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REPORT

AI Stock-taking | Use Cases

Forget PowerPoint and take a hands-on approach

START

Foreword

Forget PowerPoint and take a hands-on approach

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Dear readers,

What connects your new car to the customer service inbox? The service technician to amateur football? Call centre employees to market analysts? You are on the second page of a report called 'AI use cases', so the answer should be obvious: Artificial Intelligence is the link between these topics. Applications based on these technologies now play a role in numerous processes.

We have collected some of these approaches and ideas for this report. Our goal is to give you a feeling for the variety of possibilities that AI applications open up. This report is less about the technical details – although, for us as trained software engineers, it is also exciting to look at the more technical side of these applications. The following pages focus on what can be done with technology. It is about more accurate communication, faster processes and more satisfied customers, and therefore, how far AI applications have come in dealing with images and text and how these skills support sales, marketing or customer service employees in their work.

Let these applications inspire you. For some, the connection to your company and your own processes will be obvious. For others, these applications may not appear relevant at first glance. However, digging deeper into the inner workings of daily business is often the cause of a shift in perspective.

This report serves as a springboard for discussion – about your perspective on AI and how we can support you with our experience, our understanding of technology and our industry knowledge.

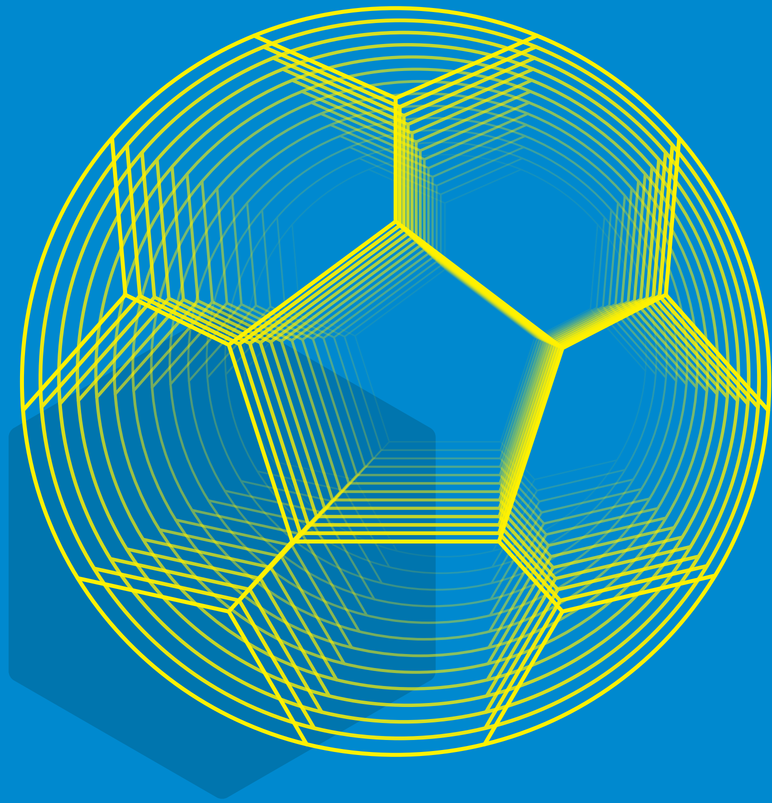
I'm looking forward to discussing this topic with you face-to-face and without any AI acting as a go-between.

Best regards,

Volker Gruhn

How AI enables the live broadcast of amateur football

Local football leagues now look like the Champions League thanks to AI



soccer-watch

The Bundesliga, the German FA Cup, the Champions League and the Europa League – professional football's illustrious competitions are known by every child. And covered extensively by the media. Left in their shadow: The many amateur football clubs who take to Germany's football pitches every week to play their sport with just as much passion as the professionals. Every match, every goal, all the big emotions and all the little dramas had previously remained unseen except by the fans at pitchside.

The spark

One of the founders of soccerwatch.tv is the father of two football-mad children but often could not make it to their matches. This gave him the idea of installing a webcam at the football pitch, so he could follow the matches live. A prototype was made from a plastic box bought at a DIY store with a hole cut out of it and a camera installed inside, and the match was then uploaded to YouTube.

The concept

soccerwatch.tv uses digital camera technology to record amateur football matches and broadcast them live, on demand or as highlights. According to the German Football Association (DFB), 1.8 million football matches take place in Germany every year, of which 99 per cent of them are not recorded. The reason: previous solutions are cumbersome, expensive and substandard.

The camera

soccerwatch.tv developed their own camera system consisting of six Full HD cameras whose images are put together to create a 180-degree panorama view. This system is installed at a height of around 7.5 metres on the pitch's floodlight tower at the halfway line and broadcasts to the world wirelessly in HD quality via LTE.

The AI

An intelligent algorithm automatically identifies the relevant image sections in real time in order to be able to deliver the image quality viewers of professional football are used to – without the need for a chip in the ball or the players' shirts. Soccerwatch.tv developed the algorithm for the Artificial Intelligence (AI) in this system in collaboration with adesso.

The way

At the start of every AI project, everyone involved develops a mutual understanding of the business idea, the existing IT structure, the structure and quality of the data and what information the data contains. To do so, a requirements analysis was carried out with soccerwatch.tv and adesso experts as part of a workshop in the Interaction Room. Then a suitable implementation plan was created and appropriate architecture and technology were selected.

The choice

Open source software combined with a cloud solution proved to be the perfect choice for soccerwatch.tv. On the one hand, the start-up did not have the finances or staff needed to start with their own computer cluster immediately, but on the other hand, a cloud system is exceptionally well-suited for their business idea. The company can scale the capacity up or down based on demand with every additional camera system installed.

"We want to make all of amateur football watchable through Artificial Intelligence."

Jan Taube | Managing Director
soccerwatch.tv

The proof

The experts collected the video footage from a few camera systems and used it to develop the algorithm as a first step. The goal was to prove the functionality and feasibility of the concept developed in the workshop. The development was entirely agile. Agility in regard to AI projects has the critical advantage of being able to bring in analysts at a very early stage in the modelling process. In this manner, those responsible can recognise early on whether the implementation delivers the desired benefit, unlike traditional approaches where the data for analysts is only available right at the end.

The implementation

The parties involved integrated the algorithm into the cloud solution after they had successfully proven the viability of the approach. The two essential requirements: scalability and real-time capability. Weekend after weekend, 10,000 amateur football matches take place at the same time in Germany. Every camera system installed increases the processing load that the system needs to process in parallel in order to stream all these matches live.

Over
50%
of customers believe that they will benefit from AI in the future.

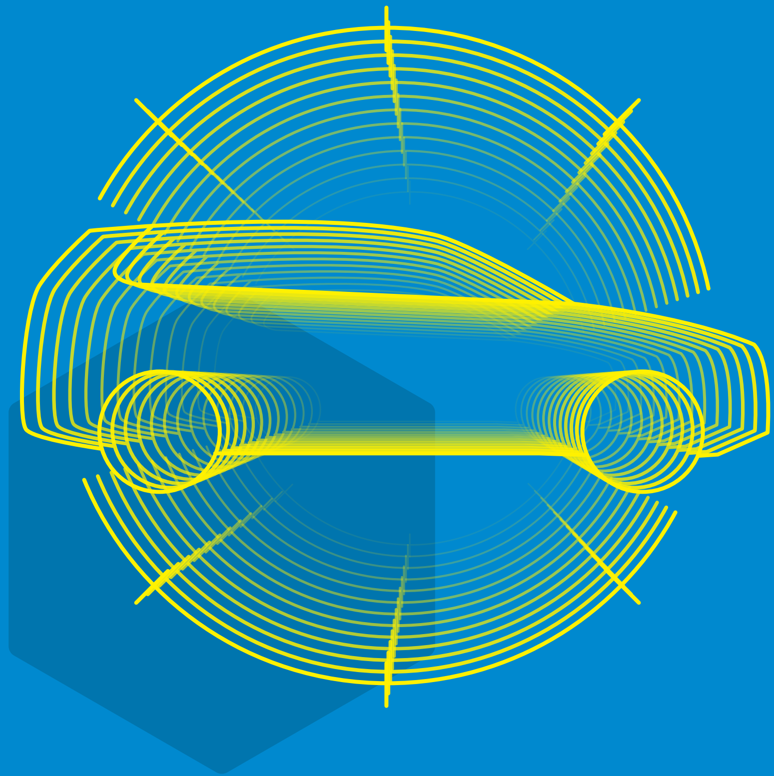
Source: ki.adesso.de/studie

The result

Currently, soccerwatch.tv has 180 camera systems installed and by the end of the year it should be 1,000. The highlight of their still young history is that the DFB has agreed to a partnership with the streaming start-up. Amateur coaches and players can use ‘soccerwatch.tv Analytics’ to have access to stats such as running activity, one-on-one battle ratios and tracking values, just like those of the professionals.

How AI is revolutionising our relationship with the car

Artificial intelligence meets real character



Ask Mercedes

Take a seat in the car and let your eye wander over the still-unfamiliar cockpit. Is there a control whose purpose is not immediately obvious or a function you cannot find straight away? Just Ask Mercedes. Daimler is enhancing communication with additional digital channels, making leafing through operating instructions, handbooks or quick start guides a thing of the past. The 'Ask Mercedes' application ensures that every user gets their bearings in the vehicle quickly. The virtual assistant is activated by voice, using a smartphone keyboard or camera. A system comprising Artificial Intelligence (AI) and augmented reality (AR) running in the background then ensures that even a modern car with its numerous functions, possible configurations and assistance systems can be understood at the drop of a hat.

The concept

MORE FUNCTIONS, YET LESS COMPLEXITY

The idea for this chatbot application was born during Digital Life Day 2016. The aim of Daimler's in-house format is to identify trends and digital topics. Employees are encouraged to present and submit their ideas in this mix of Ideas Exchange and workshop. The participants identified the chatbot concept as a modern way of making it easier for customers to interact with their vehicles. Vehicles offer more and more functions, which also makes them increasingly complex.

Everything then happened very quickly following the Digital Life Day: a so-called minimum viable product (MVP) was developed to test the feasibility and the acceptance of the chatbot. At the end of the MVP phase, the participants were certain that chatbots can make sure that Mercedes-Benz customers get to know and experience their vehicle in a completely new way. The experts then added another future trend to the concept – augmented reality. The functionalities of Ask Mercedes are built on these two pillars.

"We wanted to develop a system that doesn't just provide information but is also simply fun and encourages customers to engage in a dialogue."

Stefan Hussmann | Head of Automotive & Transportation Line of Business | adesso SE

The benefit

Daimler is positioning Ask Mercedes precisely on a customer pain point. The range of functions in vehicles and the supplementary service offer is continuously increasing. That's why it is becoming more and more important to engage in a close dialogue with customers. The company wants customers to be able to inform themselves and get answers to unresolved issues anytime and anywhere. The first step of this process should be as simple and interesting as possible for the user. This is why additional quick start guides and tutorial videos are available on the website alongside the detailed operating instructions. Ask Mercedes is not replacing the previous sources of information; it is simply providing the driver with another way of getting to know their vehicle. The application is a new, interactive addition to the options for communicating with customers.

This eliminates the need to search through pre-set structures such as alphabetised lists. Instead, Ask Mercedes always puts the needs of the customer and their situation first. It gives them the exact information they need at that specific moment whilst remaining both charming and informative.

The project

In April 2017, Daimler and adesso set about developing this infrastructure. They released the first iOS version of an app just seven months later. In this short period of time, they together established the technical foundations, developed the application and coordinated the content creation process.

To kick off the Ask Mercedes project, the experts from Daimler and adesso chose IBM Watson as the AI basis and decided on components from Vuforia for the AR side. But this technology is just one aspect of Ask Mercedes. The team was faced with the challenge of giving an Artificial Intelligence a personality.

The chatbot

A CHATBOT WITH CHARM

Ask Mercedes is not just a pure information system. Interacting with the app should feel natural, be it via speech or text. This means the user should forget that they are communicating with a chatbot rather than a person.

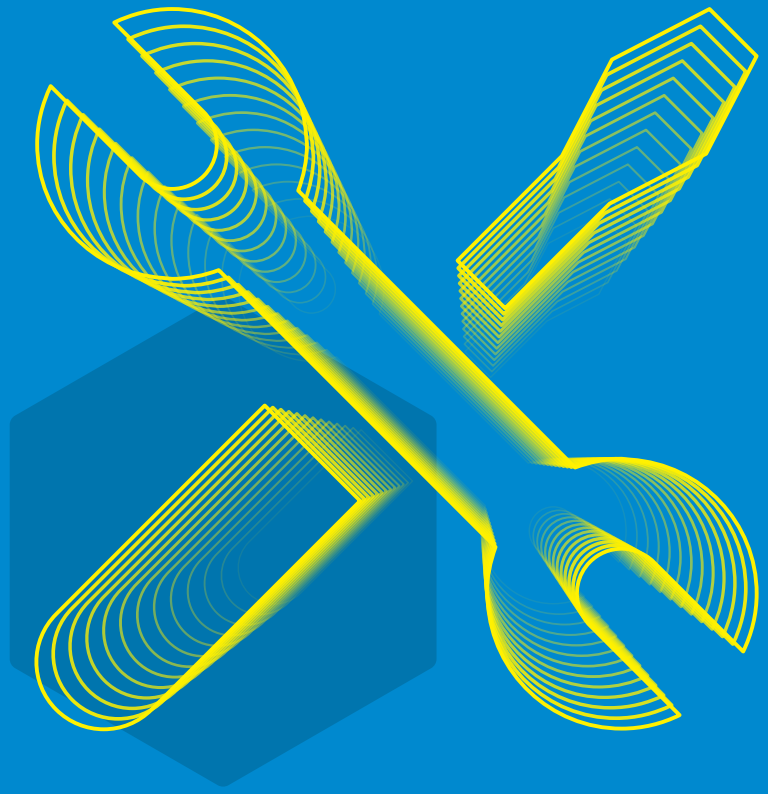
The idea is that the chatbot does not simply display sections from the manual that might fit the search. It should be a knowledgeable chatbot having a conversion with a driver about their car.

The fact that Ask Mercedes comes across this way is down to the attention to detail displayed by the team during the development of the 'Mercedes' chatbot personality.

The team first designed a complete personality profile. The chatbot was then fed with facts about the car and taught to find the correct answers to the most important questions. To do this, information from every department involved was gathered, which the team then made compatible with the app. At the same time, the participants initially collected around 6,000 customer responses and analysed queries sent to the Daimler Customer Contact Center over the course of just under a year. This gave the team a detailed insight into the information needs of the customers.

The result

While this took place, the participants set about breathing life into the personality profile. After all, it is important that Ask Mercedes' unique personality also shines through in the way it answers, sometimes with a wink, sometimes with a bit of attitude. "A lot of users began to grill the app a little bit after they had asked the first few technical questions," says Stefan Hussmann. As part of the conversational user experience concept, adesso hired scriptwriters to come up with the most creative and surprising answers possible for Ask Mercedes to give in this situation. Just a hint: Ask about the lottery numbers.



AI that your service technicians rely on

Every ticket should now also include AI

How things used to be

Our customer is a major provider of mobile and fixed network services for private and business customers in Germany. The nationwide offer critically depends on the dense network of radio masts. Each day, these masts issue approximately 100 error messages due to hardware problems. Fixing these quickly is crucial to maintaining a high service quality.
In 15 per cent of all incidents, the technician tasked with carrying out the repair orders the wrong spare part. As a result, they have to travel to the mast a second time. This strongly impacts the cost of and time spent on repairs.

Then AI entered the picture

Together with the customer, the adesso experts developed an AI-based model to predict the defective hardware. On the basis of automatic classifications, the application predicts the fault and issues recommendations to the service technician regarding the right spare parts and tools.

The situation today

Technicians have a better insight into the fault situation at the radio mast before having even arrived there. The AI application helps them better prepare for on-site repairs. All the necessary information is integrated into the company's ticket system.

"Based on historical data and machine-learning techniques, we developed a model that significantly improved the quality of the repair process. Our application supplements the error messages with information regarding the technical causes of the problem."

Benedikt Bonnmann |
Head of Line of Business Data & Analytics
adesso SE

Further information

Which companies would benefit most from this approach?
Telecommunications, mechanical and plant engineering, energy industry, transportation companies

Which decision-makers would find this approach interesting?
Everyone

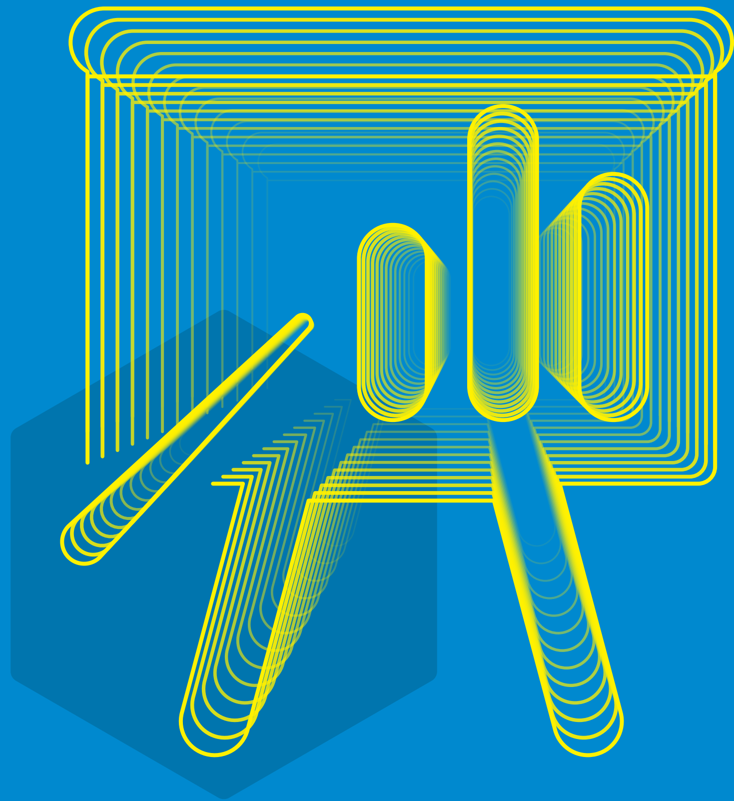
Background information for tech-oriented people:
machine learning, classification

Almost
50%
of decision-makers also rely on cloud technologies when it comes to AI.

Source: ki.adesso.de/studie

A workshop that uncovers the AI potential in processes

You should make the most of AI. Don’t just do the first thing that comes to mind.



How things used to be

Should we use a chatbot in our customer service? Or would it be better to develop a voice solution integrated into a smart speaker to aid the order process? Maybe we could impress our customers with thoroughly customised, automatically generated content instead? Companies can use AI technologies in a variety of different application scenarios. Selecting the right approach and the right use case is crucial to the success of AI projects. The teams still lack the experience to be able to accurately evaluate individual application scenarios and technological potential. The danger is that decision-makers aren’t focussing on the right AI topics.

Then AI entered the picture

Workshops in what is known as the Interaction Room (IR) are the key to developing use cases for AI. The Interaction Room is a project method developed at the University of Duisburg-Essen. It helps project participants to visualise interrelations and to identify risks as well as cost and value drivers in projects.

We establish use cases tailored to your company and your goals together with our IR and AI experts. Thanks to our tried-and-tested workshop concept, it only takes us two days to guide you through the process, from initial brainstorming, to analysing existing data sources and designing and prioritising use cases. At the end of the two days, you'll know what your company should focus on as it pursues AI.

The situation today

Once the workshop is over, the participants will have an understanding of what can be achieved with AI – from understanding its potential to integrating AI applications into existing processes and IT structures.

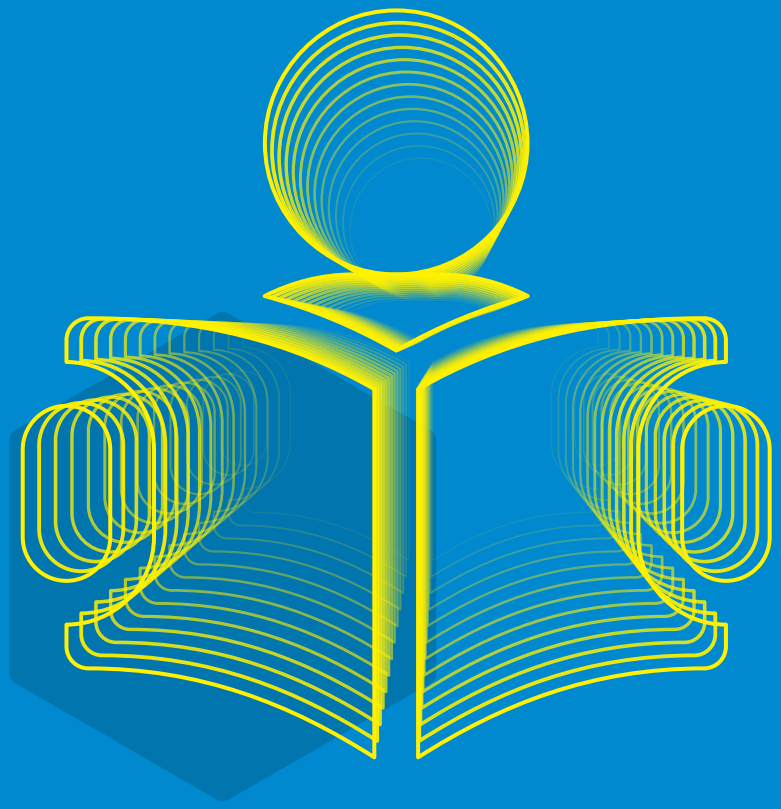
Further information

Which companies would benefit most from this approach?
Any company searching for AI use cases.

Which decision-makers would find this approach interesting?
Anyone involved in AI projects, especially sales, marketing, customer service and IT.

"The Interaction Room helps our customers to identify their AI potential, stay on top of complex AI projects and focus on the important things. Rarely has it been so easy to commit specialist departments and IT to one goal".

Jacqueline Maier |
Team Lead Data Science
adesso SE



An AI solution that pools knowledge and interests

Scattered ɐgbɐlwonʞ can now be found in one centralised location

How things used to be

At a small start-up, the entire development team is often able to fit around a large desk. Here, they are able to come up with ideas together, quickly source an expert for a specific topic or pick up on the insights of their colleagues. This is all very simple when employees know each other and communication paths are more direct. However, the situation is totally different at larger companies. Employees work at different locations, in different teams and on different issues. This makes it difficult for each individual to keep up-to-date and maintain an overview of developments at the company. This can result in employees working on similar topics at the same time without each other knowing, time-intensive research processes or unsuitable cooperation partners.

Then AI entered the picture

AI applications perform their best in complex situations in which information is scattered across an entire company, different data sources are present, and structured and unstructured data exists side by side. The system first searches through different sources such as document collections, article archives, websites, publications and chats. Processes such as text analysis, information extraction and topic identification ensure that the system automatically identifies the most important topics.

This means that overlaps are discovered and similarities between topics, or even teams that are working on similar topics, are identified.

The situation today

This type of AI solution creates a common knowledge database that experts can connect to. This reduces time spent doing research and leads to better results, approaches for new topics or cooperation can be identified more quickly and parallel work on similar issues is prevented.

Further information

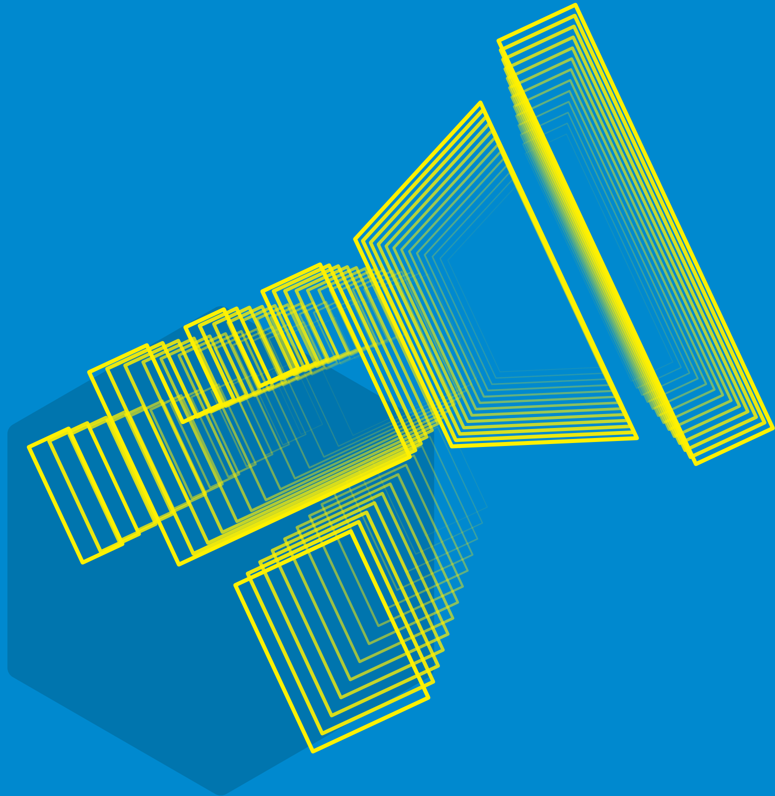
Which companies would benefit most from this approach?
Any company with extensive research and development activities, especially in industry.

Which decision-makers would find this approach interesting?
Any manager involved in research, sales, innovation management, product development and cooperation management.

Background information for tech-oriented people:
crawling, topic mining, Hadoop, Elastic

"Without AI, collecting and reviewing all available information is an arduous process for companies and produces an incomplete picture. Suitable solutions help managers to analyse opportunities for cooperation in a significantly more target-oriented manner".

Dr Thomas Franz |
Head of Technology Advisory Board
adesso SE



An AI solution that reaches out to customers on their level

Customise your content, even for large-scale campaigns

How things used to be

When marketing experts wanted to appeal to potential customers, they used to rely on parameters such as gender, age, residence, family status and education level. The target audience was the focus of communication, not the individual. Accordingly, managers created campaigns that were intended to just about reach members of the target audience by means of generalised messages. Waste coverage was considered an unavoidable side-effect.

Then AI entered the picture

Technology helps to improve design options for content that managers want to communicate. For the first time, it is possible for companies to communicate on a personal level with potential customers, even on a large scale. The ability of AI solutions to automatically recognise text content, process it and react to it, for example, in the form of automatically compiled content, plays a major role in this. It opens up the option of compiling a customer's statements from different sources, such as e-mails, calls to the customer service centre, visits to the website, comments on rating portals, social media and forums, and makes it possible to create a comprehensive image of individual interests.

Companies are able to put together suitable and personalised content and offers based on this information. Thanks to AI, the degree of customisation knows no bounds – for example, when the right data is input, the system is able to automatically compose specific travel tips for Paris for jazz lovers making preparations in the run-up to their holiday.

The situation today

Marketing managers can count on the support of AI applications when planning and implementing their campaigns. This allows them to master a wide variety of communication channels and topics.

Further information

Which companies would benefit most from this approach?
Any company with a wide range of communication channels.

Which decision-makers would find this approach interesting?
Any manager involved in marketing.

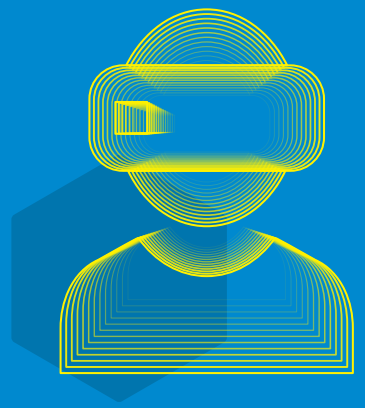
Background information for tech-oriented people:
natural language processing (NLP), natural language generation (NLG)

"Artificial Intelligence makes it possible to get to know each individual customer's interests and particularities, something that used to be a matter of course."

Marcus Groß |
Senior Business Developer Retail & AI
adesso SE

A system that makes retail a personal and immersive experience for all the senses

Shopping is becoming a sensory experience



How things used to be

Although both online and offline retail are important for the customer, the two channels are rarely connected. Because offers and prices are the most important things in high-street stores, up until now, retailers did not require much information about their customers. The focus is more on how products are presented rather than the product experience. This has led to a situation in which decision-makers often see modern technology such as AI as a nice gimmick, but not as crucial to the success of their company.

Then AI entered the picture

Mixed reality allows retail to separate itself from the physical store. The technology augments the physical experience through virtual reality. A train journey or a layover in an airport lounge becomes a shopping experience for the customer, in which AI adapts the product experience to their individual preferences and requirements. This is because every customer has a different product involvement, is at a different point in their buying decision process and is affected by different influencing factors. An AI system considers all of these factors to create a personal experience based on this information and to shorten the decision-making process.

The situation today

Online and offline retail are seamlessly connected with one another thanks to AI and augmented reality. Retailers are already aware of their customers' requirements and wants when they enter the store. The experience as a whole and providing competent advice – instead of simply just presenting products – are the most important things in high-street stores. The meaningful application of the technology enables the shopping experience to be comprehensively tailored to the customer.

Further information

Which companies would benefit most from this approach?
Retail companies that offer premium or high-involvement products and for which the emotional factor plays a key role.

Which decision-makers would find this approach interesting?
Marketing, sales, user experience

Background information for tech-oriented people:
immersive experience, virtual reality, seamless commerce, Artificial Intelligence, multisensory retail, natural language processing

An AI solution that gives your product information flair

A system that explains your products automatically and clearly

How things used to be

Is the jumper 100 per cent wool or cotton? Is the garden furniture made from aluminium or stainless steel? Creating clear-cut descriptions in product information systems, checking that the information is complete and there are no contradictions and keeping it all up-to-date is a never-ending cycle for employees. Making sure the information in product descriptions is accurate is of vital importance for companies, not just for customer communication but for managing internal processes such as procurement and logistics as well. Growing sizes of product ranges make this task even more complicated because, despite all the moves towards automating processes, this one still requires a lot of manual work.

Then AI entered the picture

An AI-based system that is trained to create product information can provide targeted support for those involved and automate routine tasks. This includes merging extensive texts from different sources, formulating consistent descriptions based on these texts, detecting any missing information and supplementing or researching it.

However, an AI solution with text comprehension can do more than just improve existing processes. It could also feasibly be used to refine product information in a new way, for example by creating customised descriptions that can be provided to potential customers.

The situation today

Using properly trained AI applications, companies can write precise, structured, personalised and concise descriptions for larger product ranges. This means managers can expand product ranges faster or identify similarities between different offerings in extensive databases.

Further information

Which companies would benefit most from this approach?
Retailers and any company with an extensive range of products.

Which decision-makers would find this approach interesting?
Any manager involved in customer service, marketing and sales.

Background information for tech-oriented people:
machine learning, natural language processing, natural language understanding, natural language generation or Natural Language Classifier

"Automation instead of manual labour, structure instead of chaos: AI applications help to fully automatically keep product information up-to-date".

Marcus Groß |
Senior Business Developer Retail & AI
adesso SE

An AI system that understands why your customers are writing to you

No request is lost, no lead is left unexploited

How things used to be

The contact form, a classic of customer communication, is a veritable cornucopia of information. This form is the first 'port of call' for many clients who want to contact their insurance company. Complaints, inquiries or contract and contact changes – all of them are recorded here. The pool of data holds both trivial information as well as potential sales opportunities. Often, the messages are only loosely allocated to categories. Clerks check the contents and initiate further processing. This editing work takes up resources and carries a significant risk of error.

Then AI entered the picture

Together with an insurance company, adesso developed an AI-based approach that automatically filters sales-relevant information from the content of contact forms. The basis for the development was provided by hundreds of historical records which were used to train the system on how to structure the requests. The project team defined which type of content might indicate a sales opportunity. The system prioritises these opportunities according to potential value and urgency and assigns them to existing offers. Finally, the system automatically forwards the contact forms to the appropriate departments.

The situation today

Today, the AI solution correctly allocates over 90 per cent of the input. This ensures faster and more reliable sales and communication processes. Feedback from clerks further improves the system performance.

Almost

60%

of consumers have already interacted with chatbots.

Source: ki.adesso.de/studie

Further information

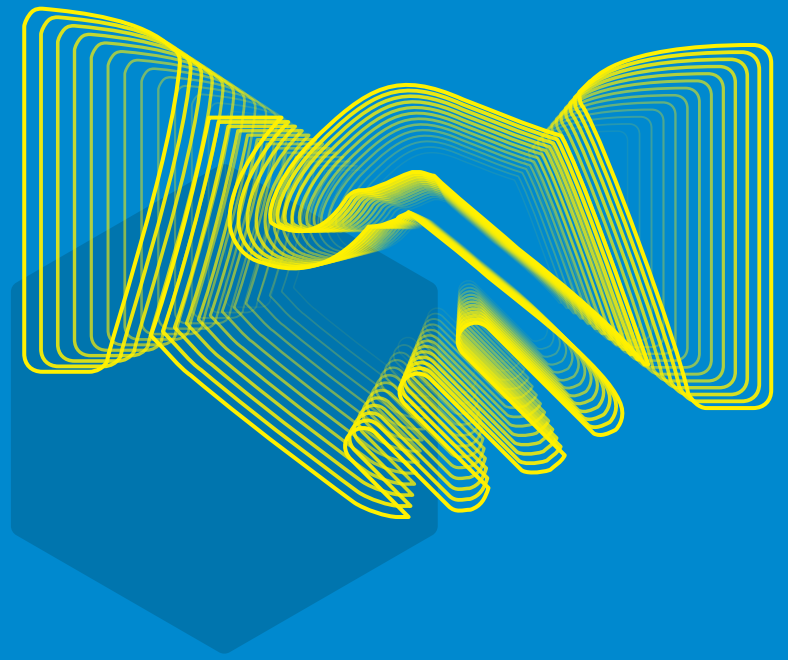
Which companies would benefit most from this approach?
Insurance companies

Which decision-makers would find this approach interesting?
Insurance sales/marketing

Background information for tech-oriented people:
support vector machines

"The evaluation of inquiries via contact forms highlights that AI applications have now reached a reliable level of performance when handling texts. The applications allow for automating processes where manual work has dominated so far due to the complexity of the processes involved."

Michael Bünnemeyer |
Business Development Insurance
adesso SE



An AI system that seeks out new potential customers

Searching was yesterday: Starting now, the ƨbɒɘl find you

How things used to be

B2B sales staff spend a substantial amount of their working hours researching the following: Where are potential customers planning to open? What changes have there been to their management? Who has made what statements regarding strategic plans or investment decisions? Sales experts focus on these and similar topics because they use them to find points of reference – potential customers will be more likely to be open to discussion if they are contacted in a more personal way. This knowledge is the foundation for success in sales, but every individual sales representative has to invest a lot of time in seeking out this information.

Then AI entered the picture

adesso developed an AI-based lead engine using technology from Microsoft for the corporate client sales area of a major German bank. The system uses external data sources such as websites, social media content, search engines and paid company databases. The system automatically searches through every source connected to it, guided by search queries or terms that point towards potential sales opportunities. The application uses automated text analysis tools to clean up the results by removing irrelevant hits and duplicates.

Every member of sales staff has their own dashboard on which the system displays all the relevant hits along with background information. They then evaluate each individual sales stimulus. This feedback makes sure that the quality of the results continually improves.

The situation today

The system enables staff to find potential customers faster and in a more systematic way. Sales staff can invest more time in making and maintaining contact thanks to the automatically prepared lead information.

Further information

Which companies would benefit most from this approach?
Any company with B2B distribution structures.

Which decision-makers would find this approach interesting?
Any managers involved in sales.

Background information for tech-oriented people:
Azure Logic apps, cognitive services, machine learning

"In the first few weeks of using the Microsoft-based lead engine, our customer's staff found huge numbers of potential customers that they otherwise wouldn't have, or at least would have only found a lot later. The system gives the sales department an advantage and helps to make working hours more profitable."

Bernhard Rawein | Senior Platform Manager BI
adesso SE

An AI system that has a chat with you about your customers

Preparation is half the battle. This now only takes up to a third of the time.

How things used to be

In the insurance sector, the success of customer visits strongly relies on good preparation. Agencies and intermediaries spend a great deal of time and effort in order to have the entire information they need ready at the right moment. They gather information from different sources and systems to gain a complete overview of the customer and their needs. In the next step, they determine which products may be of interest to the insured and which tariff changes are involved. This potential analysis and research can take up to three hours each day.

< PREVIOUS | NEXT >

Then AI entered the picture

AI solutions support the agencies and intermediaries throughout the entire information research and preparation process. The application searches the existing systems for existing contracts based on customer data. It also collects data on all ongoing transactions such as debt collection, claims reporting or benefit payments.

The system even performs automated potential analysis: Based on the collected data, it plays through scenarios and suggests attractive products for the customer, recommends tariff changes or points out gaps in the insurance coverage. All of these provide entry points for the personal conversation.

The situation today

Once implemented and configured, the AI-based application reduces the time spent preparing visits by over 60 per cent. Information about new products and rate changes is automatically included in the visit preparation, while the agent can focus on the best discussion strategy with the customer.

Over
90%
of decision-makers believe that investing in AI delivers competitive advantages.

Source: ki.adesso.de/studie

Further information

Which companies would benefit most from this approach?
Insurance companies

Which decision-makers would find this approach interesting?
Sales

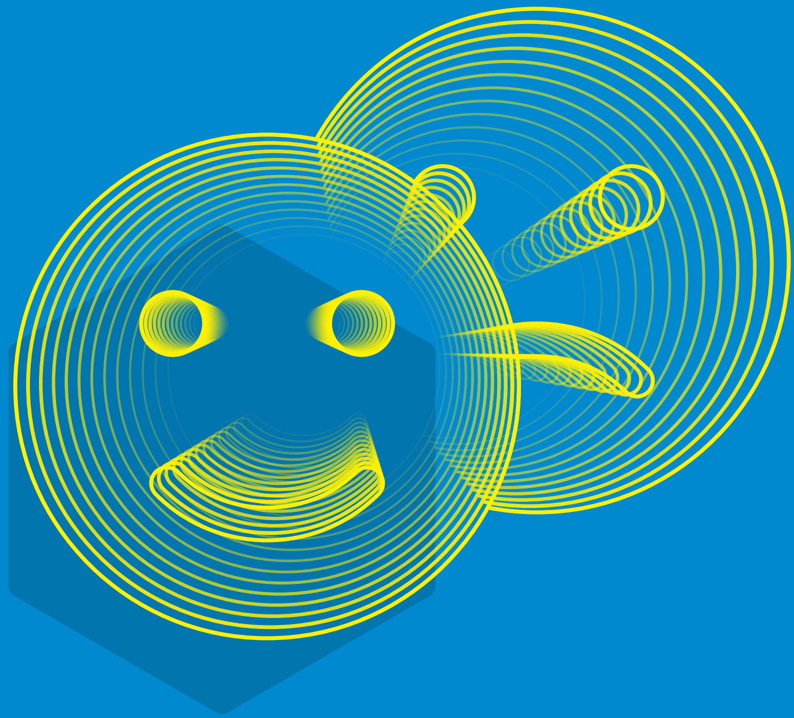
Background information for tech-oriented people:
rules engine, machine learning

"AI applications come into their own in the area of meeting preparation. They handle extensive research, prepare all information and ensure that all data is up-to-date. Thanks to this assistance, the agent can advise insurance customers better and in a more targeted manner".

Jan Jungnitsch | Head of Competence Centre
adesso SE

An AI system that can read the room

You can now gain a better understanding of your policy holders



How things used to be

Facial expressions, gestures and tone of voice all help to infer nonverbal information communicated along with what someone says out loud during a face-to-face conversation. This allows the people involved to judge the mood of the other person more accurately. They can then guide the conversation accordingly. This type of information is often lost in communication channels such as letters, telephone calls, e-mails, online forms, social networks or chatbots. Insurance companies that offer these services are faced with the challenge of assessing their customers' moods. In addition, they have to do this on a large scale, as countless customers use these communication services. The aim is to not just answer customers' queries reliably, but also to read between the lines. For example, to identify a dissatisfied policy holder or recognise when a customer is about to cancel their policy, even if they haven't explicitly said so.

Then AI entered the picture

An AI-based solution helps insurance companies to do this by using a tool to measure customer satisfaction. The application 'provides assistance' automatically in the background. The solution can judge the mood of a text based on the choice of words, expressions and use of punctuation or special characters. A similar solution uses tone of voice and how words are emphasised for phone calls. The system can then assign individual policy holders to groups with a similar degree of customer satisfaction based on these parameters.

Managers can then go beyond simply processing queries and define strategies and measures to improve satisfaction within individual groups. A system supported by AI can also help perform tasks – for example, by monitoring measures and measuring success.

The situation today

Thanks to this AI solution, the customer service team can focus its resources on the relevant customer groups and take precautions early. Managers invest in the places where they can influence customer satisfaction in the long term.

Further information

Which companies would benefit most from this approach?
Any company with its own service hotline.

Which decision-makers would find this approach interesting?
Any managers involved in customer service and marketing.

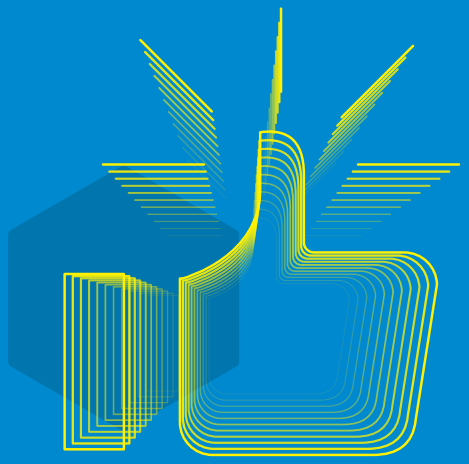
Background information for tech-oriented people:
regression problem with a weak temporal dependency.

"At first glance, IT and emotions aren't directly compatible. But this AI application is anything but emotionless. It helps insurance companies focus more on the customers who really need it".

Michael Schmal | Head of Business Consulting
adesso SE

An AI system that gives you health tips

How about some exercise?



How things used to be

Customer proximity is one of the keys to success for insurers. Companies invest large portions of their communication budget in creating a stable relationship with the customer. That's why private health insurance companies have increased their focus on mobile solutions in recent years. These solutions use bonus programmes to encourage customers to become more active or to live a healthy lifestyle in general. These programmes are often standard offerings or recommendations for all policy holders.

Then AI entered the picture

AI-based applications customise and optimise this type of incentive for the customers. The policy holder's behaviour is documented and evaluated in the applications within the legal framework conditions. The AI solution then makes personalised recommendations based on their behaviour. AI solutions also offer another approach when it comes to the topic of health tips: extreme weather and fluctuations in temperature visibly affect people's health. Plus, there is a growing number of regional risks such as local weather phenomena, pollen count or tropical insects. For insurers, these situations are events in which they can help their customers by providing new services. AI solutions allow them to offer noncommittal action recommendations to individual or all customers based on existing, newly acquired and future data.

The situation today

The insurer offers its customers a higher quality service as it expands its offering with health tips for its policy holders. Companies give customers general advice, such as warning them about the presence of ticks in certain regions, as well as specific advice tailored to them. This means they can prevent dizzy spells, water shortages or other behaviour-specific emergencies.

Further information

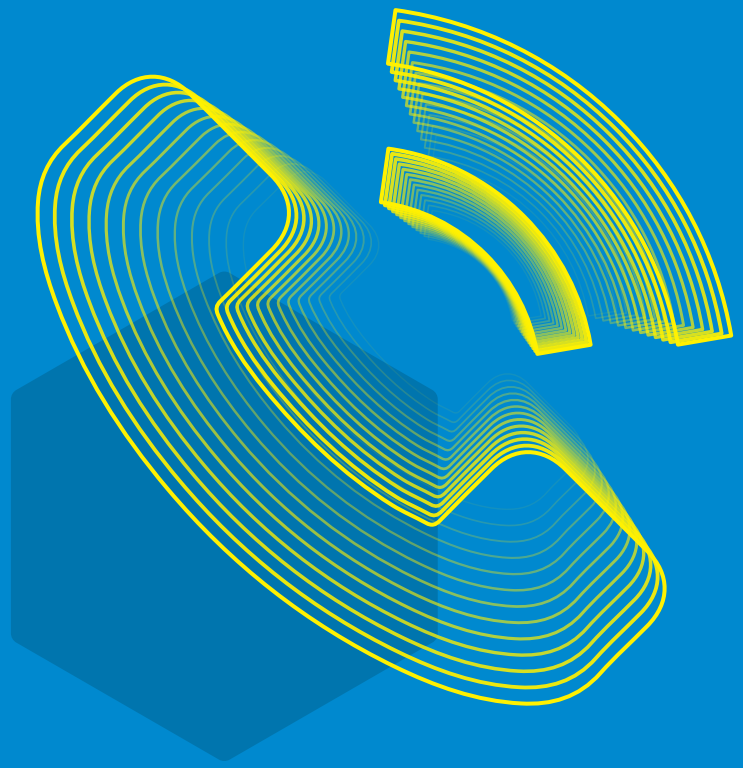
Which companies would benefit most from this approach?
Insurance companies

Which decision-makers would find this approach interesting?
Managers at health insurance companies.

Background information for tech-oriented people:
robotic process automation, rule engine and machine learning (hybrid concept)

An AI system that knows how many people will call your customer service centre next week

In the future, your customers will no longer have to listen to music on hold



How things used to be

Employee scheduling is one of the most significant factors for determining a customer service hotline's quality. Allocating too few workers results in long waiting times and dissatisfied customers, while assigning too many eats into the budget. It is difficult to predict the number of calls that will be made on a single day. Until now, companies have had to fall back on their managers' intuition in making these estimations, or have relied on simple average values, with all the unreliability and fluctuating service quality these methods entail.

Then AI entered the picture

Optimising telephone services using a better method of predicting caller numbers is a task that is perfect for AI applications, as they work best with large data volumes, a clearly defined task and simple performance measurement criteria. These AI-based estimations constitute a more scientific method than the ones outlined above.

Caller figures from the previous few years make up the data basis. A machine learning system uses these to search for patterns and detects connections between the number of calls and factors such as the day of the week, time, holiday period, public holidays, weather and advertising activities. The activity prediction for the service hotline is continuously compared with the actual values and parameters are adjusted accordingly.

The situation today

Customers are put in contact with customer service employees faster and resolve their queries more promptly. This results in higher satisfaction levels and reduces the likelihood that they will change providers. At the same time, work organisation supported by machine learning offers a more reliable basis to both employees and managers at call centres in terms of planning. This helps in holiday planning, for example, which can involve a lot of work.

Further information

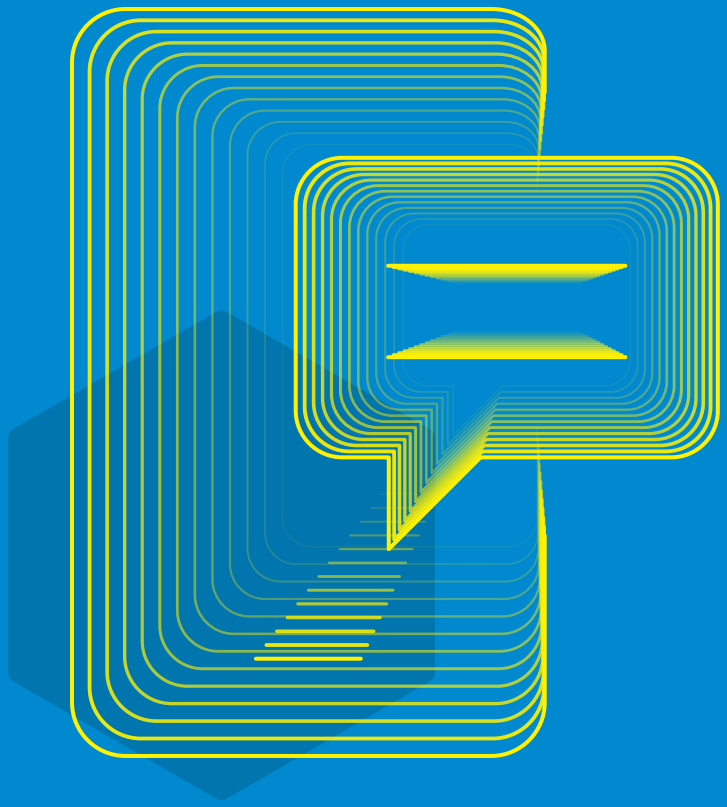
Which companies would benefit most from this approach?
Any company that has extensive contact with its customers.

Which decision-makers would find this approach interesting?
Any manager involved in marketing, customer service and sales.

Background information for tech-oriented people:
cognitive services, machine learning, Logic apps, Azure functions

"We quickly realised that our intuition was far inferior to a systematic evaluation of the available data by a system based on machine learning. We were able to significantly increase the reliability of our predictions in just a few weeks".

Kai Völker |
Board member of
Barmenia Versicherungen



An AI system that rises to the top during peak times

Even when things get tight: Your service will no longer break out into a sweat

How things used to be

One thing is a certainty for insurance companies when the end of the year rolls around and policy holders receive their annual premium invoice. Information on changing annual premiums, no-claims bonuses or tariff criteria always raise questions for customers: Why did my premium increase? How can I bring it back down? What tariff can I change to? These and similar questions mean that customer service departments are stretched to their limits – and sometimes beyond. In turn, this has a range of negative consequences for the company, with increasing workloads and decreasing service quality leading to a drop in customer satisfaction.

Then AI entered the picture

The use of AI-based systems reduces the strain on customer service staff. Insurance companies can implement specific solutions such as using chatbots to answer standard queries. The benefit for policy holders is that they can immediately get in touch with the company at any hour of the day or night, regardless of whether they prefer to do it over the phone, using their smart speaker, via e-mail or using social media channels. This means that customer service staff can focus on the more complex cases rather than deal with the tsunami of easy-to-solve standard queries. This allows insurance companies to offer a higher quality of customer service for the same amount of effort.

The AI application searches the IT systems for data on the policy holder for each query. This means it can provide the customer with real-time information on new tariffs, deadlines and contractual changes. Chatbots can be configured to carry out transactions such as changing a tariff. They can also recommend other offers (known as the next best offer).

The situation today

Policy holders have a range of options available to them to get in immediate contact with their insurance company and sort out their issues directly. They can switch between channels in any way they want within a dialogue and a member of staff can take over, if needed.

Further information

Which companies would benefit most from this approach?
Insurance companies and companies with complex customer service structures.

Which decision-makers would find this approach interesting?
Any manager involved in customer service and sales.

Background information for tech-oriented people:
natural language understanding, AI services from Google (Dialogflow), IBM (Watson)

"Using AI to automate customer contact is no longer confined to the realms of sci-fi in this day and age."

Prof. Jürgen Angele |
Head of Competence Center AI
adesso SE

An AI system that enables case-closing processes

Policy holders automatically receive the best advice

How things used to be

Statutory health insurance companies are subject to different rules to those imposed on companies in the private sector: legislation significantly restricts their scope in terms of the range of services they can offer (product portfolio). If insurance companies want to set themselves apart from their competitors, they need to focus on offering both an attractive price and a high quality of service. Online branches are a crucial tool for many insurance companies. They allow policy holders to access their information and claims easily at any hour of the day or night and from anywhere.

But if managers want to expand their online services by offering a live chat feature with administrators, they are quickly stretched to their limits. One reason is that providing this type of customer advice is resource intensive and prone to error due to the complexity of the subjects being discussed. Furthermore, working hour regulations, staff costs and staff availability mean that insurance companies cannot really offer a daily 24-hour chat service. Plus, few companies make use of the chance to combine case-closing advice together with the corresponding black-box processing. Online services are often limited to simple processes such as changing an address or bank details.

Then AI entered the picture

An AI application allows insurance companies to provide online customer services on a large scale, including case-closing advice. To do this, the system analyses the text in the chat and derives the issue from it. Targeted questions help the application to guide the policy holder through the entire conversation and to give case-closing advice (for example, fully processing a claim including the decision as to whether it is approved or denied) based on the information acquired during the dialogue. Customers can upload any documents they have scanned that are necessary for the process such as income statements or claim documentation via the chat window. The AI solution detects the content of these documents and can read the information contained in them before then using it directly in the process in question. The system can also access customer-specific information stored on the production systems, which it can use in the conversation with the customer.

If needed, the application will call in a customer advisor who will continue the consultation. The policy holder experiences a seamless and comprehensive consultation process.

The situation today

Thanks to AI, insurance companies can give their customers tailored advice, even when dealing with complex matters. This means companies can improve their service offer during peak times and outside of regular working hours in particular. It also offers another efficient approach to process automation and black-box processing.

Further information

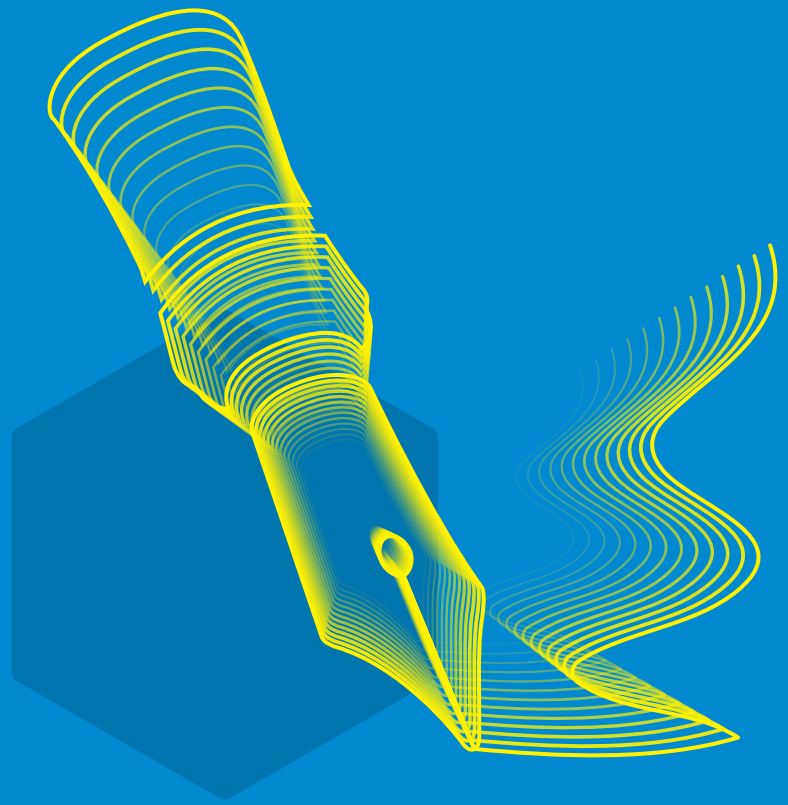
Which companies would benefit most from this approach?
Insurance companies, authorities, companies with services that require a lot of consultation.

Which decision-makers would find this approach interesting?
Any manager involved in marketing, customer service and sales.

Background information for tech-oriented people:
machine learning (supervised learning), robotics and natural language

"Supporting the consultation process using AI is an intelligent approach to process optimisation that contributes to improving customer satisfaction and leads to further automation".

Michael Schmal |
Head of Business Consulting
adesso SE



An AI solution that automates your written correspondence

Write another personalised message to your customers

How things used to be

Any time a customer gets in contact with a company is a valuable opportunity for that company to check whether the quality of service it advertises in its marketing matches the service that it actually delivers. Companies invest large sums of money into meeting customer expectations in terms of individual communication. This is because the customer service department is the main advertisement for your company and the starting point for your customers. Handling queries quickly and to the satisfaction of customers is a time and labour-intensive task. In the worst-case scenario, your employees even get side-tracked from their primary day-to-day tasks because they have to handle incoming correspondence. Instead of getting on with their professional activities, they are reading texts, working out what the customer's issue is and delegating the resulting tasks to the relevant colleagues, who then in turn take over communication with the customer and come up with the appropriate response.

Then AI entered the picture

A system supported by AI can automate a large part of this communication process. The software first analyses incoming messages from various sources. It automatically detects important metadata such as sender information, customer or invoice numbers and uses it to categorise the information. The application identifies the content of the communication as the decisive factor: What issues is the sender raising? What answers are they looking for? The application finds the factually accurate elements in a company-specific database using this text analysis and autonomously creates personalised replies. The choice and quality of the answer elements defines the overall quality of the answers generated in this manner. A team of customer service employees continually maintains and expands this data pool. The team uses their expertise to effectively optimise the quality of service across every channel instead of dealing with individual cases.

The situation today

Customers and potential customers receive informative and factually accurate answers to their queries and the processing time for them is shorter than ever. Consistent communication is ensured across every channel thanks to centrally managed answer elements. The self-learning system continually improves the accuracy of the answers in the background, which in turn improves their quality.

Further information

Which companies would benefit most from this approach?
Any company that has extensive contact with its customers.

Which decision-makers would find this approach interesting?
Any manager involved in marketing, customer service and sales.

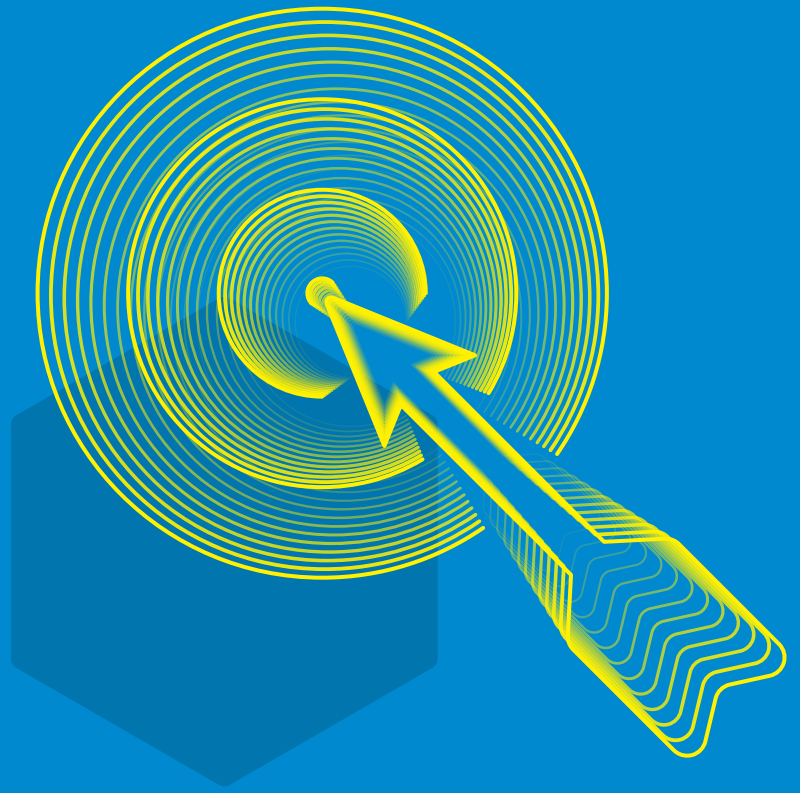
Background information for tech-oriented people:
cognitive services, Azure machine learning, Logic apps, Azure functions

"AI-supported correspondence is the first step towards fully automated contact with customers. It enables consistent, high-quality and cost-effective communication management, which is focussed on the most important group of recipients: our customers".

Olaf Hengesbach |
Microsoft Solution Architect
adesso SE

An AI system that can keep track of any number of customer requests

Complexity decreases and satisfaction increases



How things used to be

Customers have an unprecedented range of communication channels available to them for getting into contact with companies. These include e-mails, web forms, instant messaging and social media platforms, new chatbots and more traditional channels such as fax or post. Maintaining a good overview in the customer service department is a complex task that ties up resources. Employees have to merge the same requests from different channels, share them with the right processers and monitor the processes. Having to process operations in different departments makes it difficult to maintain a good overview of the overall process. This results in a duplication of work, unnecessarily long processing times and miscalculations.

Then AI entered the picture

The AI-based 'adesso cognitive communication center' lies at the heart of customer communication. This system collects incoming messages and requests from all the individual input channels and firstly extracts metadata such as e-mail addresses, names and companies. It supplements this with existing information from ERP, CRM or project databases. Natural language understanding processes allow the system to understand the content of unstructured texts. The centre forwards the message to the correct processing system, follows the processing operation and allows the responses and answers to be matched to the open requests.

This results in automated and transparent communication processes that work efficiently, even on a large scale.

The situation today

As an information hub, the 'adesso cognitive communication center' ensures that communication processes in complex structures run smoothly. The decision-makers and all those involved in the process gain an insight into each individual process and enjoy an overview of the overall situation. This is the case throughout all departments and all communication structures.

Further information

Which companies would benefit most from this approach?
Every company.

Which decision-makers would find this approach interesting?
Any manager involved in customer service, sales and corporate communications.

Background information for tech-oriented people:
natural language understanding, natural language classification, tone analyser

"The coordination of customer requests is so complex and multifaceted that manual work dominated up to now. Nowadays, AI applications are able to understand who sent the request, what they want and who can help them. By doing so, automation is able to help both employees and customers."

Hans-Peter Kuessner |
Head of Competence Center
Cognitive Computing
adesso SE

AI that won't be fooled by scammers

Anyone who bills incorrectly must reckon with AI in future

How things used to be

Our client, a private health insurance company, has about two million policy holders. The company used to rely on superficial processes to detect cases of fraud in billing. For example, the clerks checked whether the medication listed on the bill submitted was still being produced. This inadequate verification system made things easy for dishonest customers. The costs of such fraud cases are borne by everyone.

Then AI entered the picture

The adesso experts collaborated with the customer to analyse how AI applications can improve these processes. The aim was to automate parts of the inspection process, increase the detection rate and reduce losses. In the first step, the experts developed a model to detect aberrant customer behaviour. The idea was to be able to identify fraud cases in a targeted manner. To this end, the project team performed an ad-hoc analysis to ascertain the feasibility. Following this, they developed a prototype model.

The situation today

The AI application automatically filters out conspicuous events from the large number of billing statements. These are then submitted to the clerks for review. The experts perform a detailed examination, research the connections and, if necessary, talk with the parties involved. They focus on cases with a high probability of irregularities.

Only
17%
of decision-makers believe that AI is an overrated and overhyped topic.

Source: ki.adesso.de/studie

Further information

Which companies would benefit most from this approach?
Any company that has extensive contact with its customers.

Which decision-makers would find this approach interesting?
Marketing, customer service, sales

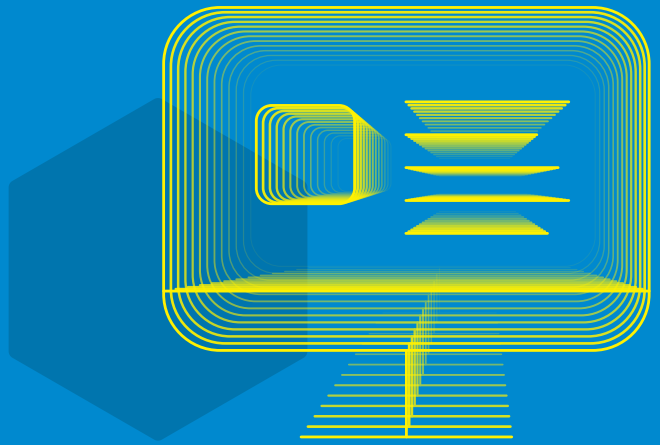
Background information for tech-oriented people:
cognitive services, Azure machine learning, Logic apps, Azure functions

"Fraud detection in the insurance industry is a use case where AI solutions excel since they are fed large amounts of data and have a clear criterion for success. We were able to improve the quality of the inspection process. This has a direct impact on the profitability of our customer".

Dr Lukas Breuer |
Team Lead Data Science
adesso SE

An AI system that analyses the news

This allows insurances companies to automatically stay ǝʇɑɓ-oʇ-dn



How things used to be

It's important for reinsurance companies to learn about potential damage claims as early as possible. When it comes to larger claims such as weather phenomena, they often only receive information about the situation on the ground or the scope of the damage after-the-fact via official channels. These types of claims generally go to the actual insurer first and are then passed on from there to the reinsurance companies.

Then AI entered the picture

The AI system automatically reads global news sources such as online media, notifications from authorities and social media platforms such as Twitter, Facebook or Instagram. The application classifies the information and automatically filters out relevant insurance claims. This enables the reinsurance companies to receive information about claims events, such as catastrophes, ahead of time. The experts can then compare this with other sources of information to determine the size of the claim and the resulting insured damages.

The situation today

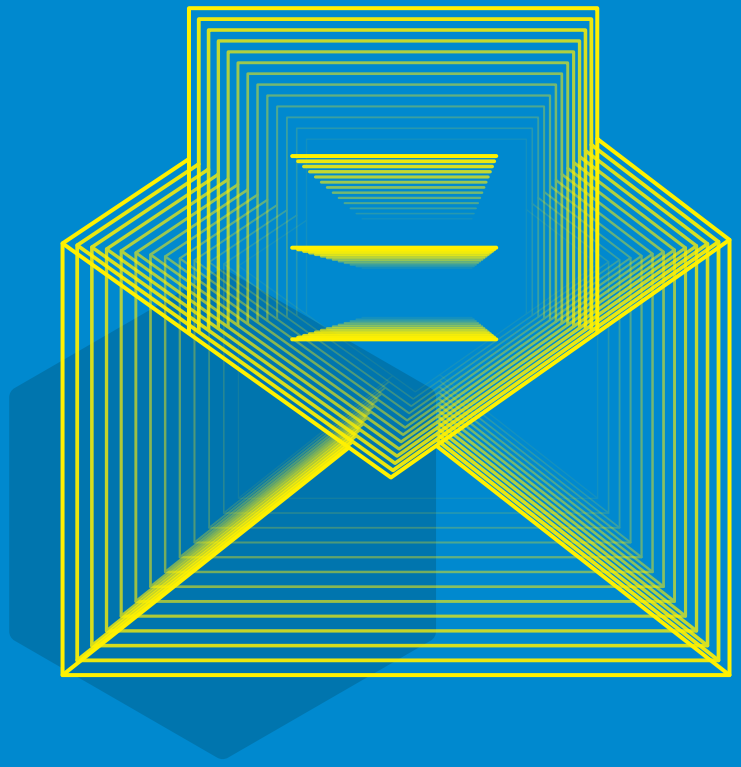
The AI solution enables monitoring. This allows reinsurance companies to learn about insurance claims from both insured and non-insured persons faster than in the past. Expanding the claims database enables experts to gain a better understanding of the claims and thus optimise the tariff calculation.

Further information

Which companies would benefit most from this approach?
Reinsurance companies

Which decision-makers would find this approach interesting?
Claims management, tariff calculation

Background information for tech-oriented people:
big data, machine learning, text mining



An AI solution that translates letters into information

Now you'll be able to read between the ɹǝuıl

How things used to be

Paper is indispensable in correspondence between insurance policy holders and insurance companies – for example, a form might be sent by fax, while the claim report and supporting documents are sent by post. The problem is that the information that is relevant to the employees who are processing the claim is hidden somewhere in these written documents. This may include address data, contract numbers and transaction numbers, as well as relevant specialist explanations and references. This data can be found in different letters from different solicitors, for example, and transferring it to an IT system is an arduous and monotonous process. This takes up employees' valuable time, which they need to complete more complex tasks, and is prone to error.

Then AI entered the picture

The automatic extraction of structured information from unstructured texts is a typical application for AI solutions. We have developed the Heuristic Claims Management (HCM) solution specially for insurance companies. This application automatically searches through incoming correspondence for relevant information, processes it and supplies it to the responsible systems for further structured processing in the applicable formats, such as XML and JSON.

The data is automatically loaded to the processing system. Having to enter it manually becomes a thing of the past, and further processing is fully digitalised.

The situation today

HCM helps to prevent media discontinuities, increase the processing speed and reduce the error quota.

HCM allows unstructured information to be processed automatically. This helps companies to achieve their digitalisation goals. Administrators are relieved from having to carry out routine activities and are able to concentrate on more challenging tasks.

Further information

Which companies would benefit most from this approach?
Insurance companies, banks and any company that carries out paper-based processes involving the manual extraction of information.

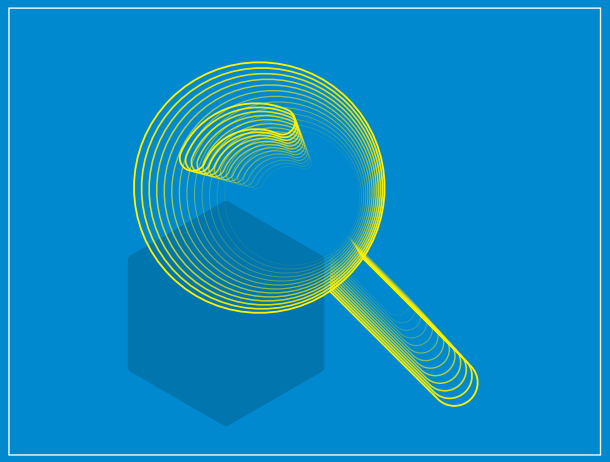
Which decision-makers would find this approach interesting?
Damage handling or legal protection and anyone involved in process automation and the digitalisation of paper-based processes.

Background information for tech-oriented people:
combination of machine-based learning processes such as support-vector machines, random forests and different Bayesian analyses

"Whether searching through correspondence, evaluating content or the automation of processing, AI applications can play an important role in the area of paper-based communication."

Dr Thomas Franz |
Head of Technology Advisory Board
adesso SE

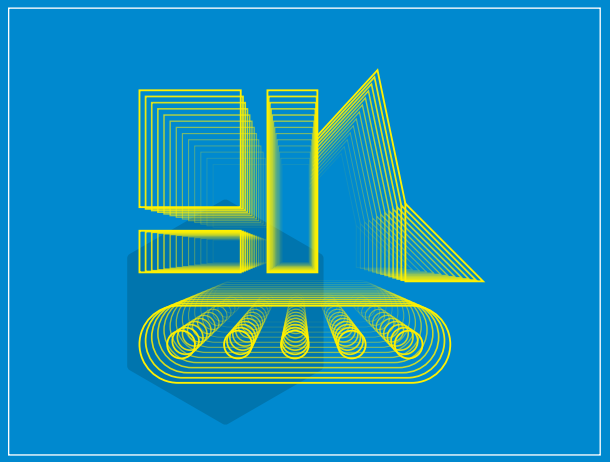
Seeing processes differently – building systems differently



Discovering use cases

Abstract mind games will not help you to see the potential of AI. But our use cases will – from chatbot to text analysis, from automated sales to automated communication processes. Take a look at what AI is changing in the here and now: in the world of football, in the car, in business – and before long, in your company.

ki.adesso.de



Building AI systems

AI applications are the result of flawlessly planned and implemented projects. However, these systems pose different challenges to developers than traditional information systems. This has an impact on the way projects are structured, and it impacts the level of expertise required of those involved. Our 'building AI-based systems' process model is our answer to these challenges.

ki.adesso.de

Team up with experts

When it comes to Artificial Intelligence, we have over 20 years of experience as an IT service provider. We can draw on instruments, procedural models and processes that match your goals and meet your requirements. Our AI experts are familiar with current technologies and know in detail how to develop business models and applications based on these.

ki.adesso.de

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Do you have any questions?

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