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HOW COMPANIES ARE ADAPTING TO AI & CO.

The Technology Revolution: Mastering the Challenges of Radical Change

By Dr. Dominik Krimpmann

Yesterday, chatbots. Today, video AI. Tomorrow, a seat on the board? Technology is more important than ever. Generative AI has disrupted the market at a pace that was unimaginable until recently. Meanwhile, the cloud is paving the way for more technological revolutions. These developments are radically changing how companies work – from product development right through to aftersales. What are the organizational and operational factors that you should consider if your business is to generate value going forward?

Suddenly, everything started moving incredibly fast. After decades of AI research, the Large Language Model ChatGPT was launched in November 2022. What came next was a wake-up call and heralded the dawn of a new era. In just five days, five million users signed up for the tool. They used it to write essays for school, develop business plans, draft letters to lawyers, and provide support with programming. And in just a few weeks, the technology had swept through society and the economy like wildfire. It has changed our daily lives and is now disrupting long-established business processes. Generative AI, a term formerly unknown outside scientific circles, is now part of our everyday vocabulary.

AI has made it very clear what exponential technological growth feels like – and how fundamentally it impacts strategies and decision-making processes. In the future, this radically different pace will become the norm. And one of its effects will be to transform the role of CIO.

Unlimited IT Resources for All

It's worth noting that none of this would have been possible without another revolution: the cloud. Initially, companies used the cloud as a way of radically reducing costs by outsourcing servers, data storage, and networks. Today, it has a much higher strategic value, offering organizations almost unlimited processing power. According to IDC, one in four German companies already use the cloud to gain rapid access to innovative technologies such as AI. Additionally, Accenture Research has found that companies that use the cloud to transform their business models and products develop innovations up to three times faster than their competitors. Most future business models and sources of revenue are likely to be based on the cloud.

Keeping a Cool Head in a Fast-Paced World

These developments show that we've now entered an "exponential age of technology". And this brings with it the danger of companies finding themselves overwhelmed, especially in Germany. Given the current unpredictable business environment and increasing global competition, managers are looking for ways to boost their resilience against a backdrop of uncertainty. At the same time, they want to secure their future by driving innovation and developing business opportunities. To master these challenges, they must implement revolutionary technologies and completely rethink processes while maintaining ongoing operations.

But Where's the Added Value?

Another challenge faced by companies is the value gap. Many decision-makers, from CEOs to CFOs, are unsure which of the countless innovative cloud services and platforms offer true added value. And most companies still have no use cases for their specific business. Often this is simply because technologies, ranging from AI to the Industrial Internet of Things, are seen as a matter for IT and are therefore only touched on at board level. That's something that has to change.

> "Every board should include a seat for a Technology Steward."

Five Key Pieces of Advice

Nowadays, every company – from consultancy firms to retailers – is a tech company. Managers and employees alike must adapt to this. To remain competitive in this new environment, you should consider the following points:

1. Accelerate Innovation – Shorten Project Times

Military conflicts, inflation, disruptions in the supply of raw materials: Geopolitical and macroeconomic uncertainties have been on the rise for years, and the situation looks unlikely to change. New technologies are key to enabling rapid responses to changing markets and the swift adoption of new business models.

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But lengthy implementation projects are not the way to go. In the past, a planning horizon of five to seven years was the only option. Today, this approach is totally out of tune with business reality. Projects that run for more than two years often prevent organizations from reaping the added value they'd hoped for. That's hardly surprising when what originally appeared to be an innovation is already outdated by the time it goes live – or turns out to be nothing more than hype.

> "Lengthy technology projects don't meet today's entrepreneurial requirements."

Standardized and rapidly adaptable cloud services enable enterprises to avoid these pitfalls. Here, it's important to identify the points at which your project can be broken down into smaller subprojects, each delivering its own quick wins. For example, instead of redesigning the entire supply

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chain at once, start out by redesigning material requirements planning, then tackle procurement, and so on.

2. All for All – Democratize Technology

Many companies subscribe to the long-outdated but still widely held belief that the business units' job is to take care of the business while the IT department makes sure that hardware and software keep running. But in today's world, this dogmatic approach poses entrepreneurial risks. Technology is now at the heart of every business process. And this means that each and every employee must get to grips with it. How can generative AI help with developing a go-to-market strategy? Or drafting legal documents? Or analyzing business models? These aren't questions that the IT department can answer; the answers must come from the relevant business units. In fact, these units can often implement suitable solutions right away – in line with clearly defined compliance and governance rules, of course. And if there's currently no suitable solution on the market, they may use low-code/no-code tools to create one of their own.

At some companies, this paradigm shift is coming about almost as a matter of course. But don't assume that this is always the case. Be sure to communicate the new expectations to your employees and provide the tools and learning resources they need to meet them.

3. Break Down Silos – Build Multifaceted Teams

As new technological options proliferate, the time available to evaluate and test new technologies and use them to shape new processes is becoming increasingly scarce. Traditional organizational structures are simply not up to this. What companies need instead are multifaceted product teams that draw together experts from across the company. This provides you with the necessary 360-degree view. The team's task is to quickly assess the impact of a specific tech project on other business units and processes, and to reach an immediate decision.

"Multifaceted" doesn't just entail complementary skillsets and experience, but also diverse mindsets. In an era of exponential technological progress, this is often more important than decades of expert knowledge.

4. Hire for Mindset – Not for Skills

By contrast, up-to-date tech skills are among the very scarcest resources. Virtually all companies are vying to attract the few technology experts on the market. There's not much you can do about this situation, but you can change the way you deal with it.

Skills and knowledge are becoming obsolete faster than ever before. Every training program and curriculum lags far behind the market. As a result, your applicants' qualifications are less important than they were just a few years ago.

> "There's not much we can do about the shortage of skilled workers, but we can change how we deal with it."

Today, what counts is mindset. Companies need talented people who embrace change, people who are enthusiastic about technological trends and eager to try out new things. Adapt your recruitment efforts to reflect this – because this will be the core competency of the coming years. Talents of this kind become influencers, spreading their enthusiasm for technology throughout the organization – even among team members who may be reluctant to embrace change.

5. Changes at Board Level – Giving Technology Stewards a Seat at the Table

To reiterate: Technology can't remain a matter for IT departments alone. It's an integral part of your business. In view of this, it's not just the business units that need a change of mindset, but above all the Management Board.

Every company needs a technology steward who can gauge whether planned technology projects can actually deliver the desired added value and whether they're a good fit for the company's existing architecture. Ideally, this steward should have a permanent position at the highest management level, but that's not always possible or at least not at once. In such cases, the minimum requirement is that the steward be on an equal footing with the Management Board in discussions and have the power to approve strategic decisions from a technical perspective. So, this is more than merely an advisory role.

Operational Implementation – Notes on the Cloud Strategy

So much for strategic considerations to address the sheer volume of disruptive technologies and the speed with which they're coming onto the market. As shown, artificial intelligence and the cloud hold the greatest potential because they pave the way for further innovations. This is where your operational priorities should lie if you want to generate maximum benefit in as little time as possible.

> "Use the evergreen principle wherever possible."

When it comes to the cloud, the focus is on scaling across the entire enterprise:

- Map your business processes via standardized cloud platforms wherever possible. For some 80 percent of processes, this has long been easily achievable. Only depart from the standard for processes that are real differentiators and give your company its competitive edge.
- Establish a workflow for running structured checks on the deluge of new cloud services and discuss their business potential with the relevant decision-makers.
- Use the evergreen principle: Cloud providers regularly deliver innovations within the scope of their services, automatically keeping you up to speed with the very latest technology. This saves resources, but it calls for a different form of change management.

> "The bottom line: AI must deliver tangible business value."

Generative AI: The Time for Experimenting Is Over

While cloud platforms are well established, investment in generative AI is still in its infancy. In fact, 73% of German companies plan to increase their spending on data and AI projects this year. But what should you bear in mind when it comes to implementation? In the past twelve months, Accenture has completed more than 1,000 GenAI projects worldwide. Based on our experience, we recommend the following:

Enter into partnerships with universities, think tanks, or technology companies. This will help you gain a better understanding of the opportunities, limits, and risks associated with AI. It will also help increase your company's AI maturity.

Forget the experimentation phase and go all out on AI projects that you can and want to scale going forward.

Only implement projects that deliver genuine added value for your customers. Too many initiatives only appear groundbreaking or exciting at first sight. So, be sure to consider EBITDA before every project.

Real-World Examples

Businesses are staking their claims in AI right now. Over the coming 12 to 18 months, they'll be aiming to drive forward and scale up their AI projects as quickly as possible. This is the general trend in view of the speed with which many technologies are transforming our world. Companies that keep on trying to perfect new products and processes before rolling them out will be left far behind, with no chance of catching up with the competition. The following pages give you an insight into big-name companies' technology projects and show how these companies are addressing the new normal. You'll also learn more about the work of the CIO of tomorrow. I hope you'll find this inspiring reading.

The author

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Further insights and practitioner perspectives can be found here: Tech.Rulez.Period!

How ISS Is Transforming Facility Services with the Cloud, IoT, and AI

By Markus Sontheimer

In just three years, Danish facility management services group ISS, which has over 350,000 employees, has taken its digital transformation to a new level, turning a small IT support function into a global, agile IT organization. Technology is now a clear USP for the ISS brand. Digital products developed in-house complement the group's traditional services of cleaning, food services, facility management, and workplace experience. None of this would have been possible without the cloud, the Internet of Things (IoT), and AI.

Technology Leadership in a Non-Digitalized Industry

With a history dating back 120 years, leading provider of integrated facility services, ISS, is one of the 40 biggest private sector employers in the world, with more than 350,000 employees in 30+ locations around the world. Equipping the workforce with digital tools offered the potential to bring vast improvements for both people experience and operational efficiency throughout the company.

However, there were also significant challenges associated with this. These included a major financial setback in 2020 due to the coronavirus pandemic, a cyberattack, as well as uncertainty among customers about whether the future of the workplace would be more home or office based. The facility services market is complex, diverse, margin sensitive, and not digitalized for the most part. It is also difficult to recruit specialists and retain them in the long term. In addition, due to the increasing focus on sustainability and climate neutrality, ISS aims to transform the more than 50,000 buildings in its service portfolio into sustainable places.

In 2021, therefore, the Supervisory and Management Board committed to the goal of making ISS the technology leader in the facility services industry and developing ISS Smart Tech for people, places, and the planet.

The Interplay of IT Strategy, Organization, and People Focus

Our digital strategy is based on three pillars:

1. The global ISS tech team provides customers and employees with intuitive digital solutions, such as a smart.cleaning app for the scheduling and management of shifts and tasks. It also developed the MyISS platform, which gives every employee a digital identity and access to various services.
2. ISS tech products are offered on a scalable and cyber-secure cloud-first infrastructure.
3. The company's globally integrated tech team is responsible for developing and managing a modular ISS Smart Tech Ecosystem. The three central tech team locations comprise the newly opened Technology Center in Porto, which focuses on software development, the hub in Warsaw, and the Group headquarters in Copenhagen.

> In addition to cybersecurity, cloud platforms are the key to a stable, secure, integrated, agile, and scalable IT infrastructure.

A successful digital transformation relies on close cooperation between IT and the other departments within the company. Ensuring that IT management is represented on the relevant boards is crucial to ensure fair and equal cooperation. The global CIDO is therefore an integral member of the international company's central Executive Group Management team. There is also a CIDO in each region and each country organization as part of the regional or local management team, with a direct reporting line to the global CIDO.

ISS pursues a product-oriented approach, meaning that an agile product team accompanies an ISS service product throughout its life cycle. IT and tech employees are represented in these teams, which helps to ensure close cooperation between business and IT across all levels. For IT, qualitative criteria such as satisfied users and, where developed for external customers, the commercial success of a product are much more important than the number of features or components developed.

As a people company, ISS believes that people make places and places make people. With more than 350,000 employees worldwide, creating a sense of unity and belonging is a major challenge. Technology can play a key role in this, which is why ISS set up the global platform MyISS. Available as an app or website, MyISS offers a central platform and resource for accessing the latest news, tools, and information, and learning more about the corporate culture and values. So far, it is available to 125,000 users, and more rollouts are to follow this year. MyISS has replaced local, sometimes unmaintained platforms and is constantly delivering new features, such as payroll accounting, office news, and events.

Over Ten Countries Have Already Migrated to the Cloud, with More to Follow in 2024

In addition to cybersecurity, the cloud is the key to meeting customer demand for a stable, secure, integrated, agile, and scalable IT infrastructure. A global bank, for example, expects all of its service partners to comply with the highest cybersecurity standards and zero risk when sourcing digital

ISS' strategic approach to digital transformation:

- **Digital transformation as a differentiation strategy:** ISS has evolved from a company with traditional IT support to an agile, technology-driven organization. This move has clearly set the ISS brand apart and added digital products to the offering.
- **Establishment of a secure and scalable IT infrastructure:** ISS is pursuing a cloud-first strategy to create a flexible, scalable, and secure environment for its digital services. This will enable the company to adapt quickly to customer requirements and use resources efficiently.
- **People experience:** Digital solutions promote a sense of belonging and unity among the more than 350,000 employees worldwide. With MyISS, ISS has created a global platform for the sharing of experience.
- **Integration of AI and IoT in facility management:** Using IoT and AI enables data-driven facility management to optimize operational processes and set new standards in service.

Technology to Reimagine the World of Work: ISS Smart Tech 4 People, Places & the Planet. *Source: ISS*

solutions from ISS. The fact that ISS solutions are hosted in the cloud is a big advantage.

ISS therefore continues to invest in state-of-the-art cybersecurity technology and a cloud-first architecture. Ten countries are already in the cloud, with more to follow this year, business case permitting. The use of cloud services that can be individually adapted to customer needs offers many advantages. For instance, cloud platforms offer scalability and agility, meaning that services can be provided quickly and capacities easily increased or reduced without the need for long-term investment (sunk costs). This is an important factor both for the company itself and for customers. In ISS' experience, the cloud is also more cost-efficient in the long term in most cases.

From a central cloud transformation office, ISS conducts analyses in conjunction with the country locations and then manages the migration.

Data-Driven Facility Management with IoT in Buildings

As the largest cleaning company in the world, with more than 40,000 customers, ISS expects its services to be of the highest quality and efficiency. IoT plays an important role in this as the company is equipping customer buildings with sensors to work smarter and more efficiently. With many airports, hospitals, factories, and office buildings in the company's international portfolio, the data from the sensors can be used to analyze and optimize business operations and increase customer satisfaction.

ISS' customers want to leverage the data to understand their buildings and employees better and to save costs and energy. ISS' Building on a Page solution is the control tool for data-driven facility management. The customer sees the most important information and live data about the building on one interface, the 'page'. Key figures for the buildings include occupancy rates, financial data, and sustainability metrics. ISS is currently also working on an AI feature that will provide automated answers to user questions.

Artificial Intelligence Boosts Productivity and Employee Experience

The topic of artificial intelligence is currently dominating the world of technology and business. In the facility services industry, ISS sees enormous potential in redefining energy management, improving building sustainability, enhancing the workplace experience, and increasing operational efficiency. To gain maximum value from this disruptive technology, however, it is essential to develop a sustainable strategy, prioritize use cases, and put in place the necessary capabilities. To this end, ISS has launched a global AI program involving employees from across all departments and regions, which aims to consolidate AI use cases, promote collaboration and knowledge sharing in an AI community, and build a global AI portfolio.

> In order to use AI successfully and responsibly, ISS has launched a global AI programme that brings together employees from different functions and regions. The aim is to develop and consolidate AI use cases, promote collaboration in an AI community and build a global AI portfolio.

AI will continue to be incorporated within ISS' digital products for employees and customers wherever it offers tangible benefits and where responsible use can be assured. The company has a strict policy to use AI in the workplace only if it promotes unity, encourages human creativity, or supports well-being.

This might include, for example, developing chatbots based on generative AI for contract drafting (e.g. "Which services are included in this contract?") or to support sales with the creation of text for quotations and tenders.

AI is also embedded in the company's Workplace Experience app. In a hybrid working world, encouraging employees to spend more time in the office can be a challenge. The Workplace Experience app was developed with these new ways of working in mind and to connect people with each other and their workplaces. The app is used by customers, but is also used in ISS' offices. Employees now have the digital office in their pocket. The app's features are designed to improve wellbeing, engagement, community, and productivity by offering room and desk booking, indoor navigation, and event information, for example. With the support of Microsoft and other partners, the app is continually updated with additional AI-assisted features; for example, for office visit forecasts or with chatbots that improve onboarding or make day-to-day work more productive.

After three years of digital transformation, ISS has found that a clear digital strategy not only helps to improve internal processes and the employee experience, but also supports sustainable business development and differentiation from the competition. The strategic use of the three technology pillars cloud, IoT, and AI is key.

The author

Markus Sontheimer *is appointed Chief Information and Digital Officer (CIDO) of the Danish ISS Group in 2021. In this role, he is responsible for managing the facility services group's digital transformation into a technology leader. Prior to joining ISS, he held many leadership positions including CIO/CDO & Member of the Management Board at DB Schenker, CIO Group Finance GT at Deutsche Bank, CIO Financial Services and Global Mercedes-Benz Sales at Daimler, and CIO Daimler Financial Services Europe, Africa, and Asia Pacific. He has a degree in industrial engineering from Esslingen University of Applied Sciences and lives with his family in Stuttgart.*

On the Right Track: How Deutsche Bahn is Using Artificial Intelligence to Optimize its Service and Operations

By Arlene Bühler, Tanja Schlesinger, Kristina Sahling

Punctuality, customer satisfaction, and a shortage of skilled workers: These are the key challenges currently facing Deutsche Bahn. How can digitalization, automation, and targeted deployment of artificial intelligence (AI) help master them? As the following insight into Deutsche Bahn's digital transformation shows, there are many applications where AI can play a role – ranging from routine processes to AI-driven process optimization right through to AI-driven analysis of social media channels.

These days, rail is more popular than ever. Passenger numbers are rising, and the share of rail in freight transport is set to increase to 25 percent of the modal split. But this rise in demand must contend with an infrastructure in need of renovation and with a growing shortage of skilled workers. That's why German rail operator Deutsche Bahn (DB) is shaping up for the future by embracing digitalization and automating various processes in different business units and areas of work.

Machines and AI are helping DB offset the declining number of skilled workers – for example, by automating time-consuming routine checks, such as manual inspection of freight car tarpaulins. This lightens the load on employees, freeing them up to focus on more value-adding, varied, and interesting tasks. Data analyses help further enhance the quality of DB's services and provide passengers and companies with even better information.

How AI Is Driving Customer Satisfaction

Data Power and AI Enable Highly Complex Real-Time Analyses

With some 4.65 million passengers daily, DB Regio is Germany's market leader in regional and local public transport and plays a pivotal role in the German mobility landscape. The DB Regio network is an important backbone for green mobility in conurbations, large cities, and rural areas.

Every day, DB Regio's operations generate millions of data points – from sources including train operations, maintenance work, and customer feedback. The company leverages this data to ensure that its business processes and customer solutions are sustainable and efficient. Information from all business units is provided to the cloud-based data, analytics, and visualization platform OneSource in accordance with defined standards. And the quality of the data from the source systems is subject to AI-based checks.

This ensures a transparent source of consistently high-quality data for analytics and AI applications throughout the company. To ensure the technical accuracy of this data, DB Regio has also implemented a data governance system, which encompasses all the people, processes, and technologies involved and ensures that data is used effectively for maximum long-term value.

> „Customer satisfaction, increased capacity, AI analyses: To better manage these challenges, a sound base of quality data is essential. That calls for a standardized data platform, which can function only if there's an end-to-end quality control system for data – one that spans the whole company."
>
> Tanja Schlesinger

At DB Regio, it's particularly important that data is available rapidly and reliably, especially for highly complex real-time analyses, such as scheduling of trains with tight timing and complex structures. A data-driven application supports planning processes by accurately forecasting the impact of scheduling interventions and enabling AI-driven optimizations. This avoids waiting times and congestion on busy routes and has helped reduce total delay times by 58,000 minutes over the past year.

Innovative Analytics Tool for Optimized Passenger Information

Passengers on regional and local transport place great value on being kept up to date about train arrival times, delays, cancellations, and alternative travel arrangements. Timely and consistent passenger information is therefore key to achieving high levels of customer satisfaction.

Transparent processes and comprehensive data analyses are used to identify information gaps and quality issues in communicating information. The aim is to understand which sources of information (for example, the DB Navigator smartphone app) passengers use at which point in their journey.

A multidimensional analytics tool delivers insight into how customers rate criteria such as the timeliness, comprehensiveness, and reliability of forecast times. The tools also shed light on differences in perception between commuters and leisure travelers, and between passengers on suburban and regional transport. Continuous improvements in passenger information will make rail a more attractive travel option and increase customer satisfaction.

Targeted Customer Communication – Also in Social Media Channels

To ensure that data is used optimally and to support sound decision-making, the Regiolytics dashboard tool visualizes extensive analyses of social media channels, providing a digital picture of customer communication and interaction. Regiolytics has shown, for example, that AI-generated suggestions for day trips achieve significantly better results and considerably improve user engagement – reducing the bounce rate by 50 percent, increasing average visit time by 50 percent, and doubling user loyalty. In this way, Regiolytics supports data-driven decision-making and helps tailor content to customer needs more effectively, creating content that is more relevant for customers and optimizing the use of resources.

These examples illustrate how DB Regio is addressing the lack of skilled workers and making regional and local transport a more attractive, environmentally friendly, and sustainable option. DB Cargo is also successfully leveraging data and AI to play its part in Deutsche Bahn's Strong Rail initiative.

Improving Efficiency and Transparency with AI

Leveraging AI to Drive the Digital Transformation of Rail Logistics

DB Cargo, Deutsche Bahn's rail freight company, is one of Europe's leading providers of rail freight transport, operating in 17 European countries. As such, it has a key role to play in the modal shift of road freight to rail. Eventually, the company aims to replace 30 million truck journeys every year with rail. With the help of AI, rail freight transport is becoming more efficient and competitive, which is crucial if more road freight is to be transferred to environmentally friendly rail.

Through the company-wide adoption of AI, DB Cargo is making rail transport more attractive for customers and improving transport routes, while also improving its profitability. Real-time analysis of large data volumes using machine learning methods and AI algorithms calls for considerable processing power, which is provided by scalable cloud infrastructures. This allows complex algorithms to be processed in parallel and distributed across several computers.

inspections is helping tackle the shortage of skilled workers.

With the aid of AI, damage to the interior and exterior of freight cars is detected quickly and efficiently. In particular, this allows minor damage to be repaired swiftly, reducing the costs associated with damaged freight cars, and improving maintenance and servicing quality.

Smart predictive maintenance is one of the areas that DB Cargo is focusing on. The aim here is to return freight cars out of maintenance and into productive operation more quickly. To shorten the inspection process, a total of thirteen camera gates were positioned on the humps at eight classification yards. Up to 10,000 freight cars a day are scanned for damage, creating up to 300,000 high-resolution images. These extensive data sets were used to train an AI to detect specific damage. As a result, more than 70 percent of freight car damage can be detected at an earlier stage of the logistics process, and the findings of the analyses made available to maintenance plant employees. This makes for more precise maintenance and allows repairs to be coordinated more efficiently.

The AI now also detects cargo residues or defective roof tarpaulins automatically. This lightens the load on employees and reduces inspection times from several hours to just a few minutes.

Fewer Delays, Improved Maintenance, and Better Customer Service – All Thanks to AI

- AI-driven process optimization: AI systems can optimize rail capacity, reduce delays, and compensate for the shortage of skilled workers.
- One-stop provision of quality-assured data: The cloud-based data platformOneSource supports innovative, customer-oriented solutions.
- Visual AI for fleet maintenance: AI-assisted camera diagnostics enable intellgent quality assurance, cost optimization, and prediction of maintenance tasks.
- Real-time analyses in freight transport: DB Cargo customers can track their freight cars live and receive AI-assisted forecasts on the arrival time of their deliveries.

Freight Car and Order Tracking with AI-Assisted Forecasting

For its Wagon Intelligence project, DB Cargo has equipped its entire freight car fleet with GPS devices and sensors. The resulting position data is then linked with existing systems, enabling automatic mapping of departures and arrivals, border crossings, and the position of freight cars.

The data generated is also linked with context data, such as order and infrastructure data, to generate value-added business events (VABEs for short). This information can then be used to check whether the movement of freight cars is in line with the customer's order; in other words, whether the freight car is in the right place at the right time.

The major benefits are rapid information provision and end-to-end transparency, enabling DB Cargo customers to track their freight cars throughout Europe in real time. In conjunction with DB Cargo's recently rolled out customer service and sales application (casa), this approach makes customized, easily accessible logistics solutions a reality. The real-time data is used to provide customers with AI-driven forecasts about the arrival time of their freight cars, for example. The result: more attractive services, higher revenue, and greater profitability.

Smart Automation of Manual Maintenance Processes

Optimizing maintenance processes, a central area at DB Cargo, increases productive operation of the freight car fleet. This, in turn, improves transport quality for customers, accelerating the shift in intermodal freight transport from road to rail. The move from manual to automated visual

> The AI application 'Smart Predictive Maintenance' at DB Cargo enables wagons to be ready for use more quickly after maintenance.

DB Cargo has also joined forces with the steel industry to trial automated scrap detection. Detecting scrap at an early stage, before deliveries arrive, makes it easier for customers to schedule incoming freight cars for optimized production processes.

In addition, DB Cargo is using AI to analyze brake-disk thickness. Here, the technology helps identify maintenance requirements in good time and complete the work proactively, reducing the number of unscheduled freight car outages during operation. Through this and other initiatives, DB Cargo is highlighting the interplay of AI and digital innovations, making its rail offerings a more attractive option than road transport.

Conclusion

AI is a game changer for rail freight transportation, both in terms of improving customer satisfaction and maximizing process efficiency. The effectiveness of the technologies is already being felt throughout the Group. AI is now an integral part of the long-term corporate strategy and will be continually expanded. In addition to increasing capacity and optimizing train services, it also contributes to greater customer satisfaction and reduces delays. All of which strengthens rail as an attractive, environmentally friendly, and sustainable transportation system that has a key role to play in climate-neutral mobility and the successful decarbonization of transport in Germany.

The Authors

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Kristina Sahling *is a Data Analytics Manager at Accenture, specializing in the implementation of data analytics products with cloud technologies. Her work focuses primarily on supporting data-driven decision-making processes and decision-making behavior. She is also completing a PhD at Humboldt University in Berlin.*

The Evolving Role of the CIO: From Service Provider to Technology Enabler

By Frank Ott, Nico Cremer, Sebastian Kaune

In today's rapidly evolving technology landscape, organizations must not only keep pace with the latest advancements, such as AI, Cloud, Data Analytics, and Metaverse, but also assess their potential and impact on operations. To navigate this complex terrain, the role of the Chief Information Officer (CIO) and their respective IT organizations have become more critical for the company's success than ever. This article explores the evolving role of the CIO in advancing a technology-enabled organization and discusses key elements that drive success at the Electronics business of Merck KGaA, Darmstadt, Germany.

"We are the partner of choice for digital technology enablement for our businesses to support the company's growth" – Frank Ott, CIO at the Electronics business of Merck KGaA, Darmstadt, Germany describes the impact of the IT organization with a mindset shift. IT organizations move away from being mostly service providers towards acting as strategic partner. Managing and living this shift requires clear guidance and organizational adjustments to be successful. Therefore, the IT organization at the Electronics business of Merck KGaA, Darmstadt, Germany has revisited its key functions and implemented an effective IT Business Partner network aligned with the respective business organization to focus on scaling digital technologies while meeting demands of the respective business units. The CIO's ambition was to "make partnering with IT easier", which is a common business request confirming the high interest to increase interactions with IT.

Focusing on the CIO's Key Functions

The role of the CIO has changed in recent times. To be truly accepted as a strategic partner, the modern CIO must fulfill two fundamental functions within an organization, being the technology enabler and at the same time the solution provider.

1. Being the trusted partner of choice (technology enabler function):

The CIO must empower the IT organization to become and remain the trusted partner of choice for the business concerning all classical as well as new technology areas around digital, data and IT topics. By establishing a strong foundation of technological competence and business know-how, the CIO can ensure that the IT organization becomes a valuable resource for the entire organization. This is going hand in hand with bringing the technology driven IT organization close into the business functions.

2. Starting with the value potential (solution provider function):

The CIO is deemed to ensure that the organization invests in the right technologies and solutions that address specific opportunities and needs of the respective business functions. This involves prioritizing the right challenges to be addressed rather than being distracted by too many new solutions. By starting with the root problem and understanding the conditions for success, the CIO can guide the organization towards the most suitable solutions. This approach ensures that the organization's technological investments align with its objectives and deliver tangible value. It is also crucial to ensure meaningful scaling, allowing technology investments to serve multiple purposes and optimize return on investment.

Creating a Skilled Network of IT Business Partners

To effectively address both, the technology enabler and solution provider functions, the CIO at the Electronics business of Merck KGaA, Darmstadt, Germany has established a network of IT Business Partners. These IT Business Partners act as single points of contact for the business, providing guidance and expertise on digital, data and IT matters.

To be successful in their role, IT Business Partners are equipped with a deep understanding of both technology and the business, enabling them to translate business requirements into actionable technical concepts. With this knowledge, they can consult and advise the business in making informed decisions about technology investments. The IT Business Partner is not just an executor, but much more a partner to find and implement the best suitable technologies.

At the Electronics business of Merck KGaA, Darmstadt, Germany this skilled network is capable of adapting to rapid technological changes and has simultaneously adopted a business unit-oriented setup ensuring it is closely aligned with the corresponding business organization.

Addressing the Biggest Value Pools

It needs to be emphasized that different upcoming technologies can easily trap the organization running behind all sorts of technologies, often without scaling or synergy potential. It is easy to find a singular use case, which can be approached with new technology, but more important is to tackle the areas giving access to the biggest available value pools. By starting to emphasize the opportunity to be solved and to find suitable best-in-class solutions for these cases, companies can generate above average returns.

> „IT investments are business investments."
>
> Frank Ott, CIO Electronics business at Merck KGaA, Darmstadt, Germany

The Electronics business of Merck KGaA, Darmstadt, Germany also looks at technology options beyond having the right use case available just in time. Nevertheless, overcoming the dilemma of just having pilot projects as well as not being able to scale technologies is a must-have change demand.

The IT Business Partner is the change agent in ensuring that the business case focus is kept during opportunity identification, solution selection and implementation. A mindset shift also needs to come from within the business organization that digital technologies are given a chance to prove their superiority against traditional technology changes more often.

Practical Examples

1. Digital Transformation in Quality Control:

To demonstrate the evolving role of the CIO as both a technology enabler and solution provider, let's consider a practical example in the Semiconductor industry. In this scenario, a company

The role of IT Business Partners at the Electronics business of Merck KGaA, Darmstadt, Germany:

- They act as single point of contact between the business and enabling functions.
- They combine technical expertise with business know-how.
- They live a technology-driven and solution-oriented mindset.
- They are integrated, strategic advisors for the business.
- They enable business through strategic fuctional roadmaps.

operates production sites that rely on manual, paper-based processes or has digitally isolated procedures. To enhance operational efficiency and gain a competitive advantage, the company aims to transition from reactive quality control measures to a data-driven and integrated approach. A digital enterprise twin is envisioned to optimize the supply network.

Efficiently achieving this digital transformation requires seamless access and processing of data generated throughout multiple enterprise processes. The utilization of diverse IoT devices, sensors and actors necessitates an automated approach, with the physical equipment integrated into a standardized network. Addressing these technological challenges requires the convergence of IT and OT technologies and robust Cybersecurity measures. To unlock valuable insights using a digital twin, closed feedback loops must be established, which seamlessly integrate horizontal and vertical core business processes. Additionally, the digital architecture must be lean and scalable, accommodating newly built sites as well as retrofitting environments.

> IT Business Partner ensure that the IT strategy of the company meets the needs of the business units and is effectively implemented. They are therefore an important strategic interface in the company.

Identifying technical solutions aligned with business needs demands a collaborative „One Team" approach that integrates various disciplines, including IT, OT, Engineering, Data Science, Process Development, Manufacturing and Supply. In this context, the IT Business Partners at the Electronics business of Merck KGaA, Darmstadt, Germany play a pivotal role. They oversee and connect different disciplines within the realms of digital, data and IT, ensuring effective coordination, alignment, collaboration and a holistic approach throughout the digital transformation journey.

2. Move to more Cloud Usage:

IT Business Partners encounter a constant influx of external inputs. Among these discussions, the prevailing theme is that cloud technology is the future. However, merely migrating on-premises activities to the cloud doesn't automatically yield the anticipated value-add. Cloud adoption, in and of itself, is not inherently superior or more cost-effective. Considering the technology enabler and solution provider function, the IT Business Partner needs to find the right balance between a cloud first vs. cloud smart strategy.

To successfully transition to the cloud, the IT Business Partner must again embrace the role of a change agent work*ing* hand-in-hand with the business. This shift involves more than a straightforward migration – it's a profound transformation. Not only must internal IT processes be reevaluated, but equally critical are the adjustments to business processes. Once this awareness takes root, the journey towards cloud-like behaviors within business operations can commence.

Key Considerations for Cloud Adoption

1.Defining the End Goal:

Every cloud migration should have a clear purpose. Without a well-defined objective, organizations risk being caught "between the chairs" – struggling to decide between full cloud adoption and maintaining on-premises infrastructure. Bold cloud moves, coupled with a commitment to decommissioning data centers, can unlock the true cost and operational advantages of the Cloud.

2. Continuous Innovation:

Cloud usage demands a fresh perspective. Even with a defined end goal, there is no real end state. Regular system updates on the cloud introduce new functionalities. These functionalities need careful evaluation by the IT Business Partner in collaboration with relevant business functions. Most importantly these new functional options must be seen as advantages and not as hassles.

The Cloud journey transcends technical shifts. It's a holistic transformation that aligns IT and business processes. By embracing innovation and strategic goals, organizations can fully realize the benefits of the Cloud.

Conclusion

As technology continues to evolve at an unprecedented pace, the CIO's role in building a tech-enabled organization is multi-faceted and crucial for organizations to stay ahead. By focusing on enabling the IT organization to be the trusted partner of choice and keeping the value potential at the center of solution-seeking, the CIO can guide the organization towards effective and impactful technology investments.

The partner of choice:

The IT organization must become the preferred partner for all corporate functions. This requires a strong foundation of technological competence and business acumen. A key success factor is to network IT with the specialist departments or even integrate it into them.

The value-adding partner:

CIOs must meet the specific requirements of the business units. It is no longer just about providing technologies, but about the creation of concrete and sustainable added value.

The Electronics business of Merck KGaA, Darmstadt, Germany has implemented an effective network of IT Business Partners to translate business needs into technological solutions. By nurturing the skilled network and fostering a digital mindset, the CIO empowers the organization to adapt to technological changes, identify valuable opportunities, and drive successful digital transformation.

In conclusion, the CIO, redefined as a strategic partner and technology enabler, along with carefully selected IT business partners, is crucial in navigating the complexities of the modern IT landscape to drive sustainable business success.

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