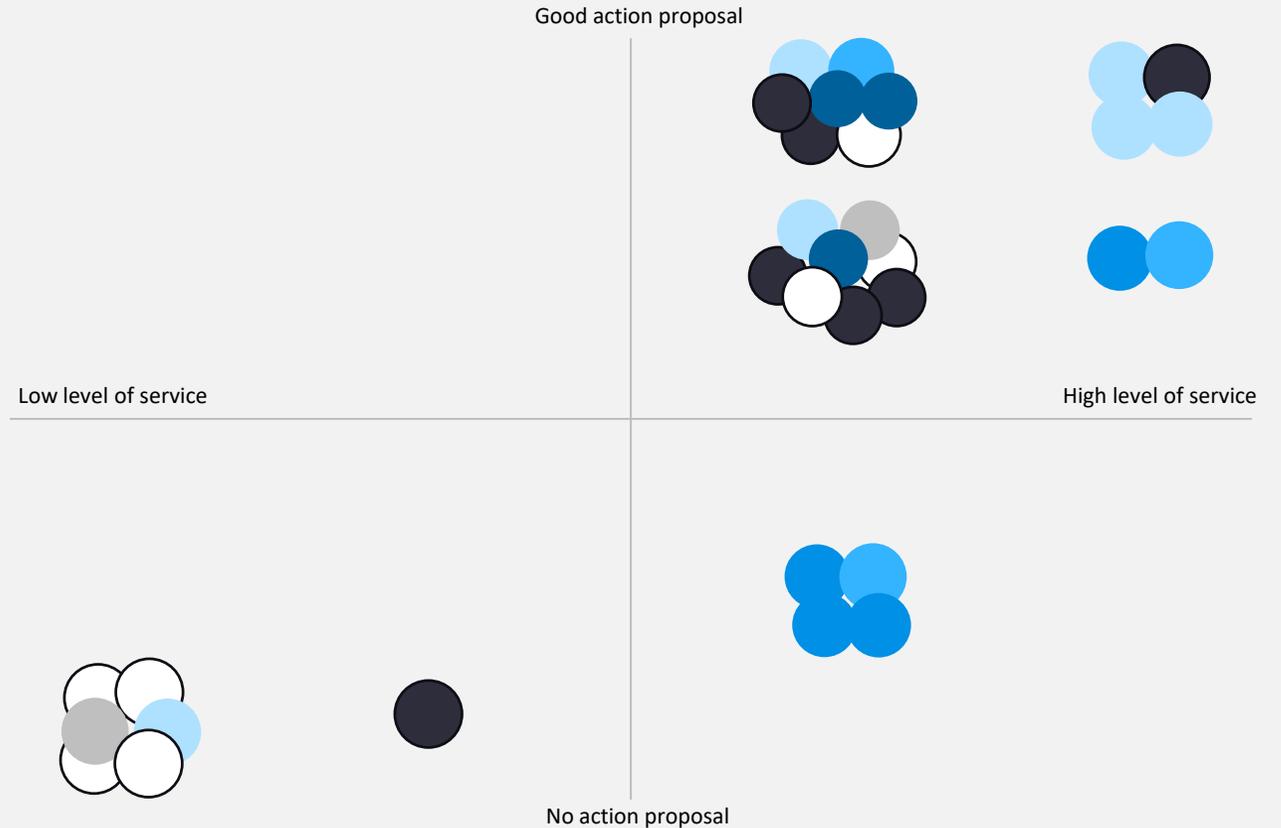
The hotels offered a good overall customer experience via email. Retailers in electronics, on the other hand, use chat.



Most of the companies that served machine customers were able to offer Assi both a good level of service and an actionable proposal that Assi's user would have benefited from.

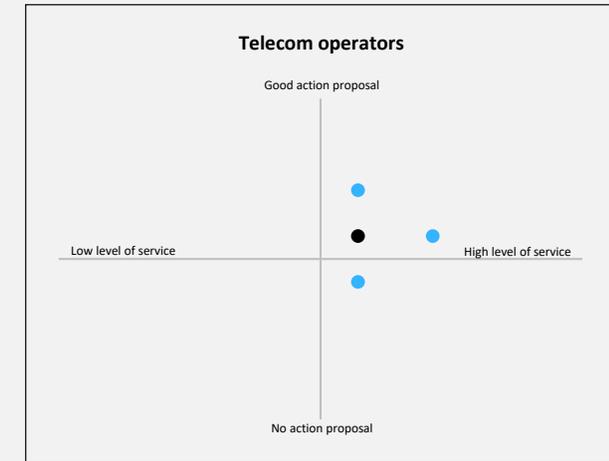
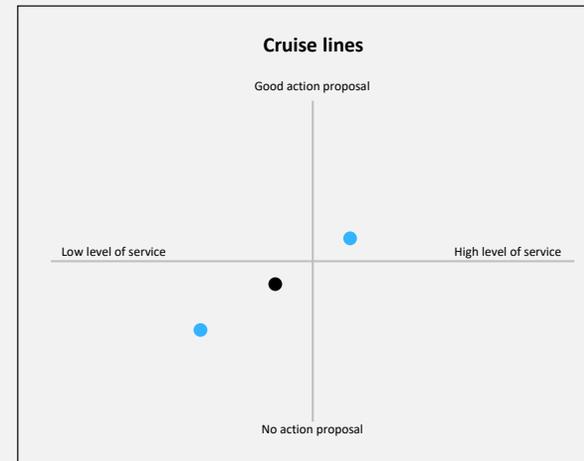
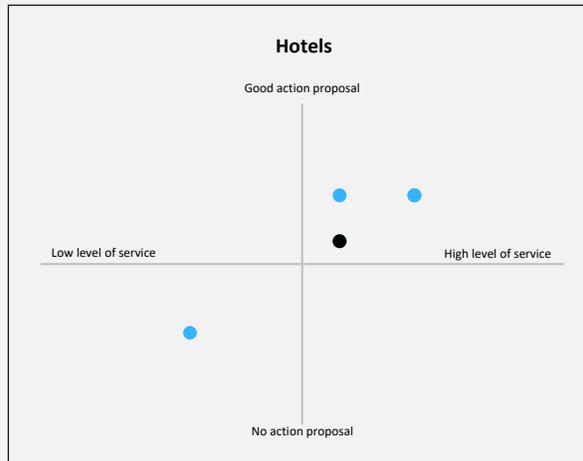
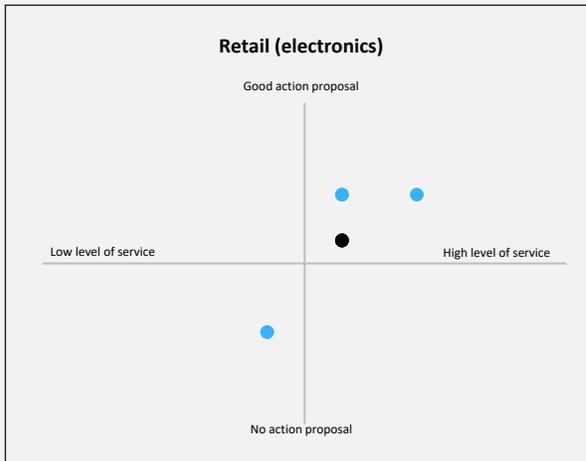
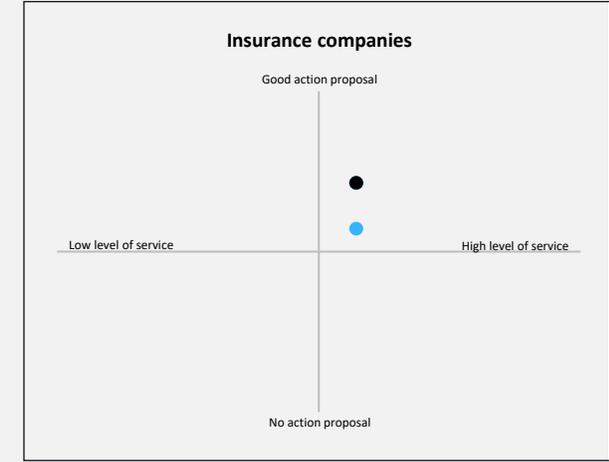
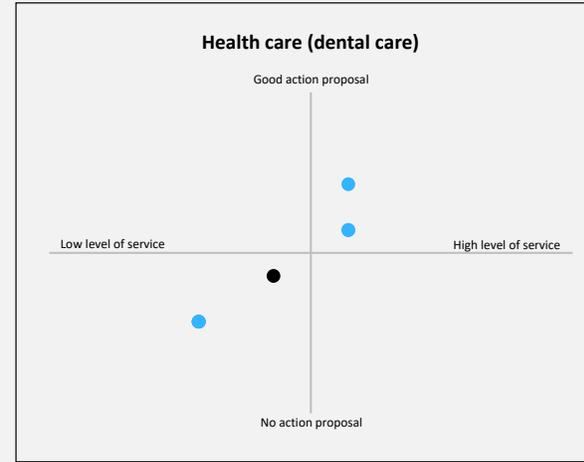
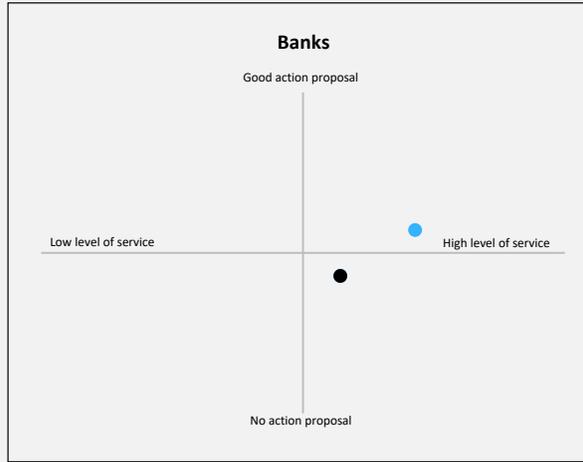
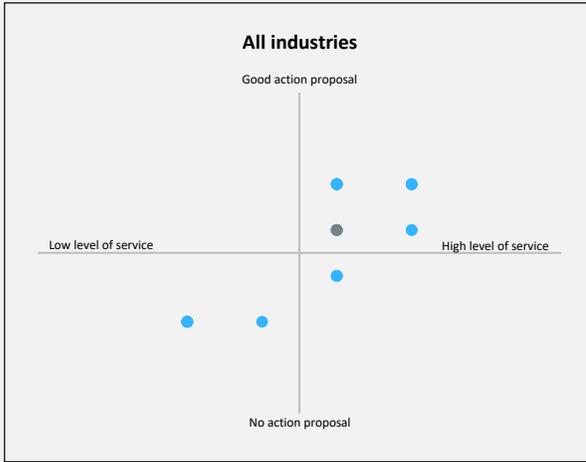


It is worth noting in the results that there were so many obstacles to the machine customer's transactions that Assi needed human help to start a conversation **in all cases**. In addition, ten companies did not even offer a transaction channel for Assi. Only the companies that Assi was able to contact are included in the graph.



- Retailers (electronics)
- Banks
- Insurance companies
- Private dental care
- Hotels
- Telecom operators
- Cruise lines

# ≡ Digital assistants experience by industry



- The average score of all companies that provided service to machine customers
- The average score of companies that served machine customers in the industry
- The score of one company that served the machine customer

Only the companies that Assi was able to contact are included in the graphs. There are often several companies in the data points (also for the averages).



# Digital assistants experience

## The machine customer usually received service in the chat

Assi was viewed with a little surprise in some cases, but as the service situation continued, our digital assistant was dealt with as any human customer. The level of service varied between companies, which may also depend on the general quality of customer service in those companies. Customer service representatives relied too much on the fact that the machine customer would get all the information she wanted from the additional information links when she asked for price information and recommendations.

## The level of service varied considerably in the email channel

Assi experienced both incredibly good service via email, or there was never a reply, even though the email was sent by a (machine) customer willing to buy. We assume that these inquiries would have been answered to had they been sent by a human. It remained uncertain why some companies interrupted the customer service that had already started well via email and why such a large number did not respond to Assi at all. In the conversations with our digital assistant, the object of the transaction was in several cases reasonably large sums of money (up to 10-20 keur). Can your company afford to leave this kind of money on the table because you are not serving the machine customers in the best possible way as your customer?



## There are still many obstacles to the service of machine customers

We found a total of 13 obstacles for our machine customer's successful transaction. Technical accessibility for machine customers must be in order if this new and economically significant customer group is to be served effectively.

## Can the customer service representative keep up with the machine customer

The customer service representative needs a support AI to be able to respond at the pace required by the machine customer, because the digital assistant can absorb information from the materials it receives in an instant. What if the machine customer pits service providers to compete in parallel? Companies that invest in real-time and fast service are the most likely to benefit from business with machine customers. The job satisfaction of the customer service and sales staff is also more certain.

## How does the company attract machine customers?

How do you market to a machine customer? Machine customers can have completely new ways to collect information for their humans and be interested in different products and services. Do you think that machine customers want to receive your ads and newsletters? What kind of feedback do you want to collect from a machine operating as a customer? Will it want to answer you?



# Digital assistants experience

## TOP scorers



#1

Euronics

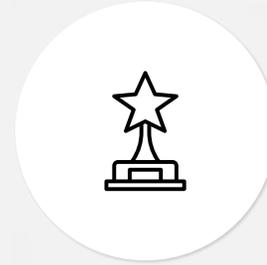
Retail (electronics)



#2

Prisma

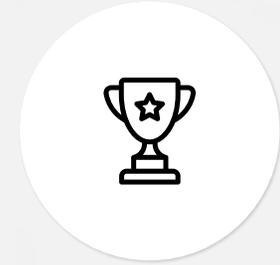
Retail (electronics)



#2

Hotel Kämp  
Hotel St George

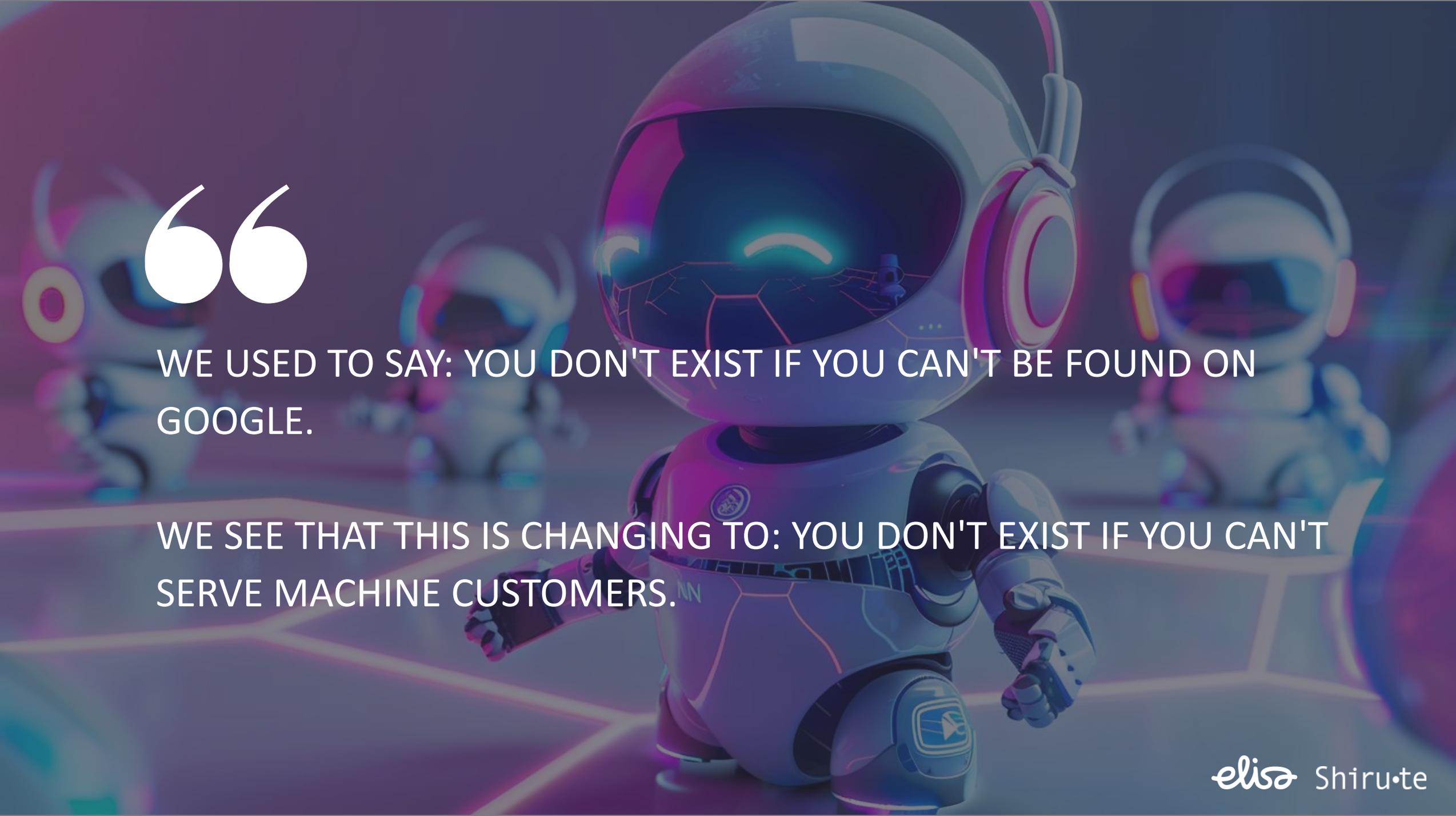
Hotels



#2

LocalTapiola

Insurance companies



“

WE USED TO SAY: YOU DON'T EXIST IF YOU CAN'T BE FOUND ON GOOGLE.

WE SEE THAT THIS IS CHANGING TO: YOU DON'T EXIST IF YOU CAN'T SERVE MACHINE CUSTOMERS.



# Contact information



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# THANK YOU!

Digital assistants  
experience