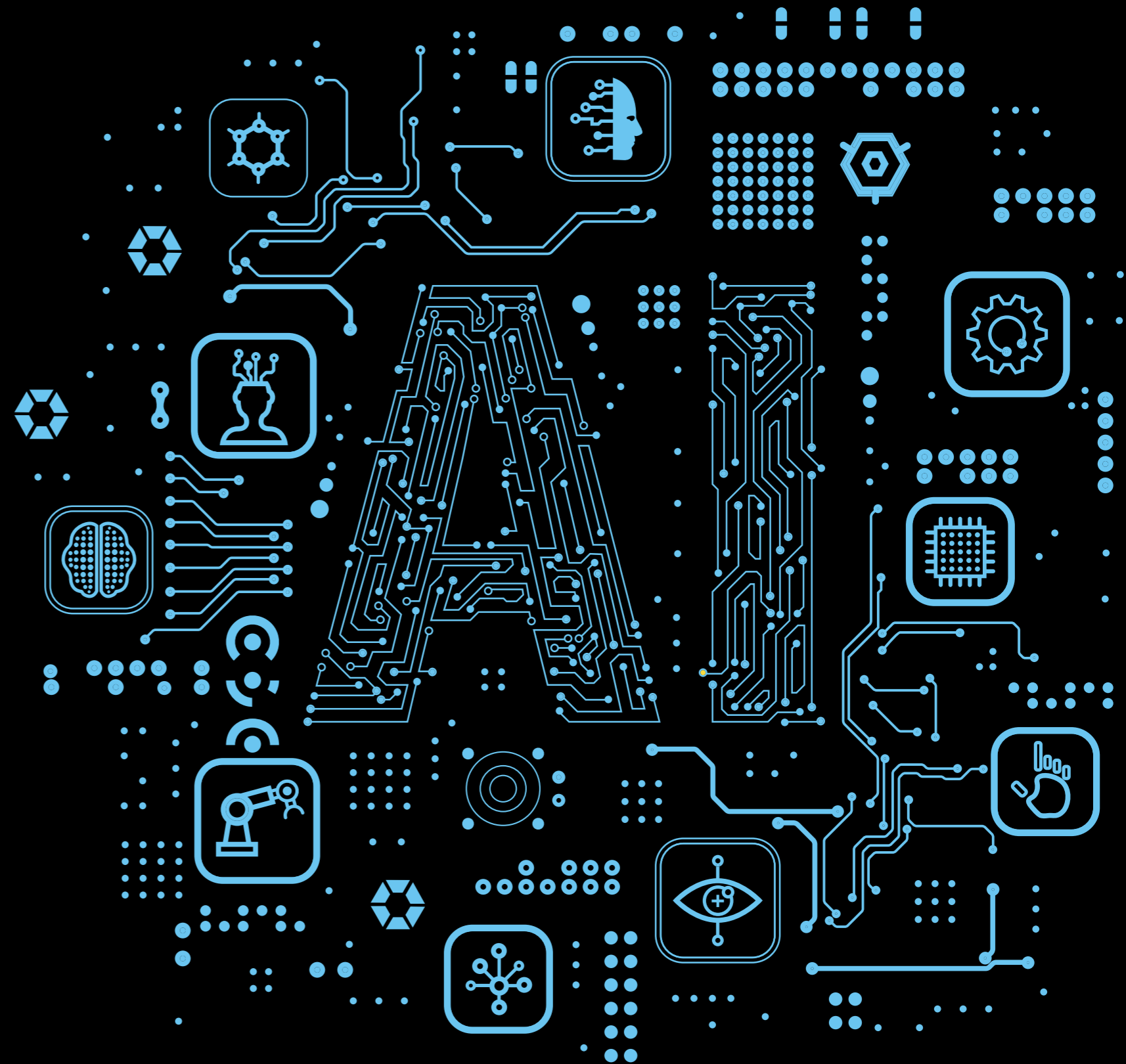




**Business
Services**

Smarter data management for AI-enabled business success



- › **Where should you start**
- › **AI: transforming the customer experience**
- › **AI for better business processes**
- › **AIOps and AI for cyberdefense**
- › **Getting data ready**



Introduction:

Why is it critical to balance and blend the use of AI and human talent?



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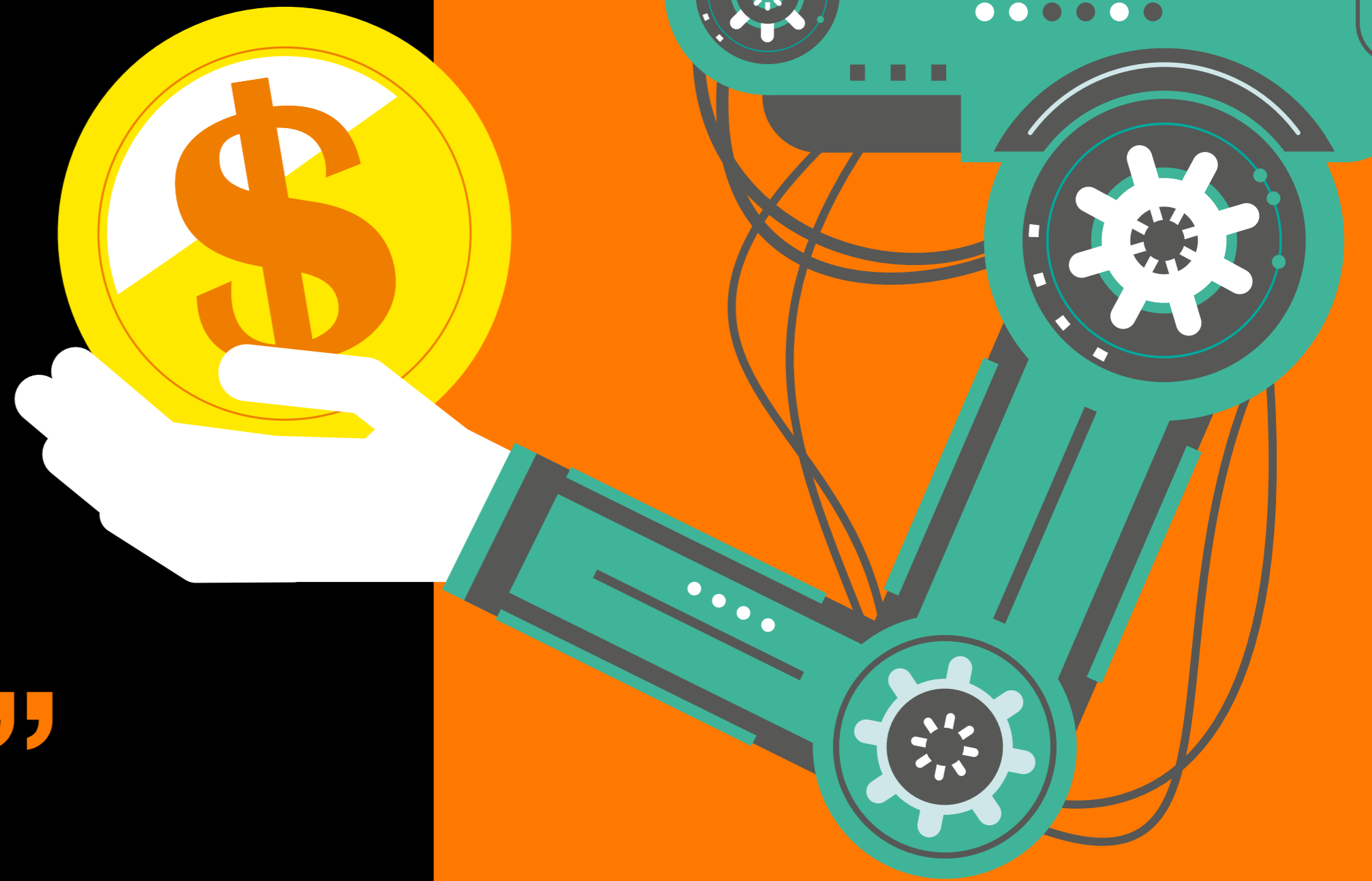
Within the next five years, businesses made up of both a workforce of human and digital workers will have a competitive advantage. We're seeing AI being infused in virtually every IT solution and area of business.

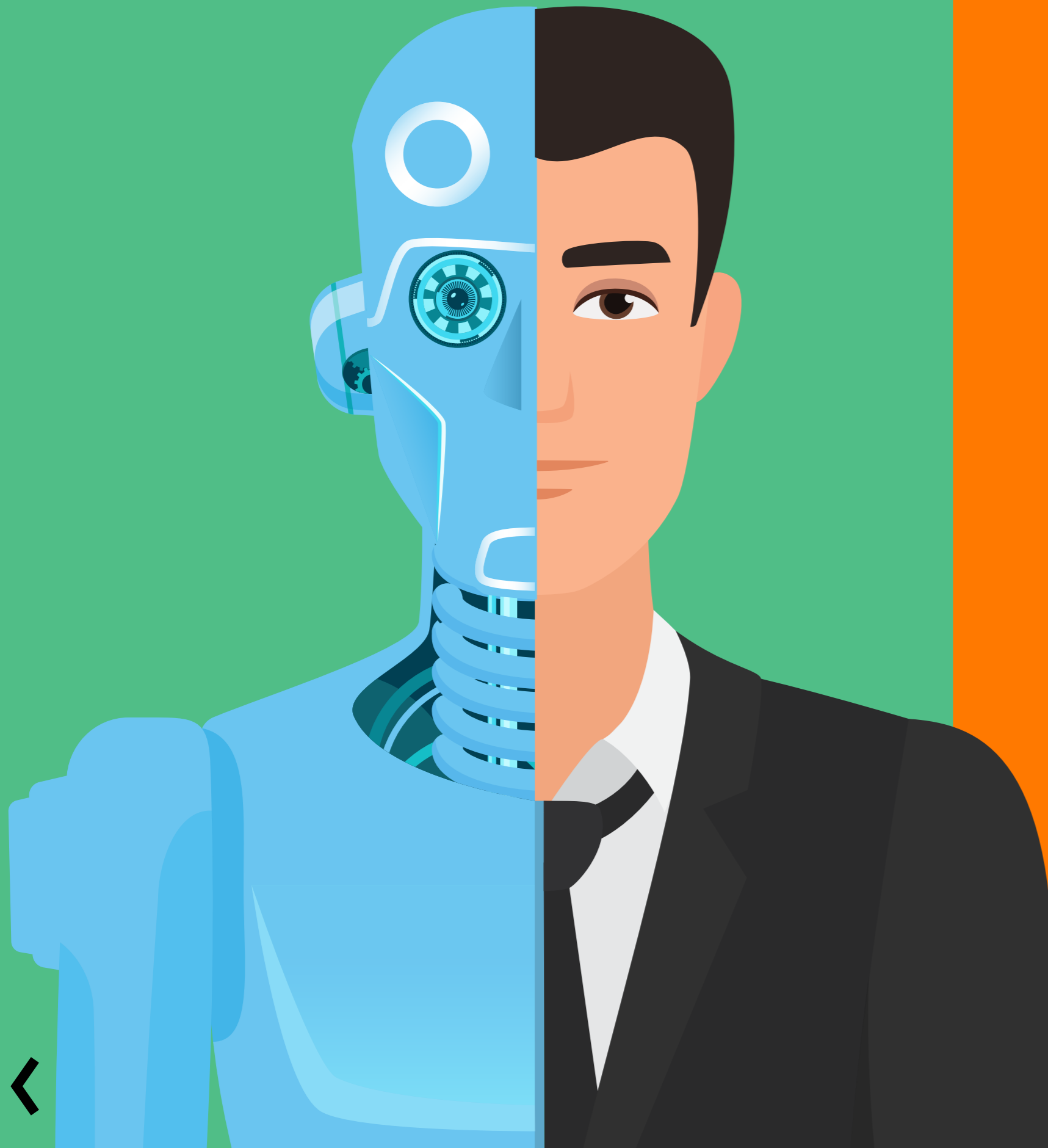
We believe the companies that will be most successful will balance and blend the use of AI and human engagement to personalize and simplify the customer journey, reduce friction at every point of interaction and encourage the most appropriate purchases.

Businesses not only have to make interactions with customers faster and more convenient, but also more human-centric, personalized and empathetic. They need to delight their customers with the imagination, creativity and care that they show.



“ In 2021, AI augmentation will generate \$2.9 trillion dollars in business value and recover 6.2 billion hours of worker productivity.”





Consumers want AI to be human-like in terms of interaction, but they also want to know when they are talking to an AI-enabled system rather than a human.

The level of human engagement desired is directly correlated to the importance of the decision. The more important the decision, the more consumers want humans to be involved. Above all, ethics regarding the way data is handled and change is managed is vital.

This eBook looks at the key opportunities to augment human capabilities with AI and provides an overview of some of the projects Orange Business Services has delivered around the world.



**Where should
you start?**



The four key business drivers for AI

AI offers a huge landscape of opportunity for enterprises to transform customer experiences, internal business processes and make IT systems more resilient. Underpinning all this, effective data management is key.

Transforming the customer experience

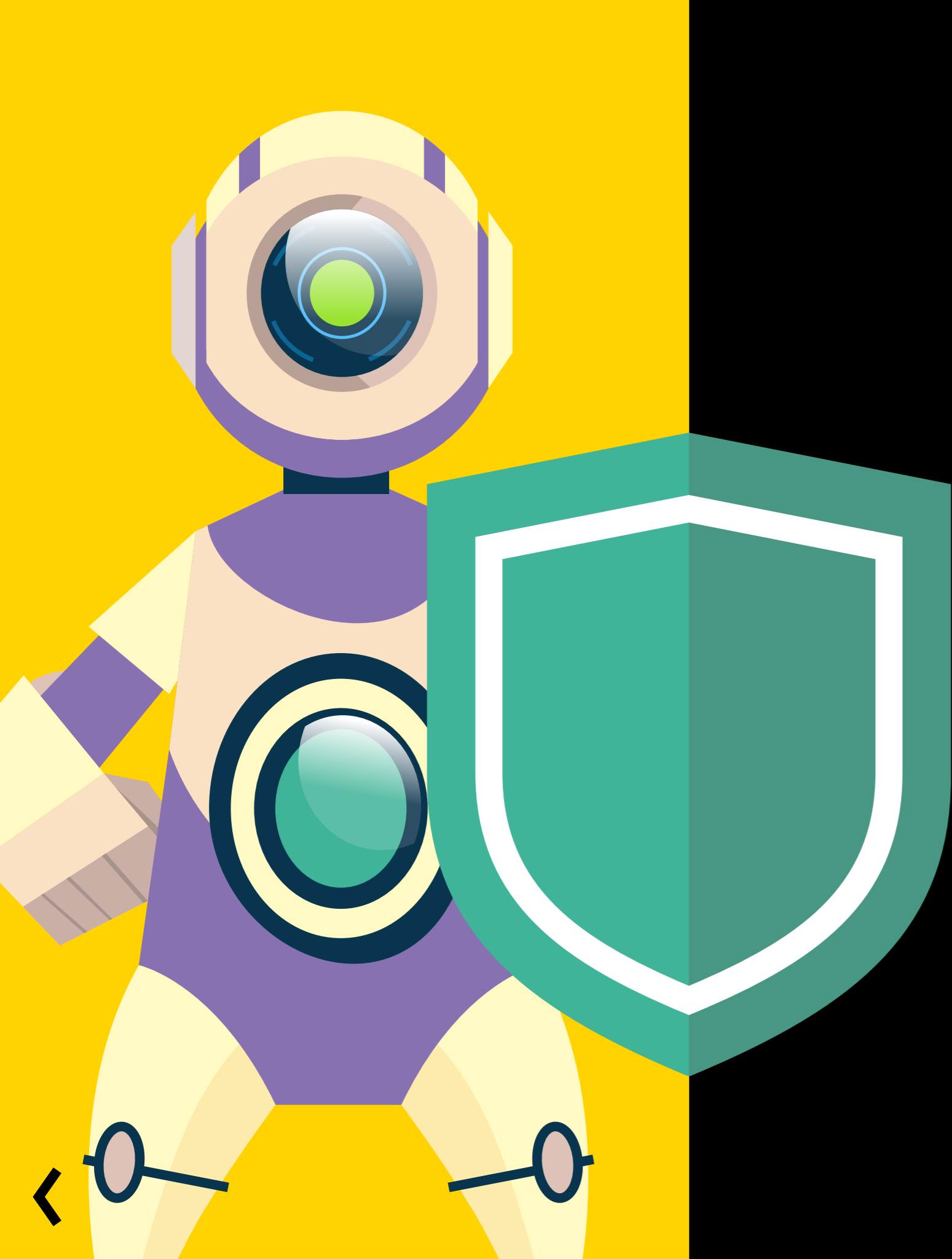
The myriad of choices available to today's consumers, while usually appreciated, can quickly turn communication into noise. Without appropriate guidance, consumers can feel overwhelmed and unable to make timely decisions. AI can help with targeted marketing outreach programs and product recommendations.

Transforming business processes

The most significant business moments – for example the completion of a purchase order – often have implications for multiple lines of business and supply chain partners. Machine learning, robotic process automation and blockchain have a role to play here.

AI can interrogate email and calendar data to see how teams work together. While natural language processing can extract billing amounts, account information, dates, addresses, and parties involved from the sea of unstructured invoice forms. Once the data is well-classified, a Robotic Process Automation (RPA) bot can take it and input it into existing accounting software to generate an order, execute payment, and send the customer a confirmation email, all without human intervention.





Increasing your digital resilience

As enterprises become more digitally dependent, AIOps (Artificial intelligence for IT operations) will be vital to automate the identification and resolution of problems, analyzing immense volumes of log and performance data. This will help enterprises to better monitor and manage dependencies within and between IT systems.

While AI-infused security will play a key role in identifying, preventing, and responding to an otherwise overwhelming volume of threats, complementing the work of highly skilled cyber analysts.

Ensuring the availability of high quality training data

Data is critical to success or failure with AI. Committing thoroughly to the application of AI means devoting more attention to improving data quality. That means preparing data more effectively and ensuring the company-wide data governance systems and centralized data lakes are in place. Critically, you need a culture that views data as a corporate asset.



**AI: transforming
the customer
experience through
mass personalization.**





AI provides us with real-time insights into customer behaviours, the ability to better segment audiences and create more responsive websites and contact centres to increase sales and satisfaction levels.



Mass personalization

Consumers today want to be able to self-serve – finding out information themselves via desktop or mobile websites and apps during a buying process. According to Forrester, over three quarters (77%) of consumers have chosen, recommended or paid more for a brand that provides a personalized experience.

Increased productivity

Chatbots can play a vital role in answering repetitive, predictable customer enquiries. This enables enterprises to deal with higher volumes of enquiries more quickly, increasing customer satisfaction levels.

Reduced friction

But this doesn't mean the contact center will go away. According to Google, 61% of searchers on mobile think it's important that they can call a business when they're in the purchase phase of the buying cycle.

Instead of replacing agents, AI enhances their skills and allows them to focus on customer interactions requiring deeper insight and analysis. AI-based analytics and routing classifies each call and places it with the most experienced agent in dealing with that type of issue. That agent can use an AI-driven corporate knowledge bank to search for the best answer based on the customer profile, history and context.

Pre-emptive services

Moving forward, the delivery of pre-emptive services is the goal. AI quickly surfaces problematic trends that may affect customer retention and loyalty.





AI: driving the era of mass personalization

PSA is the second largest car manufacturer in Europe and the ninth largest in the world. It produces cars, vans and trucks, sold under Peugeot, Citroën and DS brands.

Five years ago, PSA was struggling to determine the impact of its digital marketing actions on the number of leads and sales generated. Each of its brands was using a different web analytics tool and the data stored was of poor quality and inconsistent between brands and countries.

PSA worked with Orange subsidiary Business & Decisions to move to a new Data Management Platform – Salesforce DMP.

PSA wanted to understand key questions about prospects visiting its websites.

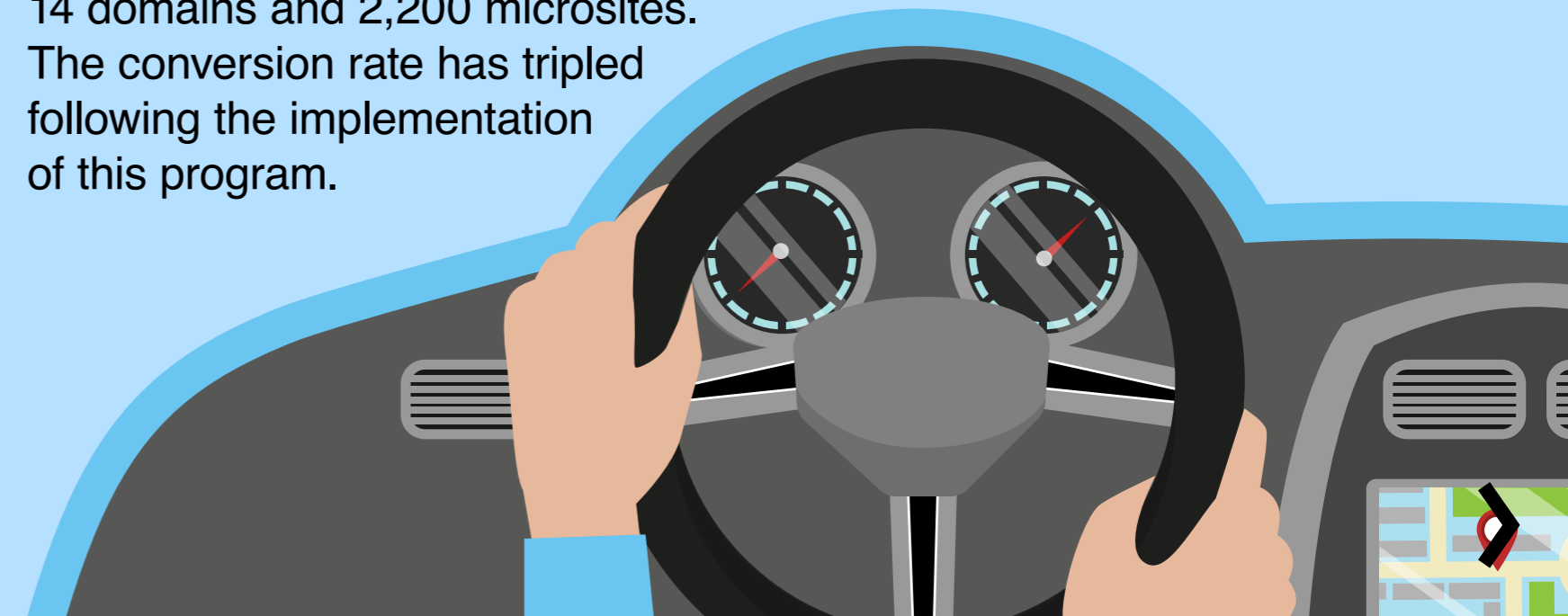
- Were they focusing on a single model?
- Did they demonstrate an interest in particular vehicle features?
Had they begun to configure a vehicle, but abandoned the process?
- Were they researching financing options?

We created a:

- Digital analytics factory: to process and tag data and evolve standards
- Data analytics coaching program: with training for local teams and subsidiaries
- End-to-end reporting: with the creation of dashboards and drill-down analysis

Today, PSA automatically assigns prospects to one of over 800 audience segments in real-time as they are browsing. This allows real-time content personalization across 14 domains and 2,200 microsites.

The conversion rate has tripled following the implementation of this program.



Self-help chatbots to improve the retail experience

Orange has provided a diverse range of chatbots to retailers, including a leading chain of DIY stores. Retailers typically have large product catalogues that can be difficult to navigate. Filters and search tools can be a rather clumsy solution. Chatbots come close to replicating the experience of a physical store, where you'd be able to simply tell the shop assistant what you're looking for and they'd take you there, before ringing up your selections and checking you out.

Bots can be categorized into four basic types:

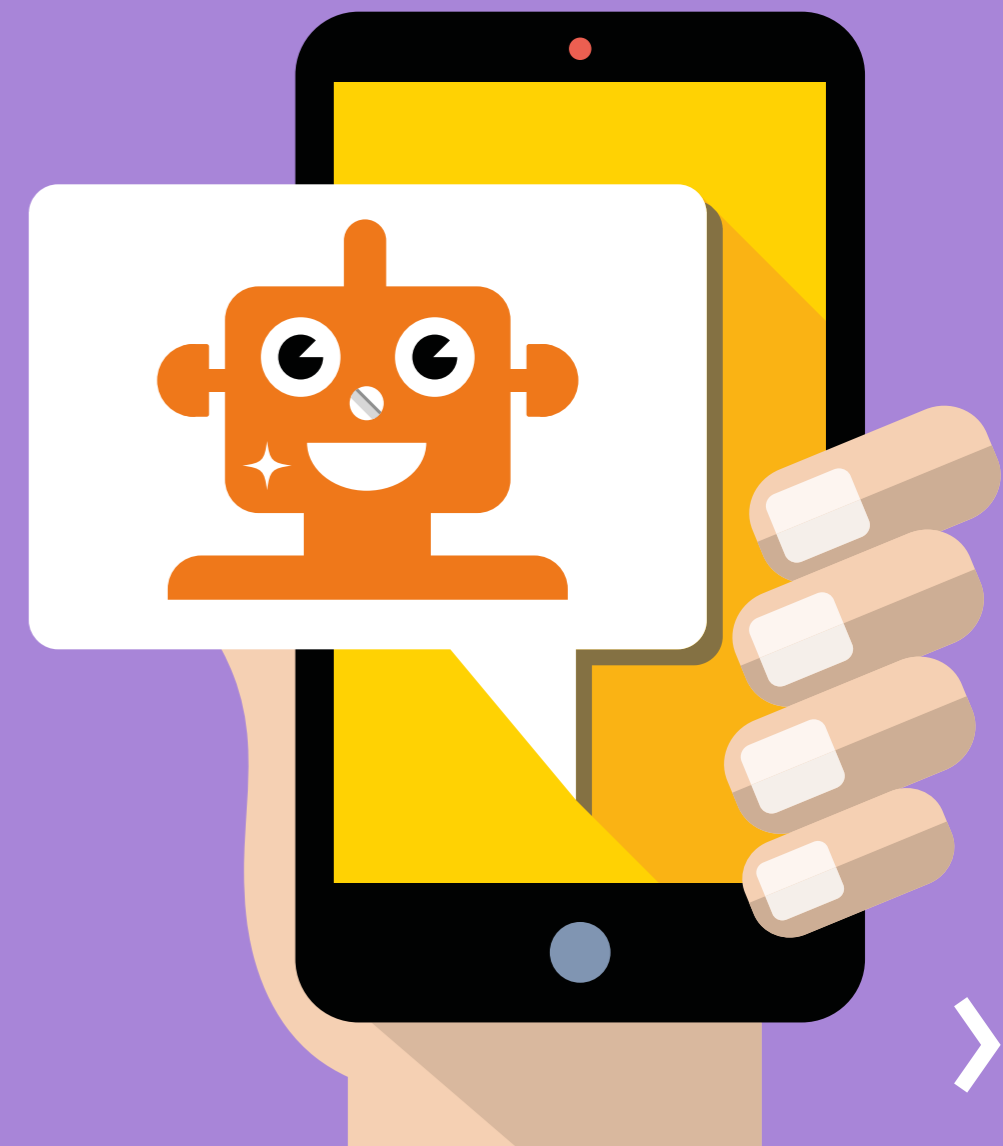
Scripted chatbots: Use “pattern matching” to look for key phrases in a conversation and give pre-defined responses from a FAQ (Frequently Asked Questions) database to the customer.

Intent recognition chatbots: Feature machine learning and can “guess” what the user is requesting, even if it's phrased unexpectedly. The relationships between words are taken into account to extract meaning. The bot is more human-like, able to detect and show emotions.

Virtual assistants: Use more advanced AI to follow a conversation history and recall contextual information for more human-like interactions. They connect to other systems to leverage user data and insights.

Virtual agents: Connect to back-end systems and has the ability to make changes and request information using robotic process automation (RPA). They can handle complex dialogs, business processes and security protocols.

We integrate our chatbots with messaging apps like Facebook Messenger and WhatsApp to reduce friction for consumers.



A virtual assistant to improve the banking experience

In France, we launched Orange Bank in 2017, with an app that integrates contactless mobile payments and real-time bank balances.

Customers can interact with their bank by text and voice 24/7 using Djingo – a virtual assistant that’s accessible via the banking app, smart home speaker or an Orange set-top box remote control. Djingo answers customers’ questions in natural language and performs actions, such as blocking cards that are lost or stolen.

With around 20 percent of customer conversations taking place outside traditional working hours, the chatbot meets the strong demand for a continuous service. Creating a successful, mobile-only banking service still requires an effective approach to omnichannel customer service delivery

Complex or high-priority requests, such as concerns about a potentially fraudulent payment, are transferred to a contact center agent who continues the conversation, accessing the history of the conversation so far and the customer’s file.



AI for better business processes

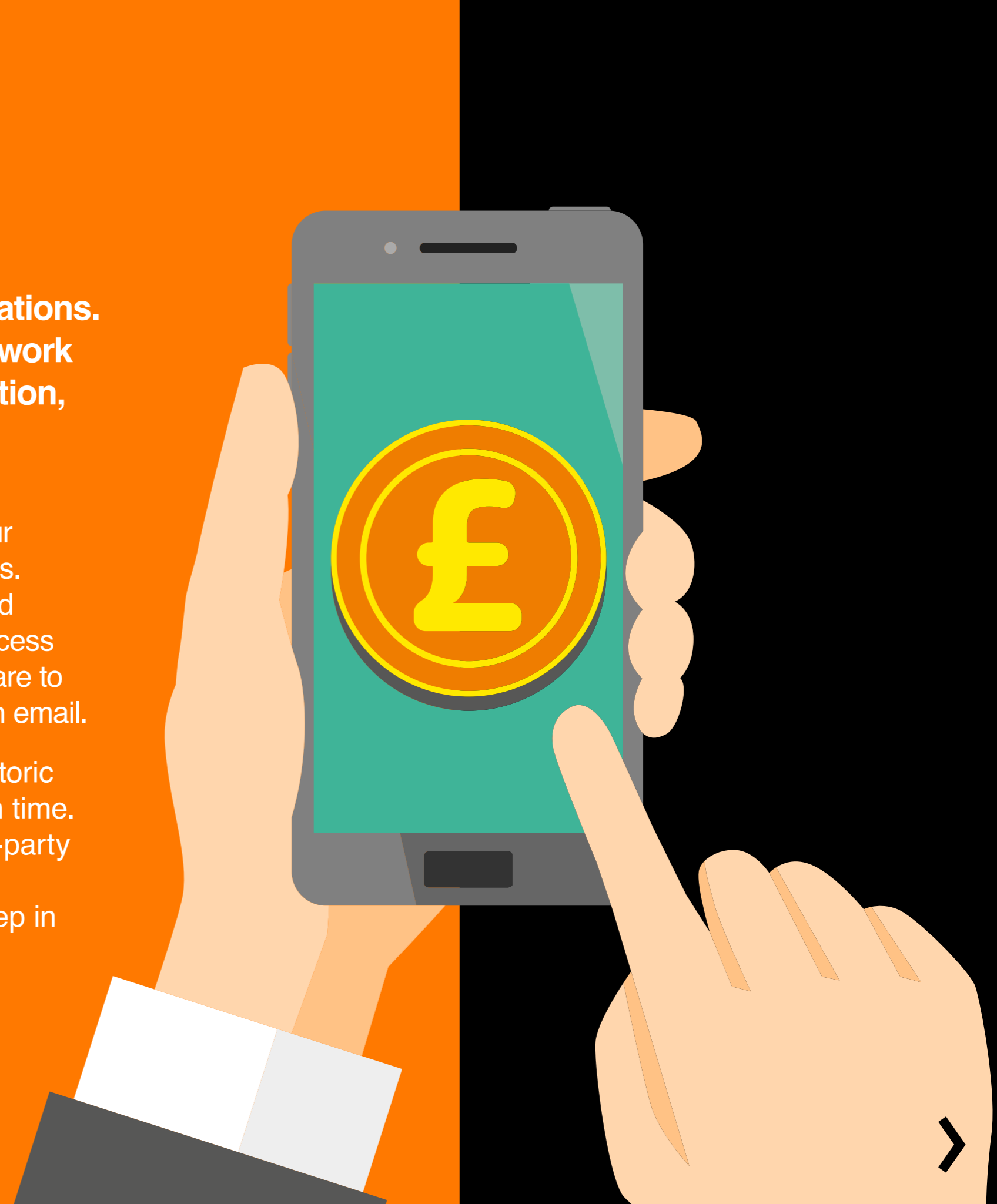


Automating the Quote-to-Bill process

AI is being rapidly adopted across enterprises' internal operations. There's a huge opportunity to get cross-functional teams to work together better. In combination with robotic process automation, AI is also vital to power business ecosystems.

Orange has used AI to create an automated Quote-to-Bill process flow and increase contractual agility for our customers. Quotes can be initiated by our customers directly via our portal or by us when delivering managed services. Using machine learning, we can spot incomplete and low quality quotes and proactively request clarification. Once the data is completed, a Robotic Process Automation (RPA) bot can take it and input it into existing accounting software to generate an order, execute payment, and send the customer a confirmation email.

We also use data science to predict the lead time to quote based on historic data. The first step is to analyze the drivers impacting the long quotation time. Are there any trends when it comes to the technologies, countries, third-party carriers or other factors? Then we apply machine learning algorithms to identify those quotes that are at risk of long quotation time so we can step in and remedy problems.



Workplace analytics to break down organizational silos

Workplace analytics provides a wealth of insights to make cross-functional teams and partner interactions more effective.

Email traffic and calendar metadata can tell us a lot about who is talking to whom, in what departments, what meetings are happening internally and with business ecosystem suppliers, about what, and for how long.

Orange has run internal programs to use workplace data to identify organizational inefficiencies and knowledge siloes.

We can find out the frequency of contact between departments, communications flows between individuals and correlate this with existing business processes and their effectiveness. This shows us where potential barriers or inefficiencies arise from – is it from the process itself or the organizational structure?

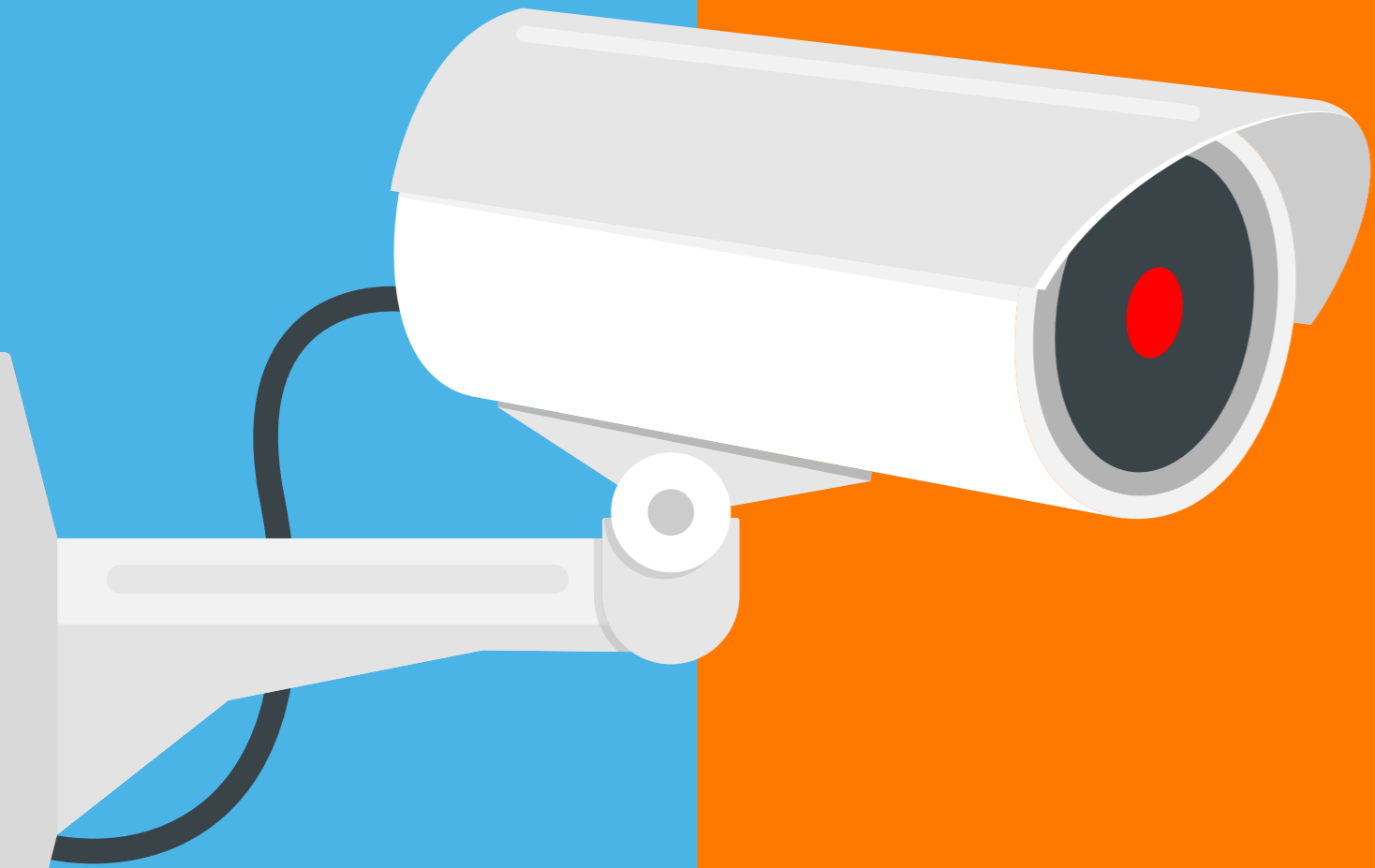
This data becomes essential when planning a major internal reorganization – enabling us to evaluate whether the new set-up has a risk of disrupting, enabling or enhancing the organic communications flows that are already in existence.

Understandably, there are privacy concerns about examining an individual's email or calendar, even in a work context. However, we were able to get powerful insights using anonymous metadata, where the individual names and specific content are removed.



**AIOps and AI for
cyberdefense to
ensure digital resilience**





Monitoring and managing diverse IT systems

For a company of any scale, keeping an eye on increasingly complex digital systems takes a lot of effort. You end up with a fragmented picture of what's going on with lots of dashboards, lots of monitoring and lots of alerts.

Intelligent monitoring overcomes this problem by analyzing the connections between the IT infrastructure and network and how they underpin applications.

Whether it is a slow-down in traffic or an outage, the priority of an incident is now determined not by a raw technical measurement of severity, but by its impact on what employees are trying to achieve.

AIOps enables this business outcome-driven approach to IT service management. By leveraging multiple data sources and identifying patterns and anomalies, AIOps can be used to pinpoint the root cause of problems. Ultimately, this is the path towards more self-healing, self-optimizing and self-learning IT systems.



Better digital experiences with chatbots for self-help IT

The first step in intelligent monitoring and management is providing smart self-service access to IT. AI is helping here.

For example, we've worked with the International Committee of the Red Cross (ICRC). The ICRC has 16,800 staff in over 80 countries, helping people affected by armed conflict and violence. Digital tools are vital to enable its staff to get resources and support where they're needed most. We piloted an ICRC chatbot to automate and accelerate the handling of routine IT service desk requests.

Between 30 and 50 percent of Level 1 help desk support call are repetitive, routine enquiries in a typical company. The chatbot creates and updates incidents, handles password reset requests and searches the knowledge base to talk users through problems.

It could be combined with a virtual agent or AI worker which can completely resolve an incident or service request or do some pre-processing to help a human agent resolve the ticket. For example, if a service agent requests the IT helpdesk bot to "Increase disk space", "Unlock my account", or "Reset password" for a user, the AI worker would automatically execute those commands on the back-end and update the ticket for the end customer.





Self-healing and optimizing networks

In today's digital economy, every business is in the software business. Slow running cloud applications impact employee productivity, customer satisfaction and your bottom line.

The increasing use of real-time data analytics and AI is creating a path towards the self-healing and self-optimizing network.

Software-defined WANs (or SD-WANs) enable you to use dual Internet links to maintain an agreed Quality of Service for each and every cloud application. If there is congestion or an outage on one route, traffic automatically switches across to the back-up Internet service.

The nature of SD-WAN envisages a massively increased number of

Internet Service Providers supporting an enterprise around the world. In our SD-WAN pilots and deployments, we're typically managing 500 network resources and need to calculate millions of events per minute. This means hundreds of millions of logs are produced each day. It wouldn't be possible to analyze these logs manually. AI is providing assistance here.

Our Customer Service Assurance tool uses AI to sense a problem, providing a 30 to 60 minute lead time to fix potential network problems before they hit. Solutions include an automatic switch-over to the back-up link or a manual intervention may be required in more serious situations. Fixing the problem in real time ensures that end-users see no slow-down or interruption in their cloud service.





The era of AI cyberdefense wars

AI is also vital in the fight against cybercrime. Legacy approaches to cybersecurity – which rely on knowledge of past attacks – are simply not sufficient to combat new, evolving quickly enough.

Security analysts in enterprises today face exceptionally high volumes of attack. They frequently report feeling fatigued by the high numbers of false positives, which is a source of error and employee churn.

Cybercriminals are starting to use AI bots to mine data to identify and extract sensitive IP or pinpoint the areas of weakness in an enterprise and carry out a series of rapidly coordinated attacks.

There continue to be lengthy delays between enterprises being attacked, the breach being discovered and then resolved. The Ponemon Institute reports that last year it took a typical enterprise 97 days to discover a breach and 69 days to contain a data breach on average.

A fundamentally new approach to cyberdefense is needed to detect and respond to threats that are already inside the network – before they turn into a full-blown crisis.



The next generation CyberSOC

Enterprises need to develop more advanced cyberdefense capabilities to give skilled staff more time for the complex, judgement-rich tasks that are required to mitigate attacks. A next generation, AI-driven managed CyberSOC provides the ability to:

Mine diverse data sets

The ability to interconnect data from multiple operational and IT systems, in addition to IoT and mobile security platforms, as well as external threat intelligence sources is key.

Use AI for threat clustering

AI tools baseline multiple data points to detect anomalies and “weak signals” that suggest an attack may be underway and cluster these threats. What AI brings is the ability to learn and constantly adjust over time.

Generate context-rich alerts

An AI-powered CyberSOC provides an analyst with the full context about the security alert with graphs visualizing the systems with which an infected device is communicating. It helps analysts to understand the threat holistically.

Provide a more automated response

A combination of human and machine power is still required to define, prioritize and drive incident response activities. Automation can recommend next steps to speed investigations and remediation, but protecting a business requires the acumen of a human.

Data retention

It’s also vital to be able to keep data logs in compliance with data sovereignty and data privacy rules for a sufficient length of time to enable retrospective forensic analysis.



Depth of defense – blending human and AI talent

Orange Cyberdefense was working with one enterprise recently which was under attack by hackers. Their instinct was to shut down the traffic flows.

But we advised them, if you do that, you'll alert the criminals who'll find a work-around. Instead, our Incident Response team suggested checking web browsing logs and other sources to identify where the attack was coming from and which tools and systems were compromised.

Finally, we were able to identify who the attackers were and cut access to all the accounts and tools they were using in seconds, without giving them a chance to find a workaround. We discovered our customer was not the target of the attack, but cyber criminals were using their servers via a shared service provider to steal information from another organization which was also using the provider.

Our epidemiology lab was able to quickly detect and mitigate the attack, monitor the malware, while identifying its source and where it was spreading. This sort of skilled work by a cyber analyst or forensics team will still be needed in the era of AI.



**Getting a handle
on your data to
prepare for
this new world**



Ensuring you have the right data inputs

It's impossible to create output from an AI framework without the right data inputs. Data and AI are critical to enable companies to make good decisions about their products, services, employees and strategy. In light of this, business leaders need to ask themselves:

- Are there large amounts of accessible data, relevant to the business problem to be solved or opportunity that needs to be explored?
- How clean is this data, how frequently is it collected, and by which routes can it be made accessible to team members?



Big data fabrics to combine many data silos

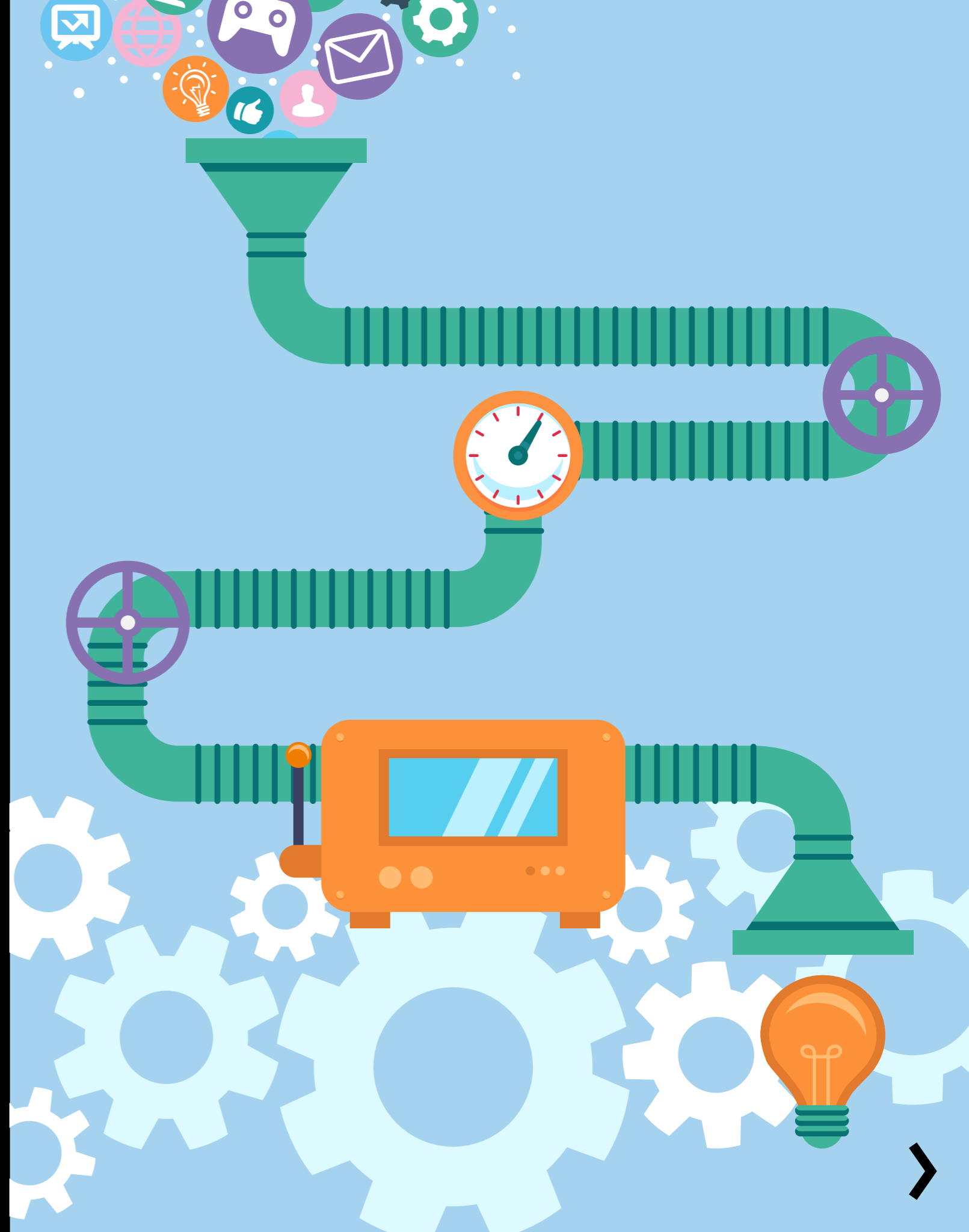
The ways in which we index and search data needs to change. A more advanced data management and integration software layer enables users to manage and query data in multiple underlying cloud platforms.

Often, data is siloed across multiple data warehouses, data lakes, databases, document management systems – as well as external sources. A more flexible data fabric overcomes this issue. It registers the timestamp, format (or source type) of the data and where it's hosted. More sophisticated processing is done on the raw event data at search time using machine learning.

A data fabric enables different people to ask different questions of that same single, logical data instance and get completely different answers that are tuned to their use-case and their business need.

Using a distributed architecture – a type of federated machine learning – you can run queries on live data and time-series historical data very fast to discover new operational insights.

For example, we've worked with a world leading automotive manufacturer to use data fabric technology to build a global analytics platform that dozens of departments around the world can use.



AI is dependent on the relevance and quality of your training data



Collect

The first step of the journey is to locate and collect the data. Orange already manages 15 million connected objects and is skilled at combining IoT and external data to generate new insights.



Transport

Thanks to our expertise in business, mobile, virtualized and subsea networks, we get your data in the right place at the right time for analysis so that the cloud and IT user experience remains optimal, all around the world.



Store and process

We develop cloud platforms and software solutions to facilitate the exploitation of data by AI tools. We manage our own data centers in accordance with the data privacy governance rules in Europe and other jurisdictions around the world.



Analyze

Our data analysts are skilled in using AI to extract and decipher insights from considerable volumes of data to help enterprises with decision making.



Share and create

We also enable our customers to share AI data insights and create new value with them through customer-facing applications. Our “collaborative workspace” solutions – including social enterprise network platforms – facilitate the exchange and sharing of insights between teams.

While our expertise in contact center management and Customer Relationship Management systems enables AI-driven personalized web experiences, allowing the optimization of multichannel customer touchpoints.



Protect

Data protection, confidence and governance are of major importance to Orange Business Services. We analyze over 30 billion security events a day, preventing attacks by cleaning and securing traffic wherever possible and mitigating the impact of those already in progress.



Every business will soon be an intelligent business in the same way every enterprise is a digital enterprise. If they don't become intelligent, they will simply cease to exist.

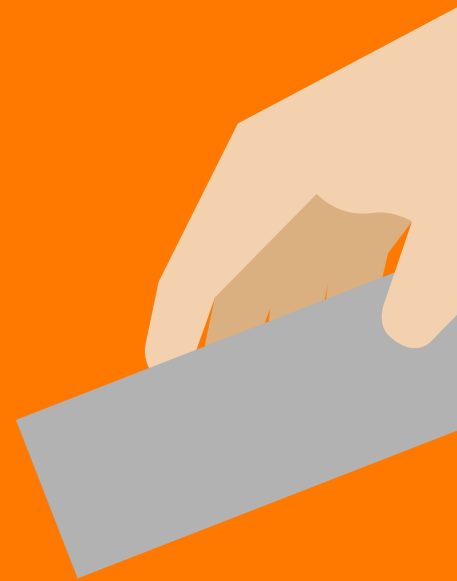
This makes it vital to empower the creativity of knowledge workers in the smart enterprise. AI can be effectively used to assist and augment humans, not replace them.

AI is great at solving specific, well-defined problems. You need AI applications to work smart, to take advantage of your

data, to learn about and improve on your past performance and help you predict the future.

Finally, it's important to be both digital and human – to use technology to free up employees' time to reach personal fulfillment in their jobs and reach new heights of human progress.

Taking your next steps to an AI world



**Companies thrive on innovation.
We work to shape yours.**



Want to know more?

To find out more about how we can help you with your digital transformation strategy, please contact our digital consulting team at consulting@list2.orange.com

