Artificial Intelligence – Take your operations to the next level

Driving Operational Excellence at Automotive Captives – Issue 4

Deloitte.

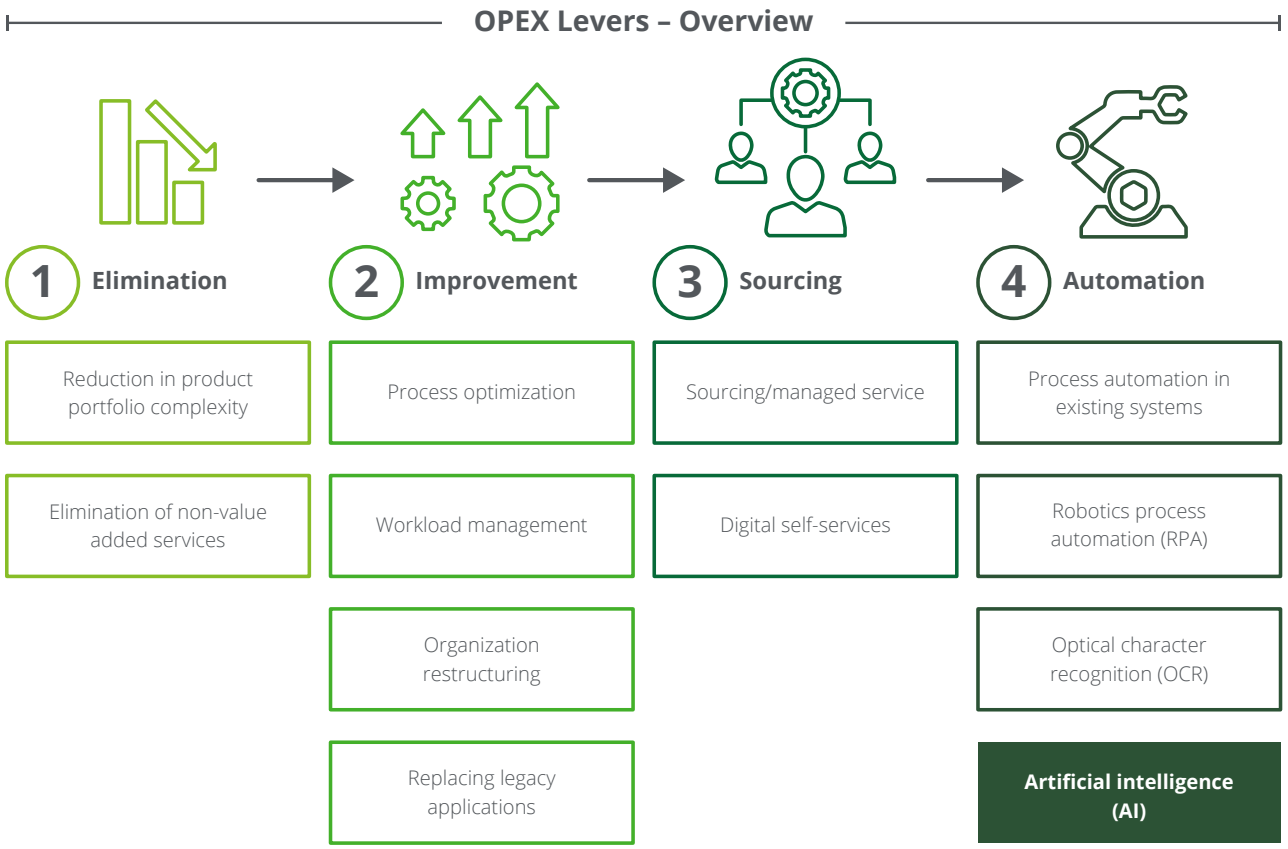
Content

01

Preface

In our series *Driving Operational Excellence at Automotive Captives*, we have highlighted the need for operational excellence in the captive finance industry (Issue 1) and provided Captives with a playbook outlining the key levers to achieve operational excellence (Issue 2). The next issues will offer a deep dive into each of these identified levers, with artificial intelligence as the focus of this issue. Readers will learn about different applications and implications of artificial intelligence (AI), from simple process automation to drastic changes in business or operating models, and discover that today's Captives are only scratching the surface. Once we have provided insight on the key obstacles, this issue will introduce a systematic approach to identifying and successfully implementing AI solutions within the Captive industry.

Fig. 1 – OPEX Playbook



02

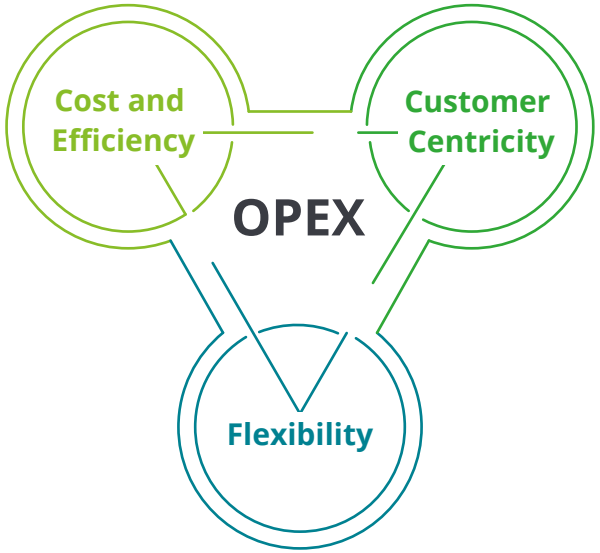
AI as a key enabler for operational excellence and future growth

AI is a megatrend already creating enormous value for tech companies like Google, Amazon or Facebook, to name just a few, and promises to continue to create value far beyond the software sector. Experts expect the global AI market to reach 733.7 billion U.S. dollars by 2027, making it one of the main drivers of global GDP.[1]

Most Captives have begun to embrace the increasing importance of AI, developing initial proof of concepts or rolling out AI support for a few processes or products – but they are still far from leveraging its full potential. As we will show, AI isn't simply a "nice to have" and it certainly isn't a fantasy from some sci-fi future. Artificial intelligence is a real-world solution that is already positively influencing all three goals of the OPEX triangle today:

Further Reading
For more information on the 2020 AI survey, check out Deloitte's *State of AI in the Enterprise*[2], 3rd Edition: Thriving in the era of pervasive AI as well as our executive summary focused on German industry.

Fig. 2 – "Magic Triangle" of OPEX Goals



"After successfully testing how artificial intelligence helps our employees better service customers, we are now investing in a disruptive technology to further enhance the customer experience"

Udo Neumann, former global CIO of Daimler Financial Services

Lowering costs & driving efficiency

In our most recent *State of AI in the Enterprise* study, we asked more than 2,700 practitioners to rate how AI is impacting their company's objectives and to rank the most frequent outcomes they have obtained through AI. Overall, and particularly for recent adopters that are just starting their AI journey, cost-savings and efficiency rank at the top of both categories.[3] Two objectives of AI play a major role here:

Automation – using machines to perform a task in full or in part that was previously performed by human beings. Whereas robotic process automation (RPA) simply imitates human action, AI can also simulate human intelligence in automated tasks. The possibilities are virtually endless: a study at Oxford University estimates that nearly half of all tasks currently performed by humans in the U.S. are at risk of being automated within the next one or two decades.[4]

Optimization – making a process or function more effective – for example, preventing fraud or identifying errors in application forms.

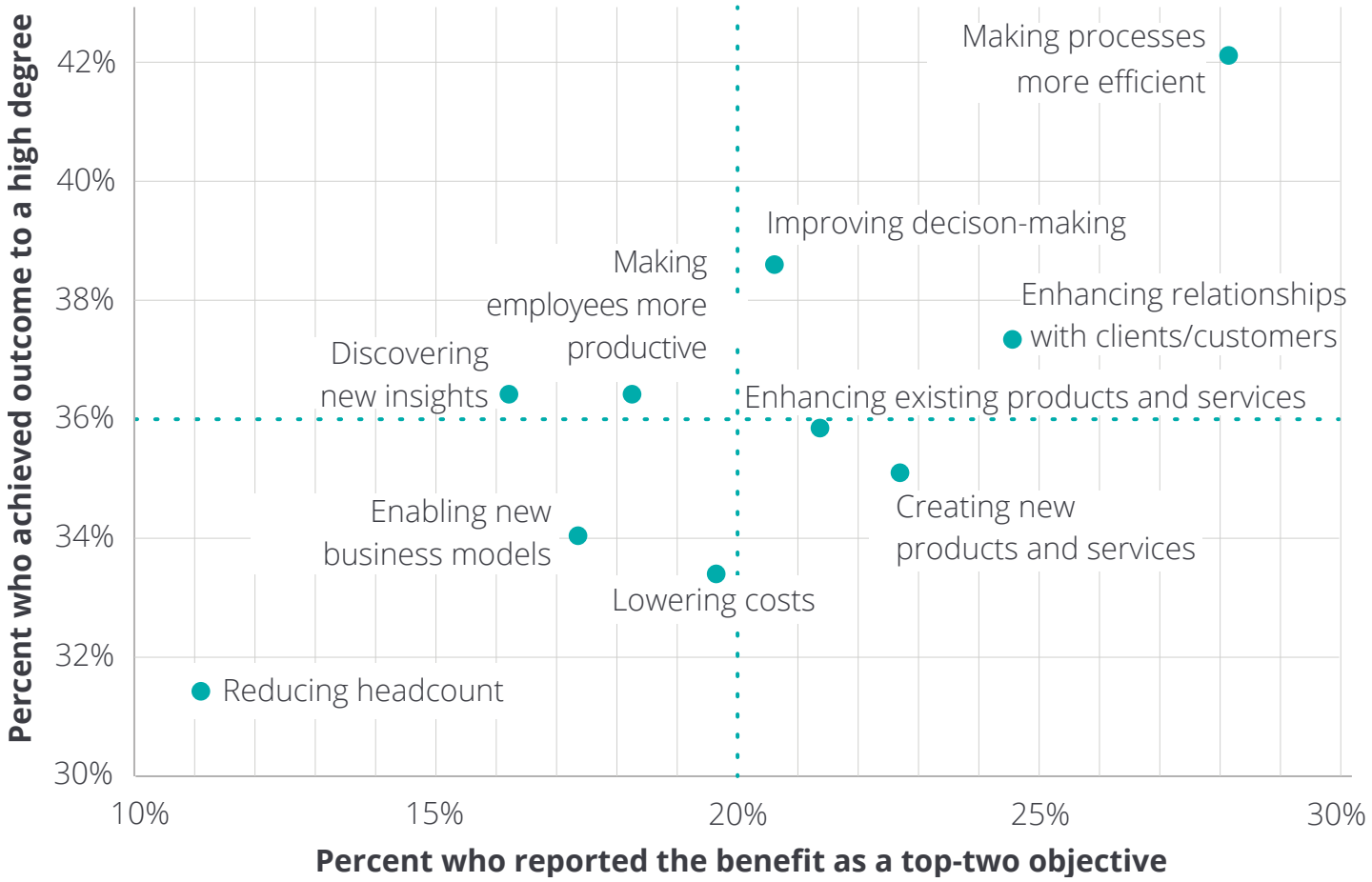
Both objectives will reduce the amount of manual work spent on basic tasks, significantly lower processing times (and therefore often lead to higher output) as well as minimize error rates. Once a company has leveraged the full potential of AI, these processes will run with lower costs (e.g., labor costs, time and resources for correcting errors) and higher efficiency (e.g., faster processing times and better outcomes/higher output volume).

Captives have gained initial experience in this area but are still only scratching the surface in terms of the full potential of AI. Most past initiatives have been mainly focused on improving and automating internal processes, such as optimizing document workflows and efficient knowledge management.

In the Captive industry, common areas of application for automation include fraud detection, chatbots or the credit assessment and underwriting process. For the latter, basic AI solutions can achieve a higher throughput rate in credit decision and application processing than human employees. Sophisticated AI solutions can do much more to optimize the entire process. They can use digital footprints, algorithms and data points to gain new and complex insight and assess online shopping habits, payment history for utility and telephone bills or social media profiles to determine creditworthiness. With more meaningful credit ratings, Captives can improve their decisions in two ways. On the one hand, our research has shown that AI and machine learning can detect and reject more risky loan requests and reduce loan delinquencies. On the other hand, they can also increase credit application approvals, all without adding to – and potentially even reducing – the portfolio's risk exposure.[5,6]

At the same time, AI gives Captives a more precise estimate of potential losses and a fairer valuation of their capital/equity requirements. This advanced AI functionality is also important to supporting Captives' strategic goals. In our *Future of Captives*[7] study, we identified a shift from saturated markets (EU & NAFTA) towards emerging markets (China, India, RoW[8]) as one out of the four key results. Credit transparency is, however, an issue in many of these emerging markets; for example, 80% of the Indian population does not even have a credit score. AI tools like those described above are therefore a key enabler of the Captive's future strategy.[9]

Fig. 3 – Ranking of highest AI objectives and outcomes



Source: *State of AI in the Enterprise 3rd Edition: Thriving in the era of pervasive AI, 2020*

Putting customers at the center

Where these optimized processes directly affect the customer, AI automatically helps companies make their business more customer-centric. Using the previous example, AI chatbots for customer interaction clearly enhance the customer experience with faster response times (even during peaks) and 24/7 availability. Daimler Mobility's customer service chatbot "Sarah" goes even further and uses an avatar with emotional intelligence to manage customer requests.[10] This "digital human" can analyze facial expressions as well as emotions and provides an appropriate, competent, sensitive and highly personalized response for each individual customer.

With the exception of chatbots, Captives have otherwise neglected the potential of AI at various steps along the customer journey. Our customer experience study *Driven by Experience*[11], for example, revealed that the biggest pain point in the customer journey is a lack of personalization. Customers prioritized this pain point in 80% of the steps, from initial product research to after-sales service. This is an example where AI can go beyond optimization and personalized automation by improving the performance of individual employees through better customer insight or creating completely new offers and services tailored to the customer. AI-enabled predictions about customer preferences as well as future behavior lead to highly personalized offers and services, enabling Captives to generate additional revenue and increase customer satisfaction and loyalty.

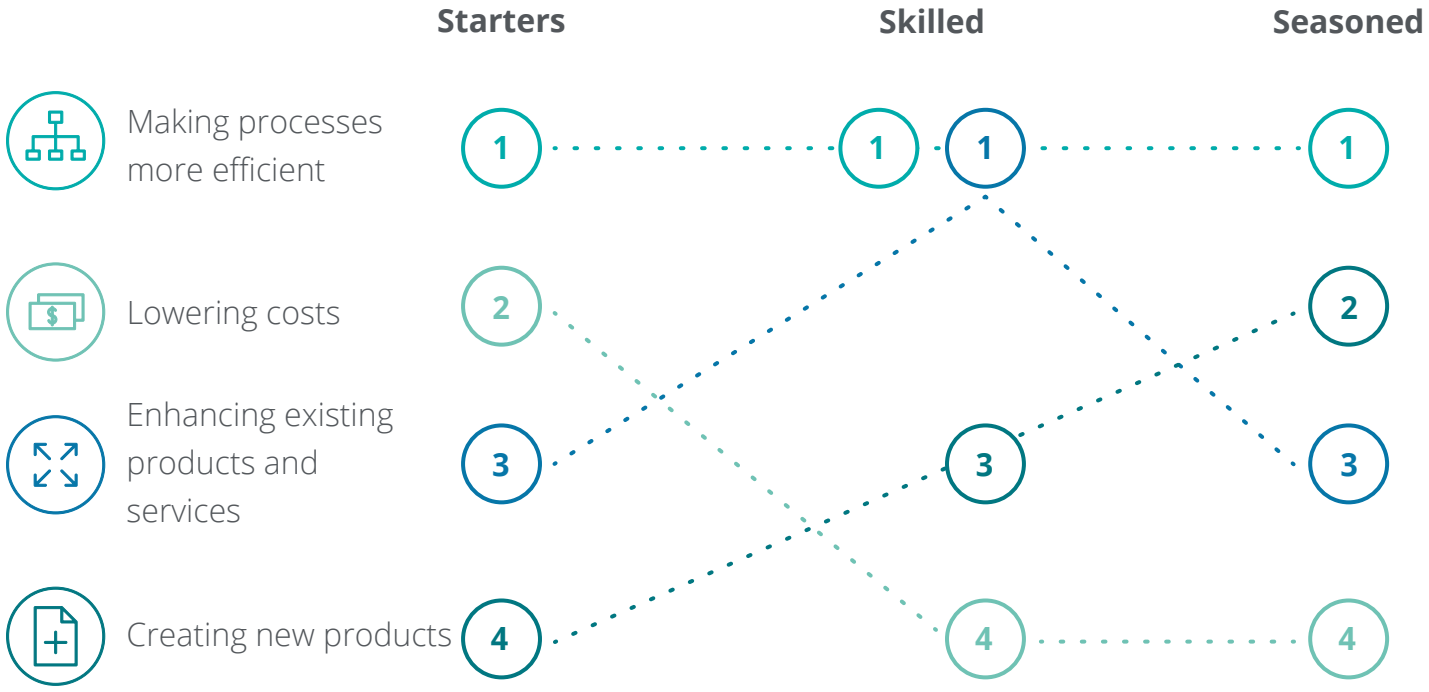
In the future, we expect the automation and optimization applications Captives are focused on today as well as some AI-enabled processes and functions that are now evolving to become commodities. Captives will need to find new product and service applications to set themselves apart from the competition in the customer's eye and use the new insights gained through AI to launch new business models. The increasing importance of AI is already gaining traction in other industries. According to our *State of AI in the Enterprise* study, the more AI experience a company has, the more their experts make creating new products and services a top priority.

One rare example of an AI-powered service in the Captive industry is the "Predictive Parking" function in the PayByPhone app offered by Volkswagen Financial Services[12]: in this intelligent add-on service, AI uses anonymized phone data and statistics about on-street and off-street parking to make real-time predictions on parking availability. After the system guides customers to a free parking space, they can pay the parking fees directly on the app, solidifying the customer relationship and promoting the brand.

This example shows how new, AI-powered services can help Captives significantly increase revenue, either charging customers directly for the service (e.g., as a one-off purchase, monthly subscription fee or pay-per-use) or adding the service to another commercial offering. Even if Captives offer the added AI service free of charge, it increases customer value and therefore the revenue from paid services, if for example more users download and make payments through the parking app.

There is also ample potential for traditional business models such as fleet management to gain competitive advantage through AI-powered services.

Fig. 4 – Rank of top desired outcomes of AI efforts



Source: *State of AI in the Enterprise 3rd Edition: Thriving in the era of pervasive AI, 2020*

Increasing flexibility

In addition to cost efficiency and customer centricity, AI can help Captives make their processes and operating models more flexible. In terms of the chatbot, for example, AI gives customers more flexibility by operating the service on a 24/7 basis.

We have all come to appreciate how important flexibility is during uncertain times such as the current COVID-19 crisis. If the uptake of an AI-enabled service is low, it is considerably less costly to a company compared to the fixed costs associated with idle customer service agents. Making services scalable is another key component in AI-driven flexibility. Scalability works in two ways: while it can be less costly and time-consuming to scale back capacity with AI, it is also less challenging to scale up capacity. It is basically just an IT infrastructure issue: there is no need to recruit, hire and onboard additional AI capacity. The ability of AI to make processes and functions more scalable is especially important considering the variety of new business models in the Captive industry pipeline, as we have seen in the PayByPhone example.

Finally, and perhaps most importantly, AI is trained with data that immediately reflects changing conditions, current trends and other influences. In contrast to rigid, rule-based programming, the underlying algorithms of AIs are self-learning. They are automatically more flexible, because they can register and react to patterns in the data in real time. In a fraud detection case, for example, a traditional system would have to program every possible fraud mechanism, while AI-powered systems can learn changing fraud behavior and automatically adapt its fraud detection mechanisms.

Our understanding of AI

For the purposes of this publication, we define AI in a non-technical sense as a suite of technologies enabled by adaptive predictive power, offering some degree of autonomous learning and dramatically advancing our ability to[13]:

- Recognize patterns
- Anticipate future events
- Create good rules
- Make good decisions
- Communicate with other people

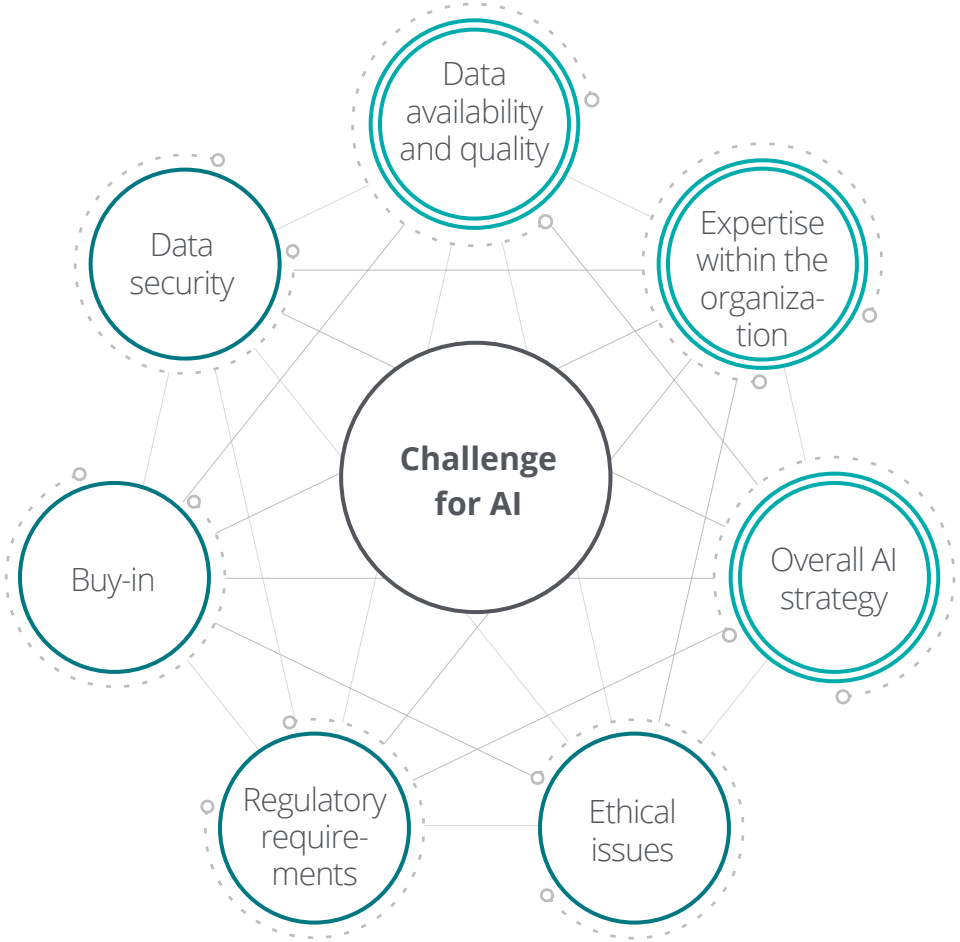
As AI development accelerates, we are seeing dynamic changes in these advances.

03

Main obstacles and challenges for AI adoption

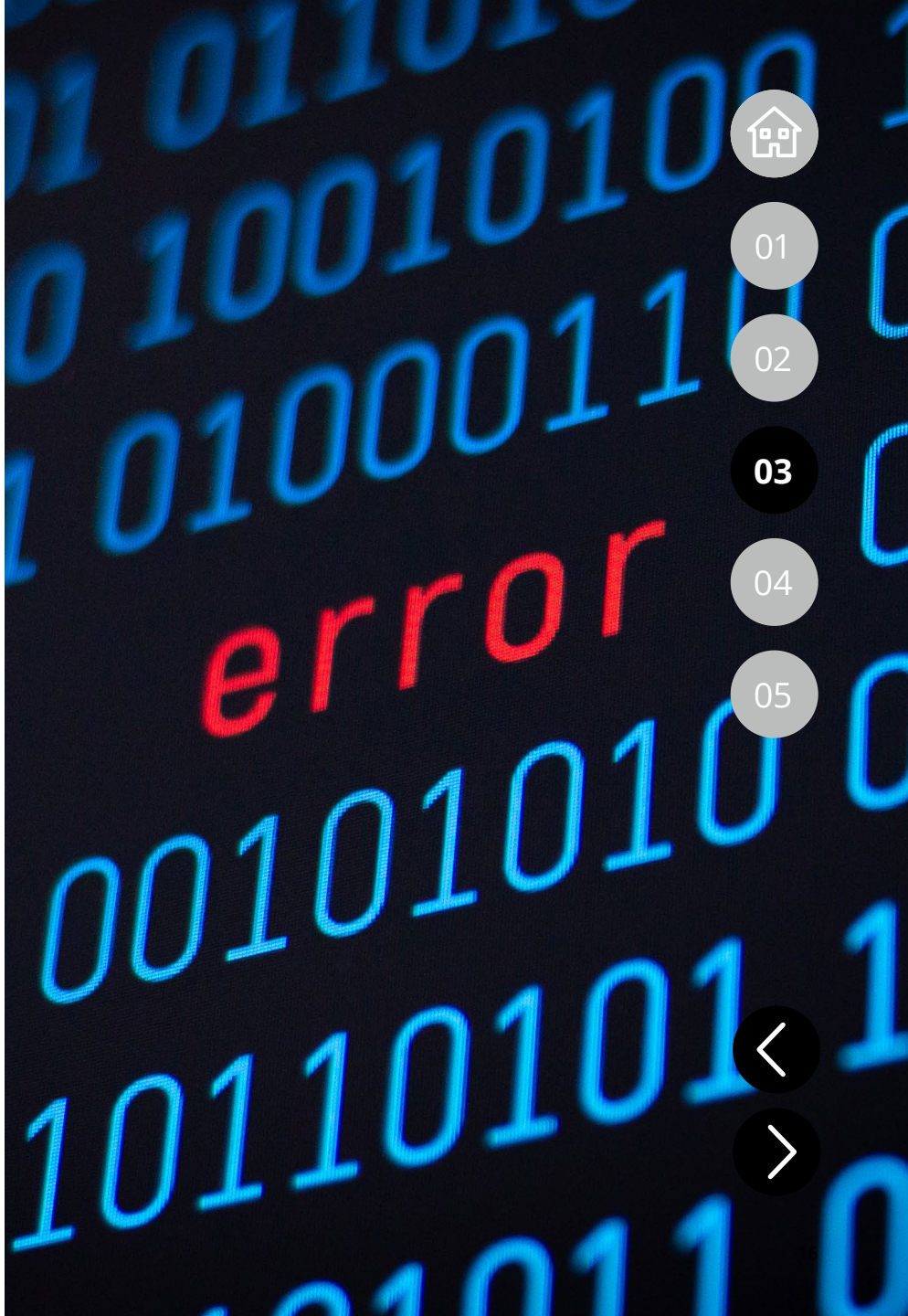
If the potential of AI is as significant as we outlined above, why are many companies – including most Captives – still so far behind? There is no doubt that implementing AI successfully comes with a lot of challenges (see Figure 5 for a selection), but setting up a clear strategic roadmap in advance for AI data, talent and operating models helps to maximize the impact of the AI technology along the way. In the following, we will elaborate on three of the main obstacles in more detail and provide general guidelines based on Deloitte's experience. However, the challenges and best actions for each company will likely depend on their specific characteristics and situation.

Fig. 5 – Selection of AI challenges (not exhaustive)



Data availability and quality

One of the biggest challenges is the availability of high-quality data. There is a significant lead time to implementing good data collection, and AI-powered decision-making is ultimately only as good as the data you feed it. A lot of time and budget is required up front – if it is even possible – to repair inconsistent or incorrect data in manually written data sets (e.g., due to typing errors). The potential lack of consistency is just one factor; the IT landscape is often full of data silos that can also prevent companies from taking full advantage of AI. Many Captives still rely on IT landscapes with excessive complexity and outdated legacy systems. Add to that the strict regulatory requirements and it becomes extremely difficult to translate and combine all of the different data sources and data silos. That's why end-to-end integration of existing processes and systems is such a critical necessity – and such a major obstacle – for a successful AI adoption.[14]



AI expertise and skillset

Another relevant aspect is whether a company has the right skills to implement and leverage artificial intelligence. One third of the German companies in our survey believe that the main challenge with cognitive technologies is employee expertise: most staff are not familiar with what AI does or how to use it.[15] The challenge is not only finding data analysts and scientists, which are already scarce resources, but also empowering the entire organization to gain a basic understanding of AI and to adopt an AI mindset. This applies to all employees and not just top executives who are in charge of aligning strategy with the potential of AI. It is also true for all staff who have to use AI tools properly and understand how their actions potentially impact AI-supported functions and processes. Captives therefore need to invest in training all staff and raising awareness about the benefits of AI. In addition to upskilling already existing staff, Captives need to enter the battle for AI talent and create new departments and roles to ensure long-term buy-in within the organization.

Comprehensive AI strategy

Another aspect that can slow down or even halt a company's AI adoption strategy is taking a silo approach instead of defining an overarching strategy. The key benefits of a comprehensive enterprise-wide AI strategy are as follows:

- Multiple AI efforts within the organization aligned with a big-picture view, shared goals and leveraged synergies
- Full transparency of AI investments as a basis for efficient management as well as integrated and harmonized operations
- Ability to scale AI use cases across the enterprise
- Clear ownership and governance of AI efforts fueling cross-functional collaboration
- Effective and efficient IT architecture to enable AI adoption
- Clear "guardrails" for AI adoption and an integrated regulatory approach to addressing potential risks

To generate benefits for your organization through AI adoption, it is key to quickly gain momentum. At the same time, it is important to follow a systematic approach and adopt an overarching strategy to overcome the hurdles described above.

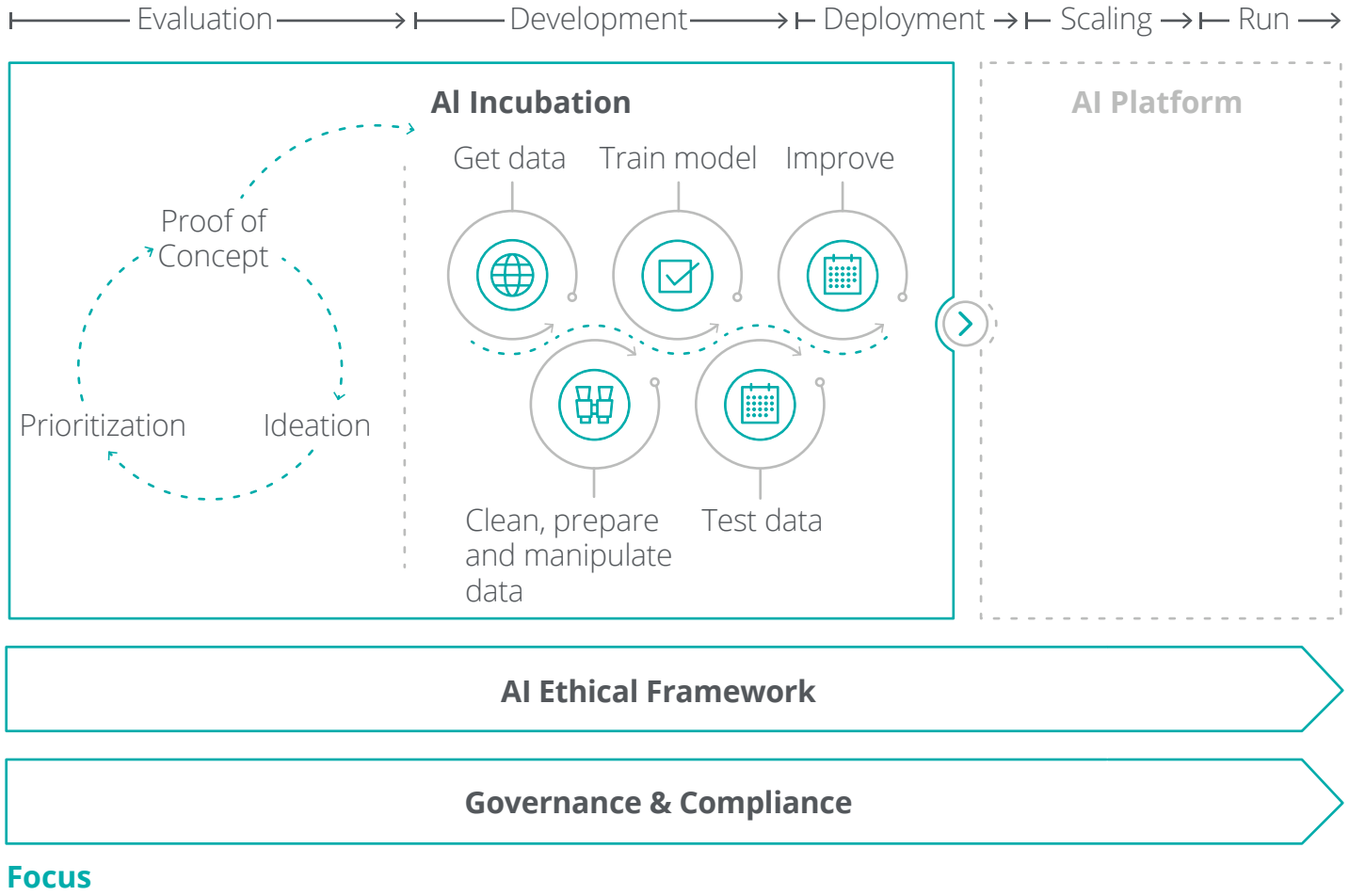
04

Gaining momentum with AI

A central issue for companies looking to pick up the pace of their AI adoption is identifying and developing suitable use cases. In general, developing an AI solution is a two-step process, as illustrated in Figure 6. AI incubation is the first step, where we generate initial ideas, prioritize the top candidates and evaluate the solution in both technical and economic terms to define a proof of concept (PoC). Then we gather the data needed for this PoC and process it as needed to train the AI model. Iterative testing and improvement of the model is a core element of the development process to ensure we can scale and productionize the solution on the selected platform architecture.

In this Point of View, the focus is on AI incubation and the underlying ethical framework as well as governance and compliance structures.

Fig. 6 – AI Operating Model



Ideation

Interdisciplinarity is a key catalyst for every ideation process, as it allows you to approach a problem from various different angles at the same time. Building on the diverse backgrounds and knowledge of everyone on the team, a brief (half to one-day) "AI Bootcamp" addresses the basic technological mechanisms, potential use cases and possible limitations to provide common ground for discussion. This helps AI adoption gain traction right from the outset and avoids confusion arising from varying terminology and levels of understanding.

Moving forward, you can use creativity techniques like design thinking to generate initial ideas for AI applications, which will be fleshed out in a later phase. The following initial ideas can jumpstart the brainstorming process:

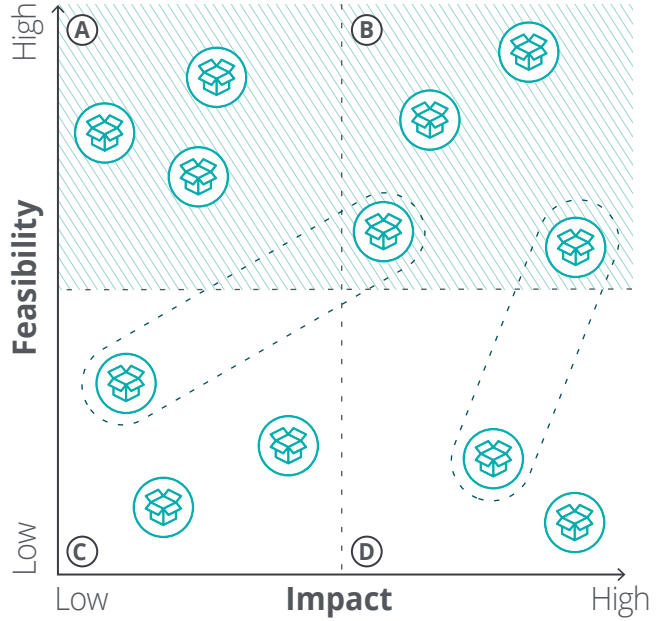
- Biggest overhead/waste
- Most customer value
- Time consumption
- Bureaucracy
- etc.

It is important to document the use case ideas using standardized templates to make them easier to discuss, compare and evaluate. We recommend score cards with the most important information for specific clients (e.g., availability of data and expertise, complexity, cost, outcome, added value, etc.) as an easy but impactful tool.

Prioritization

Using the score cards from the previous step, the team assesses the identified use cases based on predefined criteria. A tried and tested approach is the feasibility and impact matrix, which arranges the use cases along a 2x2 grid (Figure 7). This grid helps to visualize the backlog as a basis for further discussions.

Fig. 7 – Use case prioritization grid



Feasibility

describes the level of difficulty of implementation based on the following factors:

Data: the delta between the data availability and quality we have now and what we need

Compliance: legal or compliance hurdles

Process and organizational fit: delta between required and existing business processes

Technology infrastructure: delta between required infrastructure & tool landscape

Stakeholder: involvement and support of key stakeholders

Impact

describes the effect of the use cases on the following factors:

Financial indicators: contribution to profit margin

Performance indicators: process KPIs

Customer indicators: customer satisfaction in terms of availability, user experience, etc.

Organizational structure: influence on roles, responsibilities and processes

Culture change: shift toward a more analytical organization

In the field, we often see Captives struggle to assess both dimensions reliably. We support our clients in the feasibility assessment by providing an outside-in perspective and an overview of existing solutions. For many use cases, there is no need for Captives to reinvent the wheel. They can build on the existing solutions new and incumbent software vendors have already launched to address the demand for more AI-enabled features. For instance, the software vendor Alfa recently partnered with a company specialized in AI to develop an intelligence platform for asset finance. The platform features several individual modules that deliver data-driven insights to improve, among other things, credit decisions, delinquency support and fraud detection. On the impact side, we use the Deloitte value calculator that is populated with input data from use cases across various industries. This tool addresses a wide variety of AI levers and gives Captives quick insight into the potential economic impact of specific use cases.

The grid has four quadrants labeled ABDC. Depending on the positioning of a use case within the grid, each quadrant has different implications:

A: Use cases in this quadrant are quick wins with immediate benefits. They also help balance the implementation risk of cases in quadrant B

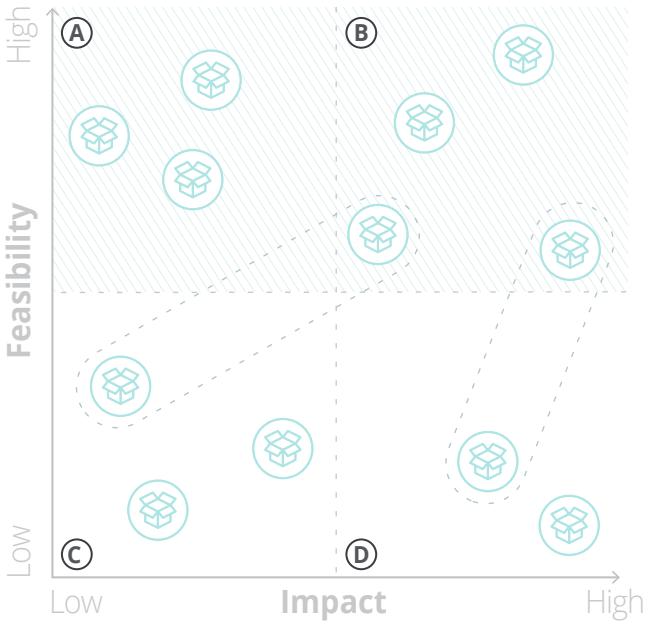
B: In this quadrant, the use cases will have a significant impact and lay the foundation for leveraging synergies with cases from quadrants C/D

D: As the preconditions for the use cases in this quadrant are not favorable, you should only consider them if there are significant synergies with quadrants A/B

C: In this quadrant, the use cases are unattractive and should only be considered if there are significant synergies with quadrants A/B

Once you have transparency in terms of potential use cases and their impact as well as feasibility, you can start the technical development of your first PoC.

Fig. 8 – Use case prioritization grid



Proof of concept

As noted in chapter 3, data is the most critical success factor and prerequisite for AI. AI models need a lot of data points to make accurate predictions. The amount and the quality of data are key performance indicators, registering whether annotations (secondary or meta data) are representative and complete, for example. Gathering data that best serves the purpose of the PoC is therefore the key first step, including various data transformation methods from cleaning and preparing to manipulating data inputs to ensure the algorithm can process them and divide them into training, validation and test sets.

In the subsequent PoC phases, the focus is on technical aspects. For instance, which AI model to use, which algorithm works best for a given use case, how we define the loss function[16], etc. Taking an agile approach means iteratively improving the AI pipeline until the prediction process achieves the predefined accuracy. And finally, the solution is tested on real data serving as stage gate for deployment, scaling and productionizing.

Outlook on AI platforms

To make AI solutions available across the organization, platform technologies are crucial. Cloud infrastructure can help companies easily deploy and scale solutions with a standardized method. This issue of our PoV series is focused on AI incubation, so we strongly recommend that you check out Deloitte's other studies with more in-depth insights into on these topics, e.g., *The future of cloud-enabled work infrastructure*[17] and *Artificial intelligence: From expert-only to everywhere*.[18]

AI Ethical Framework

Deploying AI solutions not only opens up virtually endless possibilities; it also implies a responsibility towards all stakeholders. When you establish a framework for AI, you must ensure that it complies with ethical standards – in both its internal processes and its products and services. This will also help you protect your business model from setbacks and enable your product development and management teams to define guardrails for your AI adoption strategy. As a result, you reduce your risk of reputational damage and increase buy-in across all stakeholders.

Without any binding global AI standards, Deloitte is helping to bridge this gap with our Trustworthy AI™ framework[19] consulting organizations to develop safeguards in six key areas:

- **Fair and impartial** – Assess whether AI systems include internal and external checks to ensure equitable application for all participants.
- **Transparent and explainable** – Help participants understand how their data can be used and how AI systems make decisions. Algorithms, attributes and correlations are open to inspection.
- **Responsible and accountable** – Put organizational structures and policies in place that can help clearly determine who is responsible for the decisions made with AI.
- **Robust and reliable** – Confirm that AI systems have the ability to learn from humans and other systems and produce consistent and reliable output.
- **Respectful of privacy** – Respect data privacy and avoid using AI to mine customer data for purposes outside the intended and stated use. Allow customers to opt in and out of sharing their data.
- **Safe and secure** – Protect AI systems from potential risks (including cyber risks) that may cause physical and digital harm.

Governance and compliance

The last part of the AI operating model is the organizational set-up. There are three possible forms in general, each with different advantages and risks:

Fig. 9 – Organizational structure

	Centralized	Hybrid	Decentralized
	Centralized decision-making role that selects a unified technology stack and works to ensure that it is used throughout the organization	**Moderately centralized organization that supports the implementation of use cases and allows the relevant skills and structures to evolve**	Business units identify and solve problems independently
Advantages	✓ Simplifies operation ✓ Simplifies company-wide strategy formation and implementation ✓ Promotes cross-functional use of solution components	✓ The focus remains on use cases with a positive impact on business ✓ Involves business units in the implementation and decision-making process ✓ Creates a central competence center	✓ Optimal solution for each individual application ✓ Allows teams to test different technology stacks based on different use cases
Risks	× Mandating a given technology stack can lead to suboptimal solutions for certain business areas × Can cause dissatisfaction in some business units and obstruct support for AI initiatives × Requires leaders to decide on a technology stack early on, which can be a costly mistake if AI experience is lacking	× Requires more governance × Increased planning and coordination effort with stakeholders × Can cause business units to see the central organization as too bureaucratic	× Makes the operation more fragmented, as it is developed and implemented at different locations × Implementation is inefficient, because there is a new learning curve with each use case × Additional licensing costs, as different tools are some times used for the same tasks in heterogeneous technology stacks
	Good for avoiding high technical hurdles	Allows companies to focus on use cases with the best business outcomes, while at the same time making the time to build the necessary skills and structures	Best for individual business cases and helps to achieve maximum impact in the short term

Use Case

Harnessing residual value analytics to enhance vehicle configuration

Initial challenge

- To date, we don't understand precisely how specific car configurations impact residual value.
- The main reason for this is that automotive companies generally don't have access to used car data or the advanced analytics in place to create value from it.
- Without a big-picture view that includes data on what drives second-life purchase decisions, the decisions we make on short-term product configurations are sub-optimal and can negatively impact contribution margin.

Deloitte solution

- Deloitte has teamed up with mobile.de to obtain used car data from more than 5 million transactions per year available across all brands and car ages.
- We cleanse and enrich the data to facilitate a detailed option, package and line analysis down to the brand/model/engine level for any car age and mileage.
- Using a regression model, we mine this data for a full analysis of the relationship between features and value. Every single specific configuration is ranked in terms of its performance versus the list price (i.e., above-par/sub-par performance), including those options with no impact at all.
- We made the model fully flexible so that companies can customize it for other residual value analyses. The model provides a baseline of car prices with standard equipment for every age and every mileage as well as other clear insights into the correlation between features and value.

Added value

- This tool analyzes how a specific option/package/trim level impacts the residual value of used cars and recommends ways to configure packages and trim levels to increase long-term appeal.
- Additional support is provided for packaging/configuration offering strategy, pricing or stock vehicle planning.
- The impact of feature/option, package and trim level on residual value is factored into product management and pricing decisions.

For further insight into the ways Captives can leverage analytics solutions for strategic actions from multi-brand fleet management and flexibilization of the core business to payment services, operational excellence, urban mobility services and data-based business models, we recommend our publication *Analytics & Automotive Captives: Innovative Solutions of a Market Leader.*

Time to Act: Preparing for AI

AI technologies have been a disruptive force in many industries for some time, while the automotive sector and its Captives are still finding their feet. On the one hand, AI can help Captives create value from customer data and put the customer at the center of the business. On the other hand, AI is fueling the ongoing digitalization push within the Captive industry by decreasing costs and increasing efficiency and flexibility. To leverage the full potential of AI it is important to build up momentum, acquire the necessary skills and structures throughout the organization and make AI a priority on the strategic agenda.

In the upcoming issues of our series Driving Operational Excellence at Automotive Captives, we will provide more insight into other levers that can help Captives improve operational excellence. The next issue will address inefficiencies caused by non-value added services in the Captives portfolio, providing a structured approach to reevaluating and eliminating services that fail to add value. This will enable Captives to focus on higher-value services for both internal and external customers. If you are interested in finding out more, look out for our next publication!

For further information on our PoV series, please visit www.deloitte.com/de/automotive-captives-opex

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