ERT

Harnessing Generative AI for Europe's Industrial Future

Opportunities and Challenges

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Executive Summary

Generative AI (GenAI) emerges as a transformative strategic lever for European industry, representing a profound opportunity to reinvigorate economic competitiveness, and drive innovation and productivity across multiple sectors. The technology promises a significant GDP boost, spanning critical business functions from product design to customer operations.

The path to realising this potential is complex and multifaceted. European companies confront various challenges, most notably a profound skills deficit, along with implementation barriers such as high development costs, lack of trust, and a fragmented regulatory landscape. Delivering on its potential requires a holistic approach that integrates technological capabilities, workforce development, and responsible innovation. The global race for AI leadership is accelerating and Europe cannot afford to stand still.

Key Strategic Challenges and Opportunities:

1. **Boosting Industry Players' Adoption and Scaling of Generative AI:** The integration of GenAI requires strategic identification of promising use cases across functions such as office productivity, software engineering, customer service, content creation, and product design. Organisations must overcome barriers related to developing clear business cases, measuring value, and managing high costs.

2. **Developing and Adapting Skills in Europe:** Workforce transformation is critical to GenAI adoption. This involves addressing skills shortages, managing potential job displacement, and creating comprehensive training programmes. Companies need to develop change management strategies that help employees view GenAI as an opportunity for professional growth rather than a threat.

3. **Building Robust and Efficient Foundations:** Successful GenAI implementation requires addressing fundamental challenges in data preparation, model training, and deployment. This includes ensuring data availability and quality, sufficient computing power, and developing cloud & connectivity infrastructure.

4. **Building Trusted and Responsible GenAI:** Creating trustworthy AI systems necessitates a comprehensive approach to risk management, cybersecurity, and ethical considerations. To support industry in this journey and provide legal certainty, it is key to ensure the consistent and harmonised implementation of the AI Act and related legislation across the EU.

5. **Building Sustainable Generative AI:** Environmental considerations are crucial in GenAI development. Organisations must balance technological potential with sustainability goals, understanding and mitigating the environmental impact of data centres and computing infrastructure while exploring how GenAI can support broader sustainability initiatives.

Introduction

Generative AI[1] (hereafter "GenAI") presents a considerable opportunity for European industry. It promises applications across sectors and functions, from supporting and improving decision-making to expanding creative possibilities and driving efficiency gains through timesaving and automation. It will enable businesses to rethink what is possible, with the potential to improve productivity across the economy.

European businesses see the opportunity and are moving to seize it: more than half (57%) of European executives rank AI and Generative AI among the top technology investment priorities for the next 12–18 months, making it the top priority of European companies among other digital technologies.[2]

Fully capitalising on the opportunity of GenAI is crucial for the European economy, contributing to the urgent goal of improving Europe's waning industrial competitiveness. Europe's growth has been sluggish compared to other parts of the world and boosting our competitiveness is the vital strategic objective identified in the report by Mario Draghi and being pursued by the European Commission under President Ursula von der Leyen's leadership.

Mario Draghi emphasises that "the EU's competitiveness will increasingly depend on the digitalisation of all sectors and on building strengths in advanced technologies, which will drive investment, job and wealth creation."[3] His report stresses that while Europe largely missed out on the first digital revolution, Europe still has an opportunity to capitalise on the next digital revolution triggered by AI, and in particular Generative AI.

However, Europe and European companies face numerous obstacles and challenges in developing and scaling industrial GenAI solutions, while other players press ahead in advancing their capacities, as illustrated by the announcement of the Stargate Project to massively boost AI infrastructure in the U.S. and the significant Chinese advancements made with the DeepSeek AI model. This paper outlines what is needed and what those challenges are, and the actions that public authorities and private companies can take together and in concert to capitalise on the opportunities presented by GenAI. The annex includes a series of stories illustrating existing use cases from companies led by the Members of ERT.

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1 Generative AI (GenAI) refers to a category of artificial intelligence systems capable of creating new content, such as text, images, code, and more, based on patterns learned from existing data. Unlike traditional AI, which typically focuses on recognizing patterns and making predictions, GenAI can generate novel outputs in response to specific prompts. Examples of GenAI include Large Language Models (LLMs) like ChatGPT, which can produce human-like text, and other models that can create realistic images or even design new products.

2 Toward a digital Europe in an era of sustainability - Capgemini Research Institute, 2024

3 Draghi report, p. 67

1. Boosting Industry Players' Adoption and Scaling of Generative AI

Since it came to the fore in late 2022, adopting GenAI has become a strategic priority of a large majority of companies – according to research, some 80% of organisations have increased their investments in GenAI in 2024 compared to the year before.[4] They have invested heavily in efforts to develop and deploy GenAI – some $110M on average.[5] The opportunity for Europe is considerable, with some studies estimating a potential 8% boost to Europe's GDP over 10 years if GenAI is widely adopted.[6]

Moreover, the opportunity is broad in nature, with use cases implemented across a broad spectrum of corporate functions, as diverse as HR, IT and logistics to sales, finance and product design. Generative AI will also contribute to the next wave of Agentic AI, enhancing decision-making and autonomous capabilities of agents. As illustrated in Mario Draghi's report, fully exploring this breadth will be a key factor in capitalising on the opportunities presented by GenAI for European competitiveness.

However, most organisations are still in the pilot phase.[7] In most cases, they are yet to identify which use cases offer the most promise and can be scaled. Both while prototyping or scaling a solution, there are some points of attention to consider in order to create value.

Identifying promising use cases

The market is currently focusing on several main areas that hold most promise:

General office productivity

GenAI can be used to enhance office productivity by automating repetitive tasks like drafting emails, summarising documents, and creating reports, saving time for employees to focus on strategic work. It can also provide quick insights and suggestions, streamline workflows, and support decision-making through data analysis and trend identification.

> "Some studies estimating a **potential 8% boost to Europe's GDP** over 10 years if GenAI is widely adopted."

Software engineering

GenAI can boost software engineering productivity by automating code generation, debugging, and refactoring, saving time for developers to focus on complex problem-solving and innovation. It can also assist in testing and documentation, reduce errors, and provide real-time suggestions, ultimately accelerating development cycles and enhancing code quality.

Knowledge retrieval and synthesis

GenAI can quickly retrieve and synthesise information from large data sources, providing concise, contextually relevant summaries that streamline knowledge management.

Customer and employee service and experience

GenAI can enhance customer and employee service by providing instant, personalised responses to inquiries, streamlining support processes and reducing response times.

Content creation and localisation

GenAI can streamline content creation by generating text, images, and multimedia assets tailored to specific audiences. It can also be used to quickly adapt content across languages and cultural contexts. Moreover, it enables hyper-personalisation by customising content to individual preferences and behaviours, enhancing engagement and effectiveness.

4 [reference – Capgemini study]

5 [reference – Capgemini study]

6 https://implementconsultinggroup.com/article/the-economic-opportunity-of-generative-ai-in-eu27?msg_pos=1

7 [reference – Capgemini study]

Multilanguage work and translation

Multilanguage work and translation can stimulate the European market, lowering languages barriers between citizens and for business: GenAI could really simplify an access to all European countries market for companies without experts in the different European languages.

Product design and R&D

Use of GenAI can accelerate product design and R&D by generating design prototypes, simulating scenarios and analysing performance data, potentially speeding up innovation cycles. It can also be used in identifying trends, optimising designs, and suggesting novel features, enabling teams to make data-driven decisions and enhance product functionality. However, some organisations find that it is not always capable of tackling the most complex problems in product design.

Back-office process automation

GenAI can automate back-office processes by handling routine tasks like data entry, document processing, and report generation, reducing manual effort and improving accuracy. It can also be used for more advanced purposes to streamline workflows, for instance by aiding in categorising information, routing tasks, and identifying inefficiencies.

This list is just an initial snapshot of the current state of play; with even more promising use cases expected to emerge over time.

Barriers to scaling GenAI solutions

While the potential use cases are broad and numerous, various barriers stand in the way of companies trying to scale their GenAI solutions:

Difficulty to support relevant use cases with corresponding business cases

There is a gap between having a good idea and being able to develop it into a useable use case. There is a further gap between having a workable use case and being able to build a business case for it. Very often, GenAI is implemented as an experiment to explore its possibilities and limits, rather than as a tool at the service of the business. Ultimately, a profitable business model must always be the goal for companies.

Measuring and tracking value

Difficulty in identifying relevant use cases with a clear business case can hinder scaling GenAI solutions, as organisations may struggle to justify investment without measurable outcomes that align with business goals. Its future or downstream value can likewise be difficult to predict. Tracking the actual value is difficult for top line-impacting cases, since once they are deployed globally, there is no longer a baseline without AI to serve as comparison.

Cost of building / using the solutions

High costs associated with building and operating GenAI solutions can limit scalability, as many organisations may find the initial investment prohibitive without a guaranteed return on investment.

Adoption and proper usage by customers and employees

Inadequate understanding or reluctance to use GenAI tools effectively may prevent organisations from realising their full value.

Reliability of the outputs / accuracy

Risk of inaccuracies or hallucinations in the outputs of GenAI solutions undermine trust in the solutions, slowing their adoption by the workforce and dissuading companies from investing in tools perceived to be unreliable.

Workforce's awareness, skills and expertise

In many organisations, the workforce lacks the data science capabilities needed to make full use of GenAI tools (hence, a massive change management plan may be required, to make their workforce aware of what AI is, of its potential and of Gen AI tools' areas of utilisation). There is also a knowledge gap in leveraging GenAI tools as decision-making tools, and more specifically from a prompting skills perspective, on how management can properly query language models to enhance its critical thinking.

Lack of data foundations

The development, training and usage of GenAI is largely reliant on the availability of high-quality data sets. Inadequate data availability and quality can therefore be barriers to developing and using GenAI solutions, as can lack of data management and governance

processes. To facilitate the development of GenAI solutions, the availability and quality of data within the EU should be supported. These issues are explored more fully in a later chapter on building the foundations of GenAI.

Legal risks and uncertainty regarding regulation

Organisations may hesitate to invest in technologies that could face compliance issues or restrictions in the future. Variation in regulatory regimes across jurisdictions is likewise a hindrance. Regulatory and compliance restrictions can also hamper creativity, particularly in the ideation phase. This requires that regulations (and their respective authorities) are aligned and limited to what is necessary.

Cybersecurity risks

Concerns over data privacy, model vulnerabilities, and potential misuse may deter organisations from widespread adoption of GenAI without robust safeguards. GenAI will also develop new cybersecurity risks, facilitating new attacks and potentially lowering the robustness of code with automatic code creation, or no-code approach (code that will not be validated from a security point of view).

Environmental risks

Concerns over environmental impact of GenAI, including on energy consumption, water consumption etc., that could negatively impact environmental goal and carbon neutral targets of companies can also deter widespread adoption.

Inequality and discrimination risks

Possible inherent biases in models, that potentially or effectively harm particular classes and groups, can expose the company to risks and fairness liabilities.

Procurement and contract risks when dealing with third parties

Organisations that utilise third parties must know and understand the risk mitigation and governance standards applied by each third party and must independently test and verify all high-risk inputs.

Recommendations

- The public and private sector should work hand in hand to support actions that boost the adoption of GenAI by industry players and help companies scale their GenAI solutions.
- Industry consortia can play a role in overcoming shared, sector-wide obstacles to data sharing.
- Industry consortia can also play a role in developing industry-wide best practice-sharing, training and certification schemes to boost skills, expertise and promote proper and inclusive usage by customers and employees.
- The legal and regulatory setting for developing GenAI must be consistent, proportionate and appropriate for players of all sizes, and potential anti-competitive tendencies and tactics must be prevented. EU GenAI developers must have the same opportunities as large US developers and markets must remain open, especially for SMEs or start-ups, in order to make the EU competitive with other major economies. The Code of Practice for General Purpose AI should be developed in close consultation with stakeholders, allow enough time to provide substantial input and stay within the scope of the AI Act.
- It is critical to implement existing EU policies on AI, data sharing and cybersecurity in an innovation-friendly way. Mario Draghi has made important recommendations to ensure that Europe can capitalise on the potential of GenAI. Many of these issues are dealt with in more detail later in this paper.

2. Developing and Adapting Skills in Europe

GenAI offers promise to companies, the workforce and the European economy at large – so long as the workforce is able to take advantage of it. Indeed, GenAI is reshaping the job landscape, leading to the decline of some roles, the refinement of others, and the emergence of entirely new positions like prompt engineers and AI ethicists.

Concerns about job displacement abound, and in themselves can constitute obstacles to the adoption of GenAI. Yet the overall balance appears favourable: while 85 million jobs may be displaced, projections indicate that 97 million new jobs will emerge by 2025, suggesting a net positive effect on employment opportunities in the era of GenAI.[8]

Yet Europe lacks skilled workers. The Draghi Report rightly identified skills shortages as a barrier to the adoption of new technologies: around 42% of Europeans lack basic digital skills, including 37% of those in the workforce.[9] This can take the form of lack of specialists able to drive innovation and diffusion, as well as employees able to adapt to the technologies with the potential to drive change in their field. 'Brain drain' of Europe's best data science and AI talents is another challenge. All of these are applicable in the case of GenAI.

Given the recognition the issue has received in the Draghi Report, now is the time to capitalise on this political momentum, pool the experience of European companies and determine the most effective means of collaboration between private and public sectors to upskill Europe's workforce when it comes to GenAI. This effort will also be critical in order to comply with the EU AI Act's requirement for providers and deployers of AI systems to take measures to ensure a sufficient level of AI literacy of their staff and other persons dealing with the operation and use of AI systems.

Developing a Workforce Strategy

Companies can take action on a number of fronts to prepare their organisations and aid their workforces through this changing landscape.

Assessing impact: some ERT Member companies have identified certain functions as being particularly suited to GenAI use cases, and to a rethinking of work models and activities. Sales and marketing as well as software engineering and customer operations have a particularly high impact as a percentage of functional spend. All could be examples of instances where companies have needed to rethink the core competences.

By identifying how these functions will change, companies can focus on the right skill sets and develop a targeted AI strategy aligned with their goals. Such an assessment is completed by an impact estimation on top and bottom line, e.g. additional revenue expected by more data insights and a cost-based comparison to evaluate where human action, automated action or human-AI collaboration will be more beneficial and economical. The aggregate results project the potential impact of GenAI on a company's workforce.

Change management is key to any AI strategy, including communication, literacy programmes, training, nudges and incentives to have all stakeholders aboard, also to manage labour law risks. In an ideal scenario, training should begin first with executives. This should be followed by use case-oriented, role-specific training to help employees use AI effectively and efficiently, and avoid disappointing 'first contact' with the technology and perception of threats over opportunities.

Also, change management is not a one-off action but it involves small actions over time: it is crucial to combine the development of both personal skills, like creative and critical thinking, and technical skills, e.g. the art of prompting. A continuous learning approach should be promoted and upskilling and reskilling programmes in place for those "augmented" or new jobs that GenAI will bring about.

This structured approach will enable organisations to prioritise GenAI use cases, plan for workforce integration, and determine the best operational models for effective GenAI deployment.

8 [Add source]

9 Draghi Report p.259

Recommendations

- The integration of GenAI into the workforce is not merely a technological advancement but a strategic imperative to address the EU's declining productivity, reshaping competencies across various domains. By identifying specific roles and defining strategically the workforce planning integration, companies can harness the transformative power of GenAI.

- Proper training and sensitisation of employees to GenAI are crucial to ensure they see it as an opportunity rather than a threat, thus fostering a culture of innovation and adaptability. Companies need to raise awareness about the impact of GenAI, and allay concerns among their workforces about job displacement. Making sure that unions are part of the stakeholders involved in the conversation on AI is key.

- Placing GenAI in the context of employees' daily activities and finding ways to empower them to make best use of this technology to improve their output is likewise important. Sharing first success cases within the company will help to increase trust in the technology.

- The Draghi Report highlights the need for reform of the EU's approach to skills. Particularly applicable in relation to GenAI is his focus on the need for greater adult learning, in order for people to continue building their skillset throughout their careers. Governments have a key role to play in this in reforming and redesigning vocational training and adult education and upskilling programmes. It is equally important to address the brain drain oversees, for instance through the Tech Skills Acquisition Programme proposed by Draghi. AI should moreover be included as a topic in the public education system to ensure that every citizen is equipped with basic education about AI. With respect to the AI Act's literacy requirement, any upskilling obligations towards industry must remain limited to the skills of the relevant workforce of each company.

- For their part, European companies should formulate what they see as the requirements of their current and future workforces to fully adopt the possibilities of technologies like GenAI.

3. Building Robust and Efficient Foundations

Efforts to develop robust AI capabilities in Europe have exposed several shortcomings in the ecosystem that have prevented rapid progress. This is all the more so for GenAI, which encounters the same difficulties to a greater degree.

There are three main foundations of GenAI: data preparation, model training, and deployment and use. Each has numerous requirements. Data preparation requires large volumes of – and simple, legally certain and efficient access to - high quality data, meaning relevant, clean, and specific. Model training primarily needs large amounts of computing power. Deployment likewise requires compute and API remote access, as well as edge capabilities. These foundations are necessary conditions for building GenAI, and effectively equate to choke points which can inhibit the development of the technology if not addressed.

This has proven to be the case in Europe. European companies intensively explored the opportunities presented by GenAI in 2023, and in 2024 began to deploy models that had shown promise when trained on reduced datasets. While some European AI developers had notable successes, many of the other models deployed by other companies ultimately struggled to scale and deliver the value seemingly promised by early demonstrations.

LLM applications struggle to scale in industrial contexts for several reasons:

- LLMs are stochastic by nature, which is hard to handle in an industrial context.
- Models that perform strongly in some applications can still become inaccurate once used at scale, owing to lack of sufficient specialised data.
- Model switching between providers and licenses remains complicated.

Beyond these, there are further specific reasons why building European LLMs is hard to scale:

- GenAI requires large amounts of computing power when trained at scale.
- Training and operating infrastructure need to be well integrated to support the iterative AI model lifecycle.
- Unclarity of data processing rights for AI training, e.g. scraping of publicly available data.
- Fragmented European landscape in LLM build and funding.

Tackling these difficulties will be critical if European players are to develop their own sovereign models that ensure sensitive data are secure and users' privacy is protected, and are tailored to the needs of their specific industries.

Data Issues

Data availability and quality are prerequisites for scaled GenAI solutions; lack of either presents a major obstacle to both model training and usage.

The European Union has launched data sharing initiatives to boost sharing across the continent. This includes the sectoral European Data Spaces and the European Data Portal, along with industry-driven initiatives such as Catena-X. In terms of legislation, the Data Act likewise seeks to enable sharing of data by industrial players, as well as facilitate cloud switching, another stumbling block. The Commission is set to present a new European Data Union Strategy in early 2025, which is expected to "draw on existing data rules to ensure a simplified, clear and coherent legal framework for businesses and administrations to share data seamlessly and at scale, while respecting high privacy and security standards".[10] This should also be the opportunity to review the current outdated and unworkable status-quo regarding the ePrivacy telecom sector specific rules.

In order to plug the data gap, the existing initiatives and measures planned by the new European Commission need to provide more support for private sector efforts towards 'data mastery': learning to capitalise on the data that companies produce and own, and thereby turn it into a business asset. Companies can do this by developing and launching data products, developed according to commercial logic and need, and provide a common core stack and tools for all use cases. The Catena-X initiative in the automotive sector provides a leading benchmark

10 President von der Leyen Mission Letter to Henna Virkkunen https://commission.europa.eu/document/3b537594-9264-4249-a912-5b102b7b49a3_en

example. In turn, Europe must strengthen its role catalysing wider data availability by developing Open Data for model training and interoperability, and encouraging data sharing & interoperability within the private sector and with public players across Member States.

Crucial in these efforts will be ensuring that the incentives for all stakeholders are aligned to promote data sharing and collaboration. The reward is the potential to foster innovation and the emergence of joint European projects from both the private and public sectors, and an abundance of qualitative data available in shared standards, enabling the development of collaborative use cases between companies.

Cloud & Connectivity Challenges

New GenAI use cases will challenge current European cloud infrastructure. At present, European companies mainly use the services and hardware of US hyperscalers for the foundational elements of developing LLMs, in particular to obtain the computing power needed for training the models, and the API calls necessary for use of the models.

While the EU has a strong international position in high-performance computing (HPC), the supercomputers available from major European universities or companies are principally for research and innovation purposes, and are few in number. The European Commission aims to ensure access to supercomputing capacity for start-ups and industry through its AI Continent strategy and AI Factories Initiative. It also plans to develop a proposal for an EU Cloud and AI Development Act, as recommended by Mario Draghi, to increase computational capacity and create an EU-wide framework for providing 'computational capital' to innovative SMEs.

> "Connectivity is a key enabler for cutting-edge technologies such as Generative AI. **There will be no AI innovation in Europe without reliable, ultra-fast 5G & fibre networks**"

In the context of the current evolution for new data centres to deploy graphics processing units (GPUs), Europe faces the risk of dependencies on external GPU suppliers. One way forward could be a concerted approach to buying GPU resources which would involve benefits in terms of prices and timing for delivery compared to fragmented and diverse European orders to GPU makers.

The public sector situation is best described as stagnant. Like European companies, public sector agencies mainly use hyperscaler solutions. Mario Draghi's report finds that "the EU cloud services market is also largely lost to US-based players [... and] the EU's competitive disadvantage will likely widen in the cloud market"[11]. He stresses that in order to meet the demand for "sovereign cloud" solutions, there is a need for a competitive European cloud industry that can complement the services of the hyperscalers.

Sovereign cloud offers have been emerging during the past years. However, there is still a lack of a uniform definition of a sovereign cloud in Europe. Developing a joint understanding of user needs and requirements, especially for sensitive data is important. Moreover, EU cloud providers can only succeed with the necessary demand. The public sector should play a signalling role and drive demand for European cloud. Partnership models between EU and non-EU based companies can also play a role in addressing this gap, but are not always available immediately, and some organisations are simply waiting for this to be the case before launching initiatives. The European Commission plans to develop a single EU-wide cloud policy for public administrations and public procurement, which is an opportunity to support the growth of EU cloud services.

The picture for connectivity is equally challenging. Connectivity is a key enabler for cutting-edge technologies such as Generative AI. There will be no AI innovation in Europe without reliable, ultra-fast 5G & fibre networks. While deployments are underway, Europe is still lagging behind on the build out and deployment compared to other competing regions, in particular of full 5G mid-band. There are still too many regulatory and bureaucratic hurdles as well as an investment gap in very high-capacity networks of at least €200

11 Draghi report p.77

> If Europe wants to lead, **it needs to be prepared to invest**

bn hampering roll-out. If Europe wants to lead, it needs to be prepared to invest. Key reasons for the lower rates of investment seem to be Europe's fragmented market due to the large number of mobile network operators, the investment dampening effect of high spectrum prices and the lack of coordinated spectrum allocation processes. The Commission will work on a new Digital Networks Act to help boost secure high-speed broadband, both fixed and wireless.

Recommendations

The demands of GenAI are highlighting known difficulties with building robust AI capabilities in Europe. While some levers for addressing the challenges are in the hands of private companies, policymakers have an important role to ensure conducive framework conditions:

1. Review, harmonise and strip down legacy regulations to account for new and upcoming market realities, which include cloudification, network disaggregation, 5G Standalone, 6G or satellite.

2. Make sure the new Digital Networks Act considers the need for a more dynamic approach to competition policy in the telecoms market and facilitates private investments in high-speed connectivity, to allow businesses to scale.

3. Ensure a more coordinated approach where spectrum auctions are not overly focused on revenue maximisation, at the cost of investment, service quality and innovation, through e.g. the harmonisation of spectrum conditions across Europe and longer spectrum licences.

4. Ensure that the European Data Union Strategy supports the establishment of joint data-sharing standards and facilitates the consistent implementation and enforcement of EU policies (GDPR, Data Act, Data Governance Act etc.). Repeal the ePrivacy Directive and withdraw the ePrivacy Regulation proposal in order to avoid redundancies and unnecessary complexities in relation to the GDPR.

5. Support industry-driven sectoral data spaces, such as Catena-X in the automotive sector or Manufacturing X (Process Industry, Mechanical Engineering, Chemicals, Pharma), through public funding and awareness raising, in particular among SMEs.

6. Leverage the AI Factories Initiative and EU Cloud and AI Development Act to boost access to centralised and distributed computing capacities for AI start-ups and industry.

7. Facilitate close cooperation between the Commission, Member States, industry and civil society to develop the Apply AI Strategy aimed at boosting new industrial uses of AI and improve delivery of public services. AI-adoption in all sectors is crucial for European competitiveness and the EU should aim to facilitate greater and wider access to AI technologies and drive innovation across industry. Key industrial applications of AI should be identified within the EU, in line with Draghi's recommendations for an EU Vertical AI Priorities Plan.

8. Ensure the envisaged European AI Research Council is focused on applied research in order to bring real benefits to boosting European industrial Generative AI applications.

9. Ensure there is a business case for EU cloud providers that incentivises investments from both private and public sector players. This requires public sector demand for EU cloud products, which should be addressed through public procurement. The EU must also work towards a Single Market for cloud and address market fragmentation and certification challenges.

4. Building Trusted and Responsible GenAI

Trust in GenAI is fundamental to the widespread adoption of the technology. Simply put, if users – whether companies, employees or customers – cannot be sure that risks around a given GenAI system have been effectively managed, that it is secure, and does not raise ethical issues, they are less likely to use it to its full potential.

In Europe, many of these issues are governed by the AI Act, whose implementation is ongoing and whose effectiveness is still to be tested and proven. It is comprehensive and demanding, necessitating that organisations ensure their AI systems are safe, transparent, traceable, and non-discriminatory. Non-compliance penalties are substantial, with fines of up to 7% of company turnover, exceeding those under GDPR. By 2026, all actors deploying AI solutions within the EU must assess the risks of each algorithm in its operational context and ensure appropriate mitigation and certification for high-risk algorithms. GenAI / General Purpose AI systems are subject to their own specific requirements, due to their specific characteristics.

Yet companies already have a strong incentive to ensure GenAI systems they develop or deploy are trustworthy, and take measures encompassing risk management, cybersecurity, and AI ethics, labour law and contract management.

Risk Management

For companies led by the Members of ERT, transparency is a key theme in ensuring effective risk management. AI models can be 'black boxes' which those not involved in their development will find impossible to fully understand, which can raise doubts about deploying them. Transparency along the value-chain, in accordance with the AI Act obligations, between developers and deployers is a vital aspect in this regard.

Even prior to the AI Act, many companies had established processes for assessing risks in AI systems. They have begun iterating on how to go about this, learning to streamline internal processes, recognising overlapping risk areas and mitigation strategies across various domains to cater to the new risk assessment format presented by the AI Act.

Cybersecurity

The rapid development of Generative AI introduces significant cyber security challenges that accompany its increased adoption. GenAI is vulnerable to attacks via data poisoning, model theft, and prompt injection that compromise its integrity. There is a short-term need to address these risks. At the same time, cybersecurity is a continuous, long-term strategic concern that needs to be built-in from the start, and an essential aspect of the long-term goal of building trust in GenAI.

On the other hand, GenAI can also be a valuable tool for cyber defence. A recent study[12] shows that more than 50% of organisations believe GenAI will empower cybersecurity analysts to concentrate on strategy for combating complex threats. They have begun integrating GenAI into their cybersecurity operations: 40%-50% have initiated proofs of concept (PoC) or pilots.

Additionally almost 30% of organisations plan to implement GenAI in cybersecurity in the near future.

Ethics

GenAI raises ethical concerns, including the risk of reproducing bias, producing stereotypical outputs, generating harmful or criminal content, issues around plagiarism and intellectual property, and implications for human-like behaviour and job displacement.

Beyond the requirements set out in the AI Act, ERT Member companies have developed methods to address these types of concerns. Some have long-established AI principles and processes that involve cross-functional collaboration, for instance among data protection and HR. Other measures include developing ethical guidelines for AI, holding workshops to sensitise employees to the issues at stake, and creating AI ethics manifestos or independent AI ethics councils.

Recommendations

Building trust in GenAI is both a short-term necessity and a long-term objective for industry players, and is incentivised by the prospect of

12 Capgemini Research Institute, AI and Gen AI in cybersecurity survey, May 2024, N=1,000 organizations . CRI_AI-and-gen-AI-in-cybersecurity_15112024.pdf

boosting adoption of GenAI by organisations and employees. Companies led by the Members of ERT have identified several good practices for building trust in GenAI, including:

- Ensuring two-way transparency along the value chain in accordance with the AI Act.
- Treating cybersecurity as a continuous, long-term strategic concern that is built-in from the start.
- Promoting public-private collaboration to provide education about ethical risks around GenAI, beginning with minors.

To support industry in this journey and provide legal certainty, it is key to ensure the consistent and harmonised implementation of relevant legislation across the EU, in particular the AI Act, GDPR and NIS2 Directive. The EU must provide swift and clarifying guidance to industry regarding the implementation and application of some key provisions and accompanying requirements in the AI Act, e.g. with respect to high-risk AI systems. It is important that secondary legislation and codes of practice are developed in a way that does not expand the requirements of the AI Act. The key objective must be to make compliance easier to achieve.

5. Building Sustainable Generative AI

Digital technologies represent a double-edged sword in Europe's green transition. Innovative technologies and widespread digital adoption have the potential to support the bloc's climate neutrality ambitions. The convergence of Artificial Intelligence (AI) and sustainability presents a unique opportunity to accelerate climate action, as it can help scale and expedite sustainability efforts. Yet the sector's high consumption of energy and natural resources also place significant pressure on the environment. Today, the ICT sector accounts for 4% of the EU's GHG emissions and 10% of electricity consumption and these figures are expected to increase exponentially as emerging technologies such as AI, 5G and the Internet of Things (IoT) are developed and deployed.[13]

The rapid rise of Generative AI over the last eighteen months has brought the environmental impact of the technology into sharp focus, with the AI dependent on energy hungry data centres for training and operation. One study shows that at the EU level, data centres represent 22.5% of the GHG emissions and 28% of the electricity consumption of the digital sector.[14] Mario Draghi highlights that "Data centres alone are responsible for 2.7% of the EU's electricity demand (up to 65TWh in 2022). By 2030, their consumption is expected to rise by 28%".[15] Powering data centres with renewable energy is therefore key to reducing GHG emissions.

Beyond energy and emissions, datacentres also require significant natural resources, including minerals, metals and water, which is needed in vast amounts to cool its servers. These demands can also generate opposition amongst specific communities across Europe where data centres are built.

Many companies led by the Members of ERT have begun grappling with these challenges, and have gathered valuable experience around how to build and deploy more sustainable Generative AI and ensure the technology sector meets its potential to enable and accelerate Europe's green transition. Building sustainable Generative AI will require a collaborative approach that extends across the whole AI ecosystem.

Understand the environmental impact of Generative AI

The first step in addressing the adverse environmental impact of Generative AI is to understand the technology's existing environmental impact. However, with immature measurement tools, insufficient data and a myriad of assessment approaches, businesses have struggled to gather an accurate picture. As a result, companies have adopted a variety of approaches to assess the environmental impact of AI. While approaches may differ, there is convergence around the challenges companies face in assessing the environmental impact of Generative AI. In the first instance, businesses face barriers to gathering robust and consistent data, with immature and unreliable tools to measure energy and electricity consumption and a lack of detailed information supplied by model providers. This challenge is compounded in the whole lifecycle assessment, where huge numbers of components are involved, which increases the complexity of the exercise.

The exchange of best practices will be valuable in supporting the development of sustainable Generative AI. Best practices should address the governance and technical level alongside recommendations around AI skills and awareness. They should cover the assessment of the environmental impact when choosing a model and designing its architecture, guidelines around data volume, fine tuning and optimisation. Communication with and training of users is also key to mitigating the adverse environmental impact of AI.

Leverage Generative AI to accelerate sustainability

Whilst GenAI can have adverse climate impacts, it also has the potential to accelerate the EU's carbon transition and support sustainability initiatives across the public and private sectors. GenAI solutions can be deployed across various business functions to support sustainability goals:

1. collecting and monitoring environmental data,

13 [add source]

14 [add source]

15 Draghi report, p. 22

2. anticipating trends in resource use,
3. supporting eco-design,
4. optimising and reducing environmental impact across the value chain,
5. research in new materials (self-healing materials, new polymers),
6. grid management/optimisation,
7. and shifting to more sustainable business models.

Many companies have already leveraged GenAI to contribute to the UN's global sustainable development goals, for instance: 1) optimising food management, with the technology playing a central role in forecasting on-site food waste, planning how to reduce it and how to move food supplies to alternative locations; 2) supporting healthcare access ambitions, doctors' routine and administrative work to free up time to conduct patient-facing work; 3) reporting and monitoring sustainability data which is essential to measure and improve the business's environmental footprint.

A decisive question is whether GenAI's sustainability benefits outweigh its own energy demands. When employing Generative AI to accelerate sustainability, business must calculate the net impact of the technology on the environment to ensure there is a quantitative case for deployment:

> **Net impact = Indirect effects (impact avoided thanks to the project) - direct impact (impact of used GenAI technology) - higher-level impact (rebound effect)**

Promote conscious and efficient GenAI usage

Promoting conscious and efficient usage of GenAI is key to mitigate their environmental impact. The inference phase, where models generate responses based on input data, demands significant computational resources. Therefore, businesses must adopt strategies to minimise unnecessary inference and optimise model efficiency.

Companies are implementing usage guidelines that encourage users to engage with GenAI thoughtfully, reducing redundant or trivial queries that consume resources without adding substantial value. Furthermore, they invest in developing more efficient algorithms and architectures that require less computational power, thus lowering energy consumption during inference.

> "When employing Generative AI to accelerate sustainability, business must calculate the **net impact of the technology** on the environment to ensure there is a quantitative case for deployment"

Training users to understand the environmental implications of GenAI usage is also essential. By fostering awareness, companies promote responsible interaction with AI systems, emphasising the importance of balancing technological benefits with environmental stewardship.

Collectively, these strategies not only contribute to a more sustainable deployment of Generative AI but also align with broader corporate sustainability goals, ensuring that technological advancements do not come at the expense of the planet's health.

Recommendations

Ensuring that Generative AI supports the EU's green transition, rather than detracts from it, will require engagement from actors across business functions, including commercial, IT, data, CSR and legal teams. Many European companies are engaged in measuring and mitigating the environmental impacts of deploying Generative AI and capitalising on its potential to support the sustainability ambitions. Yet, there are varying levels of maturity across sectors and business functions due to a lack of a common approach for measuring the impact.

Thus, public-private collaboration is crucial and should focus on:

- Sharing of best practices for GenAI and

recommendations for the training of users on environmental impact matters.

- Promoting a dialogue between policymakers, civil society and business on possible harmonised tools to measure environmental impacts, including for instance the measurement of avoided emissions.

- Supporting the availability of decarbonised energy to power data centres, not only in terms of production of energy to provide green electricity, but also in terms of grid access, *inter alia* through the EU's upcoming Clean Industrial Deal. This includes driving investments in data centres' power infrastructure and streamlining permitting processes.

- Facilitating transparency between data centres, GenAI developers and users in the EU with regard to reporting metrics such as the overall energy consumption and the percentage of it coming from decarbonised energy.

- Streamlining data centre reporting requirements across EU Taxonomy and Energy Efficiency Directive (EED) and ensure a level playing field through alignment across Member States in the implementation of the EED.

- Cooperating closely on the development of the EU rating scheme on the sustainability of data centres planned for 2025.

Conclusion

Generative AI represents a pivotal opportunity for European industry to redefine its global competitive positioning. The transformative potential offers a strategic pathway to address long-standing challenges of productivity, innovation, and economic revitalisation.

Success hinges on a holistic approach that simultaneously addresses technological, workforce, and ethical dimensions. The journey involves navigating complex challenges and requires pragmatic policy frameworks, investing in digital infrastructure, and cultivating a workforce capable of working effectively with AI technologies. Collaboration across public and private sectors is key in order to support responsible AI integration and position Europe not merely as a technology consumer, but as a global leader in trusted, responsible AI innovation.

The window of opportunity is time-sensitive and the global AI race is intensifying. Decisive, coordinated action today will determine whether Europe can leverage Generative AI as a catalyst for economic transformation or risks being left behind in the global technological landscape.

Annex: ERT Generative AI Stories

Capgemini – Empowering employees on mastering the art of prompt

Summary: Our corporate university has launched the Prompt Academy, an innovative learning platform designed to improve employees' skills in prompt engineering, facilitating interactions with LLMs. The platform offers real-time sandbox interactions, an extensive prompt inspiration library, and practical exercises in a secure learning environment. Benefits for employees include skill enhancement, increased productivity, and hands-on experience. This initiative ultimately aims to inspire innovation and efficiency within the company.

Mastering the art of prompting is essential for enhancing employee productivity. As we increasingly rely on digital tools and artificial intelligence, the ability to effectively communicate with language models and extract relevant information becomes critical. Prompting not only streamlines our Software Engineers' workflows throughout the Software Development Life Cycle, but more broadly it also empowers our employees to make informed decisions swiftly. By honing these skills, they can optimise their interactions with technology, resulting in improved efficiency and a more agile workforce.

Our corporate university has rolled out the Prompt Academy, a cutting-edge learning platform designed to improve employees' proficiency in prompt engineering, facilitating more effective interactions with Large Language Models (LLMs). By offering real-time sandbox interactions, an extensive inspiration library of prompts, and practical exercises, it empowers employees to enhance productivity and gain a competitive advantage, all within a secure learning environment. The platform's comprehensive training resources inspire innovation and efficiency in daily tasks, driving overall company growth.

The benefits of the Prompt Academy for employees include:

1. **Skill Enhancement:** Employees can improve their prompt engineering skills, which are essential for effectively using generative AI tools in their daily work.

2. **Productivity Boost:** By learning how to create precise and effective prompts, employees can increase their productivity and efficiency when using AI tools.

3. **Safe Learning Environment:** The Prompt Academy provides a safe sandbox environment where employees can experiment with different prompts and models without the risk of exposing proprietary information.

4. **Comprehensive Training:** The platform offers guided and interactive sessions, comprehensive workshops, and a custom prompt library tailored to the specific needs of different roles within the company.

5. **Learning by doing:** It enables employees to apply their knowledge practically, gaining hands-on experience that solidifies their understanding and expertise.

Overall, the Prompt Academy aims to inspire our employees to find areas for improvement with generative AI and develop use cases for their daily workloads, ultimately leading to increased productivity and innovation within the company.

Deutsche Telekom's T-Car – AI in fibre-optic expansion planning

Summary: Deutsche Telekom employs AI for fibre-optic expansion planning using its T-Car system. Equipped with sensors and laser scanning technology, T-Car vehicles survey areas where fibre-optic cables will be installed, including road conditions, surfaces, buildings, and trees. Based on the data collected, AI then plans the most efficient route for laying fibre-optic cables before a human expert optimises it. This process replaces the need for numerous on-site visits. By optimising network planning, fibre-optic expansion costs related to civil engineering can be reduced significantly. Additionally, AI helps identify alternatives to complex excavation methods, speeding up the expansion process and improving cost estimation.

Deutsche Telekom uses AI in the planning of fibre-optic routes by introducing T-Cars. T-Cars are measuring vehicles equipped with cameras and laser scanners. These T-Cars capture detailed 2D and 3D data of streets and public areas where fibre-optic cables will be laid. The AI then uses the collected data to create potential routes for laying the fibre optics in the most efficient way, aiming for cost-effective and timely expansion.

The process begins with data collection, where T-Cars survey planned fibre-optic routes. This allows planners to assess locations without the need for multiple site visits and/ or manual recording of all local conditions. These vehicles operate in regular traffic, minimising disruptions. The collected data is then analysed by AI, which identifies different surfaces such as asphalt and cobblestones and checks for potential obstacles like trees or streetlights. Precise data is crucial as it forms the foundation for efficient route planning.

The AI-based planning tool automatically determines the most efficient path for laying fibre-optic cables. It considers traditional excavation methods like using a backhoe as well as alternatives such as trenching, cable ploughing, or directional drilling if necessary. Finally, an experienced planner reviews and refines the AI-generated plan before implementation.

There are several challenges in this process. Balancing accuracy with efficiency is essential, as accurate data is necessary but minimising disruption during data collection is equally important. Integrating AI seamlessly to support and complement human expertise while ensuring human oversight is another challenge. Data protection compliance is also critical; the collection of street data by the T-Cars requires careful data protection measures. Deutsche Telekom anonymises and encrypts the collected data to protect the privacy of local residents and uses it for internal planning purposes only. They have also committed to strict data protection standards and transparency obligations through the Data Protection Code for Geodata Services.

The benefits of this approach are significant. Precise planning reduces civil engineering costs significantly, which constitute around 80% of fibre-optic expansion costs. Alternative installation methods like shallow deployment, minimise the need for road excavations. Through precise planning and efficient installation, unnecessary excavations are avoided, reducing CO2 emissions associated with construction projects and the number of site visits. T-Car data helps identify ideal locations for network distribution points, streamlining coordination with local authorities. Local authorities benefit from AI-driven insights, allowing them to better coordinate infrastructure expansion with less effort.

By leveraging AI and automation, Deutsche Telekom enhances the efficiency of fibre-optic network expansion, ultimately enabling faster, smarter, and more sustainable connectivity solutions.

Deutsche Telekom – GenAI-based customer service transformation with "Ask Magenta"

Summary: Deutsche Telekom utilises AI in customer service through the "Ask Magenta" virtual assistant. Available 24/7, "Ask Magenta" assists customers with various inquiries, from billing to technical issues, via chat and voice. The AI-driven assistant integrates natural language processing to understand and respond to customer queries accurately, providing immediate support and reducing the need for human intervention. This service enhances customer experience by offering quick resolutions and freeing up human agents to handle more complex issues.

Deutsche Telekom leverages artificial intelligence in its customer service operations with "Ask Magenta," a digital assistant designed to provide timely and efficient support to its customers. " Ask Magenta" is available around the clock, allowing users to interact with it via chat or voice to resolve a range of issues, from billing inquires to technical troubleshooting.

The assistant is powered by advanced AI technologies, including natural language processing (NLP), which enables it to comprehend and respond to customer inquiries in real time. When a customer poses a question, "Ask Magenta" analyses the text or voice input, interprets the request, and provides a relevant response. This immediate interaction significantly enhances the customer service experience by addressing issues promptly without requiring human intervention.

In addition to answering common queries, "Ask Magenta" can perform tasks such as checking account balances, resetting passwords, and providing updates on service outages or network status. By handling these routine tasks, the AI assistant frees up human customer service agents to focus on more complex or specialised issues that require a personal touch.

One of the key benefits of using "Ask Magenta" is its ability to learn and improve over time. As it interacts with more customers, the AI gathers insights and refines its responses, becoming increasingly accurate and efficient. This continuous improvement ensures that customers receive high-quality service consistently.

Moreover, the implementation of "Ask Magenta" helps Deutsche Telekom manage customer service volumes more effectively. During peak times or service disruptions, the AI assistant can handle a large number of inquiries simultaneously, reducing wait times and ensuring that customers receive the support they need promptly.

Overall, "Ask Magenta" exemplifies how AI can transform customer service by providing reliable, immediate assistance while optimising the workload of human agents. This integration of AI in customer service not only enhances the overall customer experience but also drives operational efficiency within the company.

To help telcos further improve their customer interactions through digital assistants and other innovative AI-driven solutions, Deutsche Telekom has signed a joint venture agreement in 2024 with SK Telecom, e&, Singtel and SoftBank Corp, as the five founding members of the Global Telco AI Alliance (GTAA), to jointly develop and launch a multilingual Telco Large Language Model (Telco LLM).

For more information:

https://www.telekom.com/en/company/topic-specials/special-innovation/detail/artificial-intelligence-for-our-everyday-life-612066

https://www.telekom.com/de/konzern/themenspecials/special-kundenservice/details/digitaler-serviceassistent-544878

https://www.telekom.com/en/media/media-information/archive/agreement-jv-for-telco-specific-llm-1068392

Eni – Empowering enterprise knowledge retrieval with Generative AI: Eni's Knowledge Hub

Summary: Eni's Knowledge Hub is an AI-powered conversational search engine designed to simplify access to Eni's vast internal knowledge base. Utilising memory-augmented models, it handles natural language queries and responds in real-time by drawing from reliable internal sources. Developed using Agile methodology, the initial certified knowledge sources included Eni's operational procedures and technical documents, paving the way for future expansion of the accessible knowledge base with additional sources. A phased adoption strategy ensures smooth integration and user engagement, while a centralised governance layer addresses risks associated with Generative AI, supporting ongoing improvements and tailored user experiences.

The challenge of efficiently retrieving relevant information from multiple data sources has become increasingly critical for organisations. As data grows in volume and complexity and information becomes scattered throughout different platforms and storage systems, traditional knowledge methods often fall short. Leveraging Generative AI presents an innovative solution to streamline knowledge access, improving data accessibility and enhancing decision-making processes, while transforming how employees interact with complex information across various domains.

Eni's Knowledge Hub is an AI-powered conversational search engine that simplifies access to our company's vast internal knowledge base. The system processes natural language queries and delivers contextually relevant responses in real-time by pulling data from trusted internal sources, such as technical documentation and other knowledge repositories. Its key features include memory-augmented models that maintain conversational continuity, allowing users to engage in multi-query interactions without losing context. Additionally, the platform is customisable allowing tailored experiences based on the user's role, area of expertise and required knowledge source, ensuring efficient information retrieval.

Developed using Agile methodology, Eni's Knowledge Hub has evolved through iterative product releases. The initial phase integrated Eni's operational procedures and technical documents into the system, alongside the launch of a Microsoft Teams app for easy, conversational access. Future developments will focus on expanding the range of integrated data sources, including certified documents from Eni's systems or allowing users to customise knowledge bases by connecting Microsoft Teams' underlying SharePoint folders.

The Knowledge Hub relies on a centralised monitoring and governance layer that ensures effective risk management associated with Generative AI, positioning the tool for continuous improvement while delivering reliable and efficient access to information. This strong foundation supports future expansions and enhancements such as automatic webinar chaptering, which will further refine the system's capabilities, providing users with a more tailored and comprehensive real-time knowledge retrieval experience.

The adoption of the Knowledge Hub follows a gradual, phased approach to ensure smooth integration across our organisation. By rolling out the system progressively, each business unit can adapt to the new tool with minimal disruption, ensuring both a seamless transition and sustained user engagement. This approach allows us to collect valuable feedback, further enhancing the tool's capabilities and usability. This deployment strategy has been essential in fostering widespread adoption and maximising the impact of the tool.

Ericsson – Intelligent support service empowered by GenAI

Summary: Ericsson's Support Service has transformed from traditional to digital, and is now entering the era of intelligent support with GenAI. The AI-powered Customer Support Platform, used by tens of thousands daily, enhances customer experience through capabilities like troubleshooting assistance, virtual assistants, local language services, and proactive problem management, powered by Ericsson Language Intelligence (ELI).

The main challenge has been balancing business risks and benefits. Key benefits include improved efficiency, faster resolutions, and better customer experiences, with success driven by showcasing value, quick onboarding, and a flexible transformation approach.

Support service has been transformed from traditional support service to digital support service through digitalisation journey. GenAI will enable us to further transformation into the new era of intelligent support services. Customers always want to improve operational efficiency, reduce resolution time, and have a good experience of one-stop shop when interacting with Ericsson Support, ideally in their native language. The Support Service organisation focuses on improving business opportunities, user experience, and delivery efficiency and productivity. Thus, our first focus is on customer experience and trouble-to-resolution processes, although GenAI would bring us so many opportunities.

We are, of course, very eager to embark on the intelligent support journey together with our customers. We introduced the Customer Support Platform, a digitalised platform empowered by AI, as one-stop shop for customers to interact with Ericsson Support. It currently serves tens of thousands of daily users.

A few core use cases are prioritised leveraging Ericsson Language Intelligence (ELI), Ericsson's in-house GenAI platform, which comprises of a suite of large language models optimised for telecom use cases. Contents generation for knowledge management is to improve efficiency, productivity, and quality in the support service operations organisation; Assists on troubleshooting to generate resolution recommendation in order to shorten trouble-to-resolution lead time; Virtual Assistants will allow both Ericsson support engineers and customer users to chat with data and receive AI-generated answers, 24/7, whenever they have questions during the work; Local language Service to enable customers to interact with Ericsson Support in their native language, improving customer experience; Proactive Problem Management will have the potential issue identified and resolve before it occurs in customer network, etc.

Business Risk Management is key for GenAI's success. How to balance business risks and business benefits is the critical challenge we need to manage.

Efficient operations for the customer, with anytime, anywhere virtual assistance and faster turnaround times, have been some of the key benefits so far. The critical success factors showcasing value and quick customer onboarding. A flexible transformation approach is needed to cater to customers with varying levels of maturity...

Iberdrola – GregorIA transforms public sector claims management with rapid document analysis

Summary: GregorIA is a GenAI solution for complex complaint management, that exemplifies the revolutionary potential of this technology. Reading and analysing official requirements manually takes 2 to 3 hours per task. Using GenAI technologies, GregorIA provides information back to agents for analysis and decision-making within seconds, benefiting Public Entities managing extensive documentation. It consolidates, reads, extracts and classifies different information sources to enhance efficiency and response quality. GregorIA classifies requests accurately and generates executive summaries, reducing the time needed for document analysis. Key challenges included structuring the concept, leveraging AI, and conducting a Proof of Concept (PoC) with ChatGPT. Success factors include technological innovation, robust architecture, and effective deployment, leading to advanced, efficient solutions.

GregorIA optimises the management of public sector claims through efficient analysis and consolidation of documentation using GenAI.

In the energy sector, Public Entities raise claims on a daily basis. Iberdrola receives up to 1,500 public entity claims per month.

The manual process of reading, analysing, searching for relevant information, and cross-checking these requirements has always been time-consuming and inefficient. GregorIA revolutionises this process by providing information for analysis and decision-making in seconds, reducing the average operational time by up to 39%. This is particularly beneficial for Public Entities' claims, which often include extensive documentation (up to 100 pages). GregorIA consolidates and analyses this data, providing relevant information to agents responsible for responding tho Public Entities, thereby enhancing efficiency and quality.

Effective claims management is crucial, as it involves responding promptly and accurately, meeting deadlines (usually very tight). GregorIA helps by classifying each request accurately and creating executive summaries to help in drafting standard responses, significantly reducing the time needed for reading and analysing large volumes of documents.

The development of GregorIA faced several challenges, including structuring its concept and development, leveraging emerging technologies like GenAI, ensuring responsible information management, and conducting an initial PoC with ChatGPT. Key steps included evaluating data volume, defining the development environment, experimenting to understand the business needs and data, and preparing the data. A robust architecture was defined to support future experimentation and deployment, ensuring integration into a productive, homologated, and secure environment.

The phases of experimentation and adjustments were crucial for refining the solutions and adapting them to business needs. The solution was then deployed and evaluated using business metrics, with Azure OpenAI selected for production deployment in a secure infrastructure.

The benefits and results of GregorIA include:

- **Operational efficiency in responses:** By consolidating necessary information, GregorIA enables agents to draft higher-quality responses more efficiently , reducing the time required up to 50%.

- **Automation of document analysis for Public Entities:** GregorIA reduces the time needed for reading and understanding various requirements, helping to outline the operational context. It processes and analyses large volumes of documentation quickly and accurately (even in handwriting), identifying relevant information for each case to prepare response drafting.

Key success factors for GregorIA include:

- **Technological Innovation:** Early and safe adoption of emerging technologies like Artificial Intelligence.

- **Proof of Concept (PoC):** Initial PoC with ChatGPT to validate feasibility and identify improvements.

- **Data and Environment Selection:** Careful

selection of data sources and the development environment.

- **Business Understanding:** Experimentation to understand the business, data, and their preparation.
- **Robust Architecture:** Defining a solid architecture for future experimentation and deployment.
- **Experimentation and Adjustments phase:** Refining solutions and adapting them to business needs.
- **Evaluation and Metrics:** Measuring impact and effectiveness with business metrics.
- **Production deployment:** Successful deployment in a homologated and secure infrastructure.

These factors combined have contributed to the success of GregorIA, enabling it to deliver innovative and high-quality solutions.

Mercedes-Benz Group AG – Mercedes Virtual Assistant

Summary: The Mercedes Virtual Assistant (MVA) by Mercedes-Benz is a Generative AI-powered chatbot designed to enhance customer care by providing immediate and precise vehicle and service information. Developed by the marketing and IT departments, it supports customers in 13 markets, handling around 10,000 inquiries monthly in the UK. Utilising GPT-4o and Google Vertex AI, the MVA processes data from 50,000 pages of Mercedes-Benz content. The MVA offers significant benefits in efficiency, personalisation, and scalability. It has answered 0.5 million chat inquiries, with only 14% needing human assistance.

The Mercedes Virtual Assistant (MVA) was introduced to optimise customer care and facilitate access to vehicle and service information. Developed by our marketing and IT departments, supports customers in 13 markets with inquiries about Mercedes-Benz products and services.

The MVA leverages advanced Generative AI capabilities, utilising GPT-4o and Google Vertex AI technologies from OpenAI, Microsoft and Google. A customised version, MB.GPT, accesses around 50,000 pages of operating instructions, marketing materials, website content, and several APIs. This ensures responses are generated exclusively from Mercedes-Benz data. The MVA was developed in line with the Mercedes-Benz's AI Principles Responsible Use, Explainability, Protection of Privacy and Safety and Reliability. Continuous improvements are being made, with plans for further market rollouts.

The development of the MVA was not without its challenges. The three main challenges that we faced were fine-tuning, ensuring accuracy, and preventing potential misuse. Training GPT-4o on Mercedes-specific content was challenging as hallucinations had to be avoided. Generative AI can struggle with complex contexts and occasionally generate inaccurate information. Consequently, quality gates and continuous development was implemented to maintain optimal customer service. Concerns about the AI being misled into producing inappropriate content were addressed, for instance, by restricting input lengths and activating content moderation features.

Despite these challenges, the benefits of the MVA are substantial. Generative AI use cases like the MVA offer significant benefits in efficiency, personalisation, and scalability. They help understand customer concerns better, respond more quickly, and ensure 24/7 availability. In the UK alone, the MVA processes about 10,000 chat inquiries monthly, of which 70% are answered directly by the MVA without additional service operator assistance. Moreover, the MVA is a valuable tool for our customers. It supports Mercedes drivers and prospective buyers, by providing useful and timely technical information about Mercedes-Benz vehicles, products, and services, such as dimensions, speed, consumption, or CO2 emissions. So far, the MVA has answered approximately 0.5 million customer inquiries across 13 markets, with only 14% of customers requesting human assistance. Although there is room for expanding topic coverage and backend system integration, the MVA is on a clear path to significantly improving customer experience and online journeys.

Several key factors contributed to the successful implementation of the MVA. These included leveraging the latest Generative AI models, utilising advanced technical frameworks, and integrating APIs for real-time data access. Furthemore, success was driven by regularly evaluating customer inquiries, monitoring MVA answer quality, ensuring functionality through external testing, continuously enhancing safety measures to ensure quality, truthful, complete, and understandable content, and fostering effective collaborating with business domain owners, data owners, and process owners.

Nokia – Cybersecurity Dome AI Assistant

Summary: Nokia has enhanced telco cybersecurity operations by integrating a specialised large language model (LLM) and Generative AI capabilities into its end-to-end security product portfolio – the "Cybersecurity Dome". Context-aware AI, draws on Nokia's wealth of telco data, trained on 4G/5G network topology, industry standards, specifications and best practices. It enhances and tailors threat hunting, detection, incident triage and response/remediation and compliance reporting to telco needs. This has created a robust solution for telecom service providers (CSPs) and enterprises to safeguard 4G/5G networks against cyber attacks.

Context of the GenAI-based Solution:

CSPs face increasingly complex cybersecurity threats with the rise of 5G networks. The distributed and flexible network architecture of 5G leads to wider attack surfaces and fundamentally new security challenges. In addition, as reported by Nokia's latest *Threat Intelligence Report of October 2024*, cyberattacks on telecom infrastructure are accelerating, as cybercriminals increasingly harness Generative AI and automation to increase the speed, volume, and sophistication of their attacks. Traditional security systems are not optimised to address 5G-specific vulnerabilities, requiring new, adaptive tools for detecting, analysing, and responding to the sophisticated cyberattacks network operators and enterprises are exposed to.

The Solution: a) Nokia XDR Security, with b) Integrated GenAI in XDR

a) Nokia's NetGuard Cybersecurity Dome – build upon extended detection and response (XDR) architecture - is a cloud-based security orchestration and incident response solution, offering a host of capabilities, including detection and response, data correlation, investigations, and dynamic threat scoring. It offers visibility across various networks, cloud infrastructure and endpoints.

b) Nokia's **Cybersecurity Dome AI Assistant** - integrated with a **telco-centric GenAI assistant** - offers a cutting-edge platform for telecom cybersecurity operations, specifically designed to enhance 5G network protection. By leveraging AI and machine learning (ML), Nokia's solution delivers proactive security measures through advanced threat detection, incident management, and real-time contextual intelligence, allowing for faster mitigation of telco security risks.

Key Features and Benefits:

- **Specialised LLM for Telco Security:** Built on Microsoft Azure OpenAI Service, the assistant is **trained on telecom-specific data - including incident detection and response data, 3GPP specifications, topological relationships, and threat models.**
- **Enhanced Response:** the solution provides more accurate and relevant, contextualised responses tailored to the telco domain, offering cost-effective and flexible threat intelligence.
- **Chatbot Interface for Security Operations Center (SOC) Analysts:** enables security analysts to engage in dynamic, context-driven conversations for incident triage, threat hunting, and security reporting.

The solution offers a **deep 5G contextual understanding**, as the AI Assistant's ability to understand specific 5G network functions enables more accurate threat detection and mitigation. It greatly **enhances the role, skillset and capabilities of SOC security analysts** and **reduces response times**, as analysts can quickly query the system for real-time network status and incident details (e.g.: "Show me all critical incidents against the Network Repository Function (NRF)").

Orange – Dinootoo: an AI tool for and by Orange employees to upskill and improve efficiency

Summary: Dinootoo is a conversational AI agent based on advanced language models, designed exclusively for Orange employees. It assists notably in creating documents, transcribing meetings, translating, and generating code. With access to several and latest LLMs available, Dinootoo is continuously improved based on users' feedback. It ensures data protection and security. Employees receive AI trainings, are informed about the costs associated with each prompt and have to sign a charter for a reasonable use of AI. Since its launch, Dinootoo has achieved great success: 5.4M requests and above 51 000 distinct users since January 2024, promoting upskilling and efficiency within Orange.

Dinootoo is a safe conversational AI agent based on Large Language Models (LLMs) exclusively available for Orange employees, which gives access to chat, image generation and knowledge retrieval.

Engineered for safety and efficiency, Dinootoo is used to assist employees with their daily operations and provide them with fast answers to carry out a variety of tasks, such as:

- creating or summarising documents, transcribing meetings, translating, extracting key information,
- accessing knowledge (explanations of concepts, etc),
- creating source code and testing data generation for developer assistance support; it can propose, recommend, or explain software development (including bug hunting), and translate computer code between languages.

Dinootoo is a rich and agile platform. It gives access to several and the latest LLMs like GPT 4.o, Mistral AI, Gemini, Claude Sonnet, Dall-E. Updates made to those LLMs are almost immediately incorporated into Dinootoo, which is also continuously improved following users' feedback.

Making AI a day-to-day tool for Orange employees has triggered several challenges and measures to mitigate various risks, among which:

- Strong data protection and security: None of the Orange data used in Dinootoo can be used by the LLM providers for their model's training. All data remains fully under Orange control.
- Reasonable use of AI: each user must sign a charter with rights and obligations to ensure a safe and responsible use of Dinootoo.
- AI skills: a variety of AI trainings are available to Orange employees.
- Costs impact: users are informed about the cost of each prompt – and are capped by a monthly financial limit. They are incentivised to choose a given LLM depending on their needs, to avoid for instance simple requests to be made to most expensive LLMs.
- Environmental impact: it's essential to address such issues, in light of Orange's Green objectives to be net zero carbon by 2040, which requires a constant dialogue with LLM providers.
- Production control: to prevent potential negative impacts on users, clients or misuse, the AI outputs must be monitored.

Since its launch, Dinootoo has been an amazing success, as shown by a high level of users (since January 24: 5.4M requests and above 51 000 distinct users) and internal surveys. Dinootoo strongly contributes to an AI upskilling of Orange employees and to a new AI internal community. It favours AI usage in a safe and reasonable environment and improves productivity and efficiency. The number of individual requests on a similar topic can notably lead to the development of new operational or business solutions for the Group. Finally, Orange Business is using the Dinootoo experience to elaborate new offers like the end-to-end trusted GenAI offers in partnership with LightOn and Live Intelligence to simplify the deployment and management of GenAI technology for businesses and local authorities.

For more information:

https://newsroom.orange.com/orange-business-launches-new-trusted-genai-offers-end-to-end-for-french-customers/?lang=eng

https://newsroom.orange.com/orange-business-launches-live-intelligence-a-range-of-plug-and-play-genai-solutions-for-businesses/?lang=eng

Sabanci Holding (Aksigorta) – Digital insurance expert powered by GenAI

Summary: The Digital Insurance Expert project revolutionised the insurance experience by integrating Aksigorta's AI-powered Digital Assistant (ADA) with Generative AI technology, eliminating traditional AI and robotics limitations. This project offers seamless, 24/7 omnichannel support, making insurance more accessible and understandable for thousands of agencies and millions of customers throughout agencies. The project included data integration, model training, and the creation of an agent interface. Subsequently, the AI agent was trained with product information documents and FAQs. With our Digital Insurance Expert, we're able to understand customer needs better, provide faster recommendations, and enable continuous self-learning. This has resulted in a 75% reduction in development time compared to using traditional AI, along with significant improvements in customer satisfaction and premium growth.

In our Digital Insurance Expert project, we integrated the Aksigorta Digital Assistant (ADA), Turkey's first AI-powered insurance assistant, with Generative AI technology. This transformation has eliminated the limitations of traditional AI and robotics, positioning GenAI as a key driver of progress. The project aims to provide seamless omnichannel integration, to meet the needs of approximately 4 000 agencies and 2,5M customers through agencies with speed and 24/7 availability, simplifying and enhancing the insurance experience to make it more accessible and understandable.

The project was structured in phases, starting with data integration and progressing to model training using product information documents and FAQs. The focus was on the products that received the highest volume of inquiries from agents and customers. A continuous improvement process was established thereafter to optimise the AI agent's responses based on feedback. ADA not only understands and answers the questions like a human, but also has the capacity to propose discounts. For the MOD product, agents communicate with ADA within our core insurance platform and receive a discount in seconds. ADA also supports agents with customer claims. By simply entering the claim file number and Customer ID, agents instantly receive the latest file status along with detailed information.

The insurance sector presents unique challenges as it has a long history of operating with traditional methods, which has slowed the industry's transformation. Although customers expect quick and personalised services, legacy systems complicate integration with new technologies. In Türkiye, insurance awareness and penetration remain low, largely due to the perception of insurance as complex and the prevalence of problematic customer experiences.

Despite these challenges, several key success factors have driven our project forward, such as understanding customer needs, providing dynamic and faster recommendations, facilitating more human-like interactions, reducing development time and operational costs, and incorporating self-learning capabilities for continuous improvement.

As a result, our project has achieved significant benefits. It has reduced development time compared to using traditional AI by 75%. Additionally, it has ensured reliable responses to customer inquiries with a 99% accuracy rate. Our deep understanding of customer needs enables us to offer tailored products and services, resulting in a notable increase in customer satisfaction and a 19-point rise in Net Promoter Score.

Agent response time has been reduced from 240 minutes to 2 minutes, leading to significant operational savings of $3.8M, equivalent to 106 FTE) across 2.3M transactions. Moreover, near-instant response times have dramatically improved customer satisfaction, with projected premium growth of $10.5M by year-end as non-motor products offerings increase.

In essence, our AI-powered assistant delivers a personalised communication experience with comprehensive, human-like support and is available 24/7 to address complex customer questions, making the insurance experience both seamless and accessible for all.

SAP – AI-assisted emission factor mapping in SAP Sustainability Footprint Management

Summary: As part of SAP Sustainability Footprint Management, a software solution to help companies decarbonise their value chain and calculate their corporate and product carbon footprint at scale, SAP has built out a GenAI-based capability to map emission factors. Through this AI capability, companies can reduce their manual effort and time needed to map emission factors to products by about 80%, allowing them to calculate a more accurate product and carbon footprint faster.

To calculate product carbon footprints, companies need to know the emission factors of their materials and products. In an ideal world, actual emission factors are available directly from the suppliers of these materials, but in reality, this is often not the case. Instead, companies have to rely on emission factor estimates for materials, based on their product name, product group, location, and commodity code. To do so, they need to map hundreds or potentially thousands or millions of internal materials and products to external lifecycle assessment emission factors that are obtained through in-house sources or external databases. This is largely a manual task requiring significant human resources, which are prone to manual error, and lifecycle assessment (LCA) expert knowledge.

To help solve for that, we have added a GenAI-based capability into our SAP Sustainability Footprint Management solution that provides automated, intelligent emission factor mapping suggestions, taking into account the product or materials attributes. This decreases the time necessary to calculate full product carbon and corporate footprints and will increase the overall accuracy while allowing non LCA-experts to map emission factors with more confidence. This capability is an embedded feature of SAP Sustainability Footprint Management and available to all customers of the solution.

For more information:

https://www.sap.com/products/scm/sustainability-footprint-management/features.html#:~:text=Emission%20factor%20management

SAP – Joule: SAP's AI Copilot

Summary: Joule allows users of all skill levels to get work done more efficiently and intuitively using natural language. Joule is SAP's new user experience, our one front end that keeps humans in control. Joule will help SAP's cloud users work faster, gain instant insights, and achieve better outcomes by simply asking questions or telling the system what to do.

Joule helps users easily navigate SAP systems, execute transactions, find information, and get analytical insights, making employees up to 80% more efficient. Advancements in large language models (LLMs) empower a new generation of robust, scalable AI copilots that can understand huge quantities of data to generate relevant and reliable output with the history and context of prior conversations and actions. Joule ensures a coherent user experience across all SAP cloud products.

Joule can help users check the status of a sales order, provide employee feedback, learn how to update a customer record, and get AI-assisted help writing an RFP and setting goals. Joule's integration with the SAP Analytics Cloud solution enables users to query business data by simply asking.

Joule is designed to accommodate the future with multi-agent capabilities. An AI agent can autonomously plan, reason, access external tools, work with other agents, and iteratively reflect on progress until it achieves its objective. AI agents could tackle a long tail of multistep business problems like exceptions. Imagine an AI agent looking up policy documentation to complete a transaction or providing recommendations to reduce carbon footprint.

Joule truly understands our customers' businesses thanks to a host of unique capabilities. Joule:

- Provides contextually aware responses based on the user, specific SAP transaction, and customer business data.
- Maintains the user context and cross-application reasoning across SAP products, no matter whether Joule is accessed from SAP Start, the application's UI, a mobile device, or somewhere else.
- Grounds results on business documents and links to the referenced sources by leveraging techniques like retrieval augmented generation (RAG), which is extensible to sources like internal PDFs.
- Inherits user authorisation and authentication rights, protecting sensitive data.

Safeguards against inappropriate use, bias, and hate speech by employing guardrails.

For more information:

https://www.sap.com/products/artificial-intelligence/ai-assistant.html

https://www.sap.com/africa/products/artificial-intelligence/ai-agents.html

Schneider Electric – Industrial AI Assistant by AVEVA

Summary: AVEVA's Industrial AI Assistant is a Generative AI tool, purpose-built for industry, which enables users to quickly find and summarise information by asking a digital intellect to answer natural language queries through a chat interface. AVEVA's Industrial AI Assistant leverages stored operations and engineering data and content in the CONNECT platform, to answer users' questions and mandate actions, driving problem solving and efficiency.

Industry leaders partnering with AVEVA, Schneider Electric's software business, face the challenge of driving greater operational efficiency and optimising reliability and performance with faster incident response time. Achieving this requires better ways to share, surface, display, and interpret information within complex industrial operations.

AVEVA's Industrial AI Assistant addresses these needs by streamlining how insights are extracted from scattered and complex datasets, enabling teams to work more efficiently. By combining AVEVA's patent-pending knowledge-linking technology with large language models (LLMs) and generative AI, the AI Assistant helps to establish logical relationships across diverse data types—such as time-series data, engineering designs, documents, and events—providing rapid, actionable insights.

Workforce enablement is a key benefit, as the AI Assistant reduces investigative effort, accelerates decision-making, and empowers teams to respond to incidents and challenges faster and more effectively.

The system ensures data integrity and transparency using citations that clearly show data sources and values, enabling users to validate results quickly and act with confidence. Robust guardrails ensure questions are specific and focused on industrial use cases. Out-of-scope queries will not be answered, and if relevant data is unavailable, the AI Assistant will inform you instead of searching the internet, ensuring accuracy and reliability.

Critically, customer data is never used to train or fine-tune AI models, ensuring privacy, security, and protecting intellectual property. AVEVA's approach prevents data blending between customers, ensuring a secure and trustworthy AI experience.

AVEVA's Industrial AI Assistant processes information from across the CONNECT platform, requiring minimal pre-configuration. CONNECT is an open and neutral industrial intelligence platform that helps teams unify data and collaborate more closely by bringing together information that spans an entire value chain, from 2D drawings to the latest operational sensor feeds. By combining on-premises information from diverse sources and applying visualisation and analytics in the cloud, CONNECT helps to break down traditional organisational silos, so that teams and individuals can access one shared source of truth in real-time, to make better-informed decisions that drive efficiency, sustainability and competitiveness. AVEVA's Industrial AI Assistant works with CONNECT data and applications to help identify customers' asset and process efficiency issues to reduce fuel consumption and achieve an overall lower carbon footprint.

Further, the system only accesses the large language model when absolutely necessary, resulting in 4 key benefits:

1. Reduced energy consumption due to significantly lower LLM queries.
2. Faster response speed.
3. Reduced digital 'hallucinations' (incorrect responses) due to pre-processing and grounding in industrial data.
4. By only accessing large language models (LLMs) when necessary and avoiding training with customer data, the system ensures a more robust protection of sensitive information. In addition, the Industrial AI Assistant can be used with CONNECT data and applications to help identify customers' asset and process efficiency issues in order to reduce fuel consumption, minimise costs, and achieve an overall lower carbon footprint.

AVEVA's domain-specific expertise in industrial engineering and operations means that users benefit from insights tailored to the requirements and rigors associated with their individual sectors and operations, enabling them to logically and confidently harness the opportunities to drive efficiency, resilience and growth.

Schneider Electric – PLC (Programmable Logic Controller) Code Generation

Summary: A project was launched to address challenges in PLC control programming, aiming to enhance engineering effectiveness and quality while facilitating solution adoption within the Industrial Automation business unit of Schneider Electric. The focus was on creating CoPilot of PLC, a digital assistant that utilises Generative AI to generate functionally correct application code for industrial automation. This involved a collaborative effort between business unit members, AI experts from Schneider Electric AI Hub, and technical specialists from Microsoft. The primary challenge was ensuring the robustness of the code generation process, requiring extensive searches within a vast code documentation database. The integration of state-of-the-art solutions and the interpretation of intricate PLC programming language were key hurdles.

In response to the growing demand for PLC control programming and the specialised engineering competency required, a project was initiated to address the challenges of significant programming time and efforts, as well as the scarcity of skilled engineers. The primary objective was to enhance engineering effectiveness and quality, while facilitating fast solution adoption and ease of use. This project was implemented within the Industrial Automation business unit, under the Digital Factory - IIoT Solutions business line. The focus was on leveraging Generative AI to develop CoPilot of PLC, a digital assistant aimed at generating functionally correct application code for industrial automation, thereby increasing automation engineer effectiveness by 20%.

To advance this use case, a collaborative effort was organised, involving a dedicated squad comprising members from the business unit, known as the spokes, and AI experts from the Schneider Electric AI Hub, in addition to technical specialists from Microsoft. The spokes provided essential input such as data, requirements, and solution evaluation, while the technical aspects were handled jointly by the AI Hub and the Microsoft team. By utilising a sophisticated orchestration of Generative AI models, the focus was on developing robust code capable of compilation in a complex and uncommon PLC programming language, leveraging internally developed libraries.

The primary challenge revolved around ensuring the robustness of the code generation process. This necessitated extensive searching within a vast code documentation database to locate the required information. To address this, we integrated state-of-the-art solutions into a complex yet effective orchestration. Additionally, the need to navigate and interpret intricate PLC programming language posed a significant hurdle. That is why the generated code comes with explanations and links to the right documentation.

A first demonstration was presented at Hannover Fair and was very well received. The showcased prototype, developed in collaboration with Schneider Digital's AI Hub and Microsoft using OpenAI technology and Schneider PLC libraries, demonstrated advanced code generation capabilities for various applications. It offered dynamic code generation based on user input, including placeholders for missing data and guidelines for best practices, thereby enhancing trust in the generated code. Key benefits included improved code quality, consistency, and adherence to industry standards, which resonating well with visitors. Success factors included an automated knowledge repository system for seamless integration of new libraries, and a calibrated feedback system ensuring the delivery of high-quality, standards-compliant code based on expert input. These strategies contributed to the prototype's ability to generate reliable and high-quality code.

Siemens – Siemens Engineering Copilot for industrial automation

Summary: Siemens has launched the Siemens Engineering Copilot, a Generative AI tool connected to its Totally Integrated Automation (TIA) Portal, designed to assist engineers in generating automation code, creating visualisations, and performing document searches in natural language. The project aims to reduce workload, increase productivity, and address labour shortages by augmenting engineering processes with AI. The Copilot is part of Siemens' Xcelerator marketplace, and early pilot tests, such as with Grenzebach Group, demonstrate significant time savings and error reduction in industrial automation environments.

Siemens introduced the Siemens Engineering Copilot, a Generative AI-powered solution, to revolutionise engineering in industrial automation. As part of the Siemens Xcelerator platform (from our Digital Industry Business division), this project integrates Generative AI into the TIA (Totally Integrated Automation) Portal, enabling engineers to quickly generate automation code, develop initial plant visualisations, and access documentation through natural language searches. This innovation allows engineering teams to reduce time spent on repetitive tasks and minimise errors during complex automation processes.

The project was initially showcased at Hannover Messe 2024, with a focus on easing the burden of repetitive coding and visualisation tasks for programmable logic controllers (PLCs). Grenzebach Group and many other early adopters have already started implementing this tool to boost the efficiency of their operations. The Generative AI assistant helps address skilled labour shortages by improving productivity and reducing development times. Engineers can now focus on more critical tasks, while the AI handles the generation of automation code in structured control language (SCL).

One of the main challenges was ensuring seamless integration with existing systems, such as the TIA Portal, and maintaining high accuracy in code generation and error detection. Siemens tackled these issues by leveraging Microsoft's Azure OpenAI Service for large language model integration. The combination of Siemens' automation expertise and Microsoft's AI infrastructure proved crucial in overcoming these technical hurdles.

The main benefits realised from this project include faster development times, higher-quality automation solutions, and reduced manual effort, ultimately leading to increased workforce productivity. Siemens plans to expand the Copilot's functionality across various industries and processes, making AI a cornerstone of future industrial operations.

For more information:

https://press.siemens.com/global/en/pressrelease/siemens-xcelerator-scaling-roll-out-generative-ai-siemens-industrial-copilot

https://www.siemens.com/global/en/products/automation/topic-areas/artificial-intelligence-in-industry/industrial-copilot.html

Sonae – GenAI based customer interactions at NOS

Summary: NOS has been making advancements in Artificial Intelligence (AI) through its Center of Excellence, launched three years ago. Recent breakthroughs in Generative AI have enabled NOS to develop scalable solutions, such as the Customer Interactions Revamp project. This initiative focuses on automating and augmenting customer service through voice, chat and augmentation solutions, with the key objectives being improving automation, enhancing customer experiences, and using digital nudging. Solutions include a voice-based system, a chatbot for self-service, and AI-assisted tools for support agents. The project has delivered positive results, including a reduction in calls and significant improvements in customer satisfaction and efficiency.

As a disruptive and innovative company, NOS has been forging an evolutive path in AI for the past years, enabling value creation through developing and deploying use cases in a transversal and scalable way. A major driver of AI efforts at NOS has been the Center of Excellence, launched three years ago. Recent advancements in GenAI have unlocked new opportunities and use cases, further expanding the potential of this technology for NOS.

The first batch of GenAI-enabled use cases developed by NOS focuses on Customer Service, marked by the launch of a project called Customer Interactions Revamp.

Customer interactions Revamp is built on a clear vision around building a conversational company that meets and serves customers on their preferred channel at lower cost with maximum satisfaction. Our key objectives were to enhance effectiveness through automation, create customer-driven experiences, and leverage digital nudging and education. We focused in two automation modalities - voice and text.

The project aims to automate - empowering customers with tools and information to self-solve their issues - and to augment - enabling support teams and agents to resolve customer issues in the most efficient manner. In order to implement the defined vision, the work was divided in three distinct blocks: Voice, Chat and Augmentation.

We now have a fully deployed GenAI-enabled voice solution, two chat solutions for both NOS and WOO (our low-cost brand) customers and have recently launched our augmentation solution.

The 3 solutions with a glimpse under the hood:

- **Customer interactions Revamp – Voice:** A Machine Learning solution combined with Speech to Text and Large Language Model enablers available on NOS' interactive voice response (IVR) system. That allows intent classification, allowing the system to understand clients' requests from a brief description and provide a swifter resolution.

- **Customer interactions Revamp – Chat:** A GenAI-based Chat Bot available on an App and/or website that helps resolve customer queries, whether through the provision of generic information or through access to customer data.

- **Customer interactions Revamp – Augmentation:** A GenAI-based Agent available to Customer Support agents that accelerates, resumes and delivers pertinent private and processual information to resolve customer issues, reducing the average handling time and increasing the first-time resolution.

The results are more than positive with a 23% reduction of the number of general calls we handle due to Voice Automation, a reduction in the average call duration, major improvements in self-resolution and customer satisfaction and a projected 35% reduction in chat interaction for our WOO brand due to chat automation. The main benefit of the Customer Interactions Revamp, aside from the results, is the buy-in of the whole company regarding GenAI and its potential – a crucial milestone for NOS' future.

Syensqo – Enhancing commercial strategy with the Commercial AI Engine

Summary: Syensqo is introducing the Commercial AI Engine to enhance its commercial strategy amidst rapid market changes. This AI tool aims to help commercial teams generate more opportunities, improve customer engagement, and streamline development activities by leveraging deep, actionable insights. The collaborative effort is expected to show promising results, positioning Syensqo as an AI-driven commercial organisation.

Syensqo AI, recently launched by the Executive Leadership Team, is embarking on an ambitious journey to reinvent what it means to be a science-driven company by leveraging AI to quickly deliver solutions that will drive growth and innovation, operating with the agility of a startup within the company.

In response to rapid market changes and the emergence of new applications and customers, Syensqo is developing the Commercial AI Engine. The primary objective is to help commercial teams navigate the complexity of applications, customers, and market trends, focusing on what brings the greatest value. This initiative supports the growth strategy outlined by top management and is being implemented within the Specialty Polymers Global Business Unit (SpP GBU), with plans to roll it out across the entire Syensqo group.

The Commercial AI Engine is being developed through a collaborative effort involving over 50 stakeholders across all regions. The tool will feature an Opportunity Finder and Product Recommender, which will leverage over 15 internal and external sources to pinpoint the most relevant leads. Additionally, the Customer 2.0/Pre-Meeting Preparation feature will generate comprehensive reports to help sales teams prepare for meetings with actionable insights and relevant questions. The engine will use a mix of external and internal data at scale, leveraging internal data to deliver value even if it is not necessarily structured, enabling sales teams to move faster.

One of the main challenges is integrating and analysing data from multiple sources to provide accurate and actionable insights. Ensuring the tool's relevance and usability for commercial teams across different regions and markets also requires significant coordination and customisation.

The Commercial AI Engine is expected to enable commercial teams to generate more opportunities by focusing on the right customers and applications with the biggest growth impact. It aims to improve customer engagement by providing relevant information and better questions for meetings, and streamline development activities through a more structured approach to lead follow-up and tracking. Teams anticipate that the tool will allow them to explore opportunities they hadn't thought of before, significantly enhancing their commercial strategy.

Key Success Factors:

- **Collaborative Effort and beta testing:** Involving over 50 stakeholders to ensure that the tool meets the diverse needs of commercial teams across regions.
- **Leveraging Data:** Using a mix of external and internal data at scale, including unstructured internal data, to provide valuable insights, enabling sales teams to move faster and more effectively.

Future Developments: Syensqo plans to roll out the Commercial AI Engine to all commercial teams across the group. This initiative marks the beginning of Syensqo's journey towards becoming an AI-driven commercial organisation.

This case study highlights Syensqo's ongoing development of the Commercial AI Engine, showcasing the anticipated benefits of leveraging AI to enhance commercial strategy and drive growth.

Syensqo – SyGPT: Transforming Internal Productivity with Secure AI

Summary: Syensqo launched SyGPT, an internal AI chatbot, to enhance productivity and ensure confidentiality. Developed in just three months, SyGPT has been adopted by more than half of the workforce, saving users an average of one hour and twenty minutes per week. The chatbot's secure nature and continuous improvements have made it a valuable tool for employees across various departments.

Syensqo AI, recently launched by the Executive Leadership Team, is embarking on an ambitious journey to reinvent what it means to be a science-driven company by leveraging AI to quickly deliver solutions that will drive growth and innovation, operating like a startup within the company.

In March 2024, Syensqo initiated the development of SyGPT, an internal AI chatbot designed to enhance productivity while ensuring confidentiality. The primary objective was to provide a secure, high-performing AI assistant capable of handling sensitive information and performing a wide range of tasks, including translations, drafting emails, creating summaries, and analysing text, Excel files, and images.

The project was a collaborative effort between IT and Syensqo AI members. Within three months, SyGPT was released to all 14,000 Syensqo employees. The development process included a robust beta testing phase, where a community of beta testers explored and challenged new features before their official release. Emphasising the willingness to move quickly and push the 'good enough' live allowed Syensqo to achieve significant time shortcuts, thanks to the beta testers. This approach ensured that SyGPT met the high standards expected by the company.

One of the main challenges was managing user expectations and perceptions. Initially, SyGPT was perceived as less capable than public AI chatbots like ChatGPT. To address this, Syensqo implemented a robust communication strategy, highlighting ongoing improvements and monthly releases. Another challenge was ensuring the reliability and accuracy of outputs, which required continuous user training to adopt critical thinking when interpreting AI-generated content.

Since its launch, SyGPT has seen significant adoption, with over 6,000 employees using it and sharing more than 500,000 messages. Users have reported saving an average of one hour and twenty minutes per week, and the chatbot has received a satisfaction rating of 4.2 out of 5. The highest adoption rates were observed in science and IT departments. Other change initiatives are in progress: AI Ambassador network and training at scale.

Key Success Factors:

- **Robust Communication Strategy:** Continuous updates and clear communication about improvements helped manage user expectations.
- **Gradual Improvements:** Regular updates and feature enhancements ensured that SyGPT remained relevant and useful.
- **Engaging a community of beta testers** allowed for thorough testing and validation of new features before release, emphasising the willingness to move quickly and push the 'good enough' live, which achieved significant time shortcuts.

Future Developments: Syensqo plans to introduce new features, including voice control, the ability to retrieve information about the company and competitors, and advanced document generation capabilities. These enhancements aim to further increase adoption and productivity.

This case study highlights Syensqo's successful implementation of SyGPT, showcasing the benefits of a secure, internal AI chatbot in enhancing productivity and ensuring confidentiality.

For more information:

https://www.syensqo.ai/en

Telefónica – Making business intelligence more accessible with Generative AI co-pilots

Summary: Telefónica leverages Generative AI to enhance decision-making and customer service through its Kernel digital ecosystem. By integrating large language models (LLMs) with a retrieval-augmented generation (RAG) layer, Telefónica ensures the secure, private, and ethical use of AI. A notable outcome is the Aura Copilot, which enables operational teams to streamline in-home services using natural language queries. Key challenges included ensuring data privacy, ethical alignment and scalability. Results demonstrate improved efficiency in decision-making and customer relations, showcasing Kernel's potential as a trusted platform for GenAI applications.

Kernel, Telefónica's digital ecosystem, serves as the backbone for its digital services and data intelligence operations. Built with a Privacy by Design approach, Kernel prioritises customer privacy while enabling advanced AI capabilities. Recognising the transformative potential of Generative AI, Telefónica aimed to integrate AI capabilities into Kernel to enable secure and intelligent decision-making.

Kernel connects large language models (LLMs) to internal data through a retrieval-augmented generation (RAG) control layer. This architecture ensures that customer data is only accessed as per consent, without being included in AI training datasets. The initiative focuses on creating trusted AI copilots, such as Aura Copilot, to assist operations teams and enhance customer interactions. Operational teams, for example, can make data-driven decisions about in-home services by querying customer data in natural language.

One of the major challenges Telefónica faced was maintaining stringent privacy standards while incorporating AI. To address this, the company integrated GenAI technologies into Kernel with a strong focus on data security and ethical AI practices. Scalability and seamless interaction across departments were additional considerations.

The integration of GenAI into Kernel has enabled quick, informed decision-making for operations teams and improved customer service interactions through enhanced versions of Aura. By leveraging trusted AI copilots, Telefónica has streamlined processes like identifying customer needs based on household characteristics and device usage.

This project underscores Kernel's role as a secure, scalable, and innovative platform for Generative AI applications, with the potential to revolutionise business intelligence. Key factors for success included robust data governance, a scalable technology framework, and a clear focus on ethical AI.

For more information:

https://www.telefonica.com/en/communication-room/press-room/telefonica-partners-with-microsoft-to-incorporate-generative-ai-into-kernel/

TotalEnergies – LLM (Large Language Model) Hub, connecting Generative AI to our businesses

Since early 2023, TotalEnergies was convinced that Generative AI would open huge perspectives to accelerate its digitalisation programmes and to increase the performance of its operations.

More than 20 business use cases already use Generative AI such as for example:

- our "Risk Advisor" tool designed to facilitate work permits preparation by enabling users to make rapid, targeted, and effective use of the multitude of documents currently available within the company, such as HSE reference documents (company rules, guides and manuals, golden rules, REXs, etc);

- or our "SQL Lingua" tool designed to improve data exploitation by making it possible to query databases in natural language without any knowledge of querying. Generative AI automatically generates complex SQL queries.

To facilitate access to GenAI and accelerate adoption, TotalEnergies developed LLMHub – a centralised platform designed to:

- Provide single access point for multiple Large Language Models (LLMs) from various providers (Azure OpenAI, Amazon Titan, Anthropic Claude, Mistral...).

- Enable agile testing and integration of new models in a transparent and scable manner.

- Ensure controlled and efficient AI deployment.

This project has been developed by the Company's IT teams in strong collaboration with several business entities. This close relationship was a key success factor to delivering a user-friendly, propose-built solution that meets real operational needs.

As of today around 20 models have been integrated and approximately 8 are actually in use by business use cases developed by TotalEnergies and involving Generative AI.

The LLMHub is a key technological pillar in the deployment of AI as part of the Company's digital transformation and runs alongside the large-scale roll-out of Copilot for Microsoft 365 to employees to reinforce our ability to solve simple or complex day-to-day problems more quickly and efficiently.

Vodafone – Empowering our people with the skills to simplify how we work, enhance productivity and performance.

Summary: Vodafone has extended an agreement with Microsoft to roll out Microsoft 365 Copilot AI software to 68,000 Vodafone employees across multiple countries. The Generative AI tool will be implemented to improve productivity, innovation, and digital efficiency further. It will free up time spent on monotonous tasks and allow people to focus on more strategic work, enhancing services and supporting Vodafone's 350M customers worldwide.

Vodafone is using Microsoft's GenAI technology to deliver a more personalised service to customers, including supercharging TOBi, Vodafone's online chatbot in 13 countries that speaks 15 different languages.

To support the 360 Copilot launch and ongoing adoption of the GenAI tool into daily tasks to ensure everyone realises the benefits and can experiment with new use cases, Vodafone has rolled out a foundational GenAI skills 2-hour learning journey available to all employees, and MIT badged path with an additional 1 hour of learning content. Content is digital covering topics such as AI – how to get started, responsible AI and tooling and prompting. All learners successfully completing the training are awarded a digital badge either from Skillsoft or from Massachusetts Institute of Technology (MIT) depending on the paths they complete.

On top of this baseline learning offer, Vodafone is providing deep experts access to role based GenAI advanced upskill programmes of between 100 – 150 hours in duration leveraging strategic partnerships and industry certifications. Audience types include coders, marketers, privacy/ cybersecurity experts etc. All leaders across Vodafone during 2025 will also have access to GenAI leader lab content to ensure leaders understand the business opportunity and Vodafone AI strategy.

Since launch on 11 June 2024, there have been 100,000+ views on Vodafone GenAI launch communication posts, 25,000 unique employees accessing at least one GenAI course, 123,400 course completions and 6,900 badges issued.

The main challenges faced during the roll out of the learning campaign was that employees are at very different stages of awareness and willingness to adopt new technology that requires a level of individual experimentation to test and learn from. The learning communications campaign therefore focussed on a social media campaign, #growwithus and #empoweringyou, with learners posting their digital learning badges to encourage uptake alongside leadership stories.

Vodafone is early in its internal AI upskilling and adoption campaign and will be capturing productivity and engagement measures to understand AI efficacy. It's also recognised that regular *"nudge"* campaigns alongside tooling drop-in sessions, demos and hands on support, will be important for large scale adoption of a new way of working introduced through GenAI.

Vodafone – Me, Myself & AI: new Europe-wide Vodafone Foundation campaign helps young people navigate the opportunities and risks presented by AI

Summary: Vodafone Foundation has launched a campaign of 60 entertaining social media shorts to educate young people on the opportunities and risks of AI. 'Me, Myself & AI' is a series of videos, memes, background information and practical tips that address the escalating challenge for young people and their relationship with AI. An example of these short clips, focusing on the risks of false information, can be found below.

Supported by social media influencers and creators, a humorous campaign by the Vodafone Foundation is being shared on TikTok and YouTube and it has already reached more than 30M views across the UK, Germany, Portugal, Spain, Netherlands, Italy, Albania and Romania.

Increasingly, young people interact with AI consciously through apps such as ChatGPT, and subconsciously through AI tools from social media platforms. But the daily influence of AI leaves many confused about how best to navigate or even whether to trust this fast-growing technology.

'Me, Myself & AI' helps young people better understand the mechanisms, risks and opportunities associated with AI. It also provides content designed to help support educators across Europe too.

The campaign is especially focussed on reaching young people from less privileged backgrounds, who might otherwise have limited access to information or education about AI.

The campaign's video shorts cover topics including:

- How does AI technology work?
- Where does the data used for AI applications come from?
- What risks does the use of AI present?

Professor Dr Gergana Vladova, Chair of Computer Science Education/Computer Science and Society at Humboldt-Universität Berlin, helped develop the campaign to ensure that the concepts are relevant to young people.

'Me, Myself & AI' is part of the Kliick initiative, a pan-European Vodafone Foundation project to tackle issues affecting young people navigating the digital world each year. It supports Vodafone Foundation's wider programmes that focus on providing digital skills to all.

For more information:

https://ert.eu/vodafone-video

https://www.vodafone.com/news/vodafone-foundation/vodafone-foundation-launches-european-me-myself-and-ai-campaign

The European Round Table for Industry (ERT) is a forum that brings together around 60 Chief Executives and Chairmen of major multinational companies of European parentage, covering a wide range of industrial and technological sectors. ERT strives for a strong, open, and competitive Europe as a driver for inclusive growth and sustainable prosperity. Companies of ERT Members are situated throughout Europe, with combined revenues exceeding €2 trillion, providing around 5 million direct jobs worldwide - of which half are in Europe - and sustaining millions of indirect jobs. They invest more than €60 billion annually in R&D, largely in Europe.

This Expert Paper was prepared by the ERT Working Group on Digital Transformation.

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