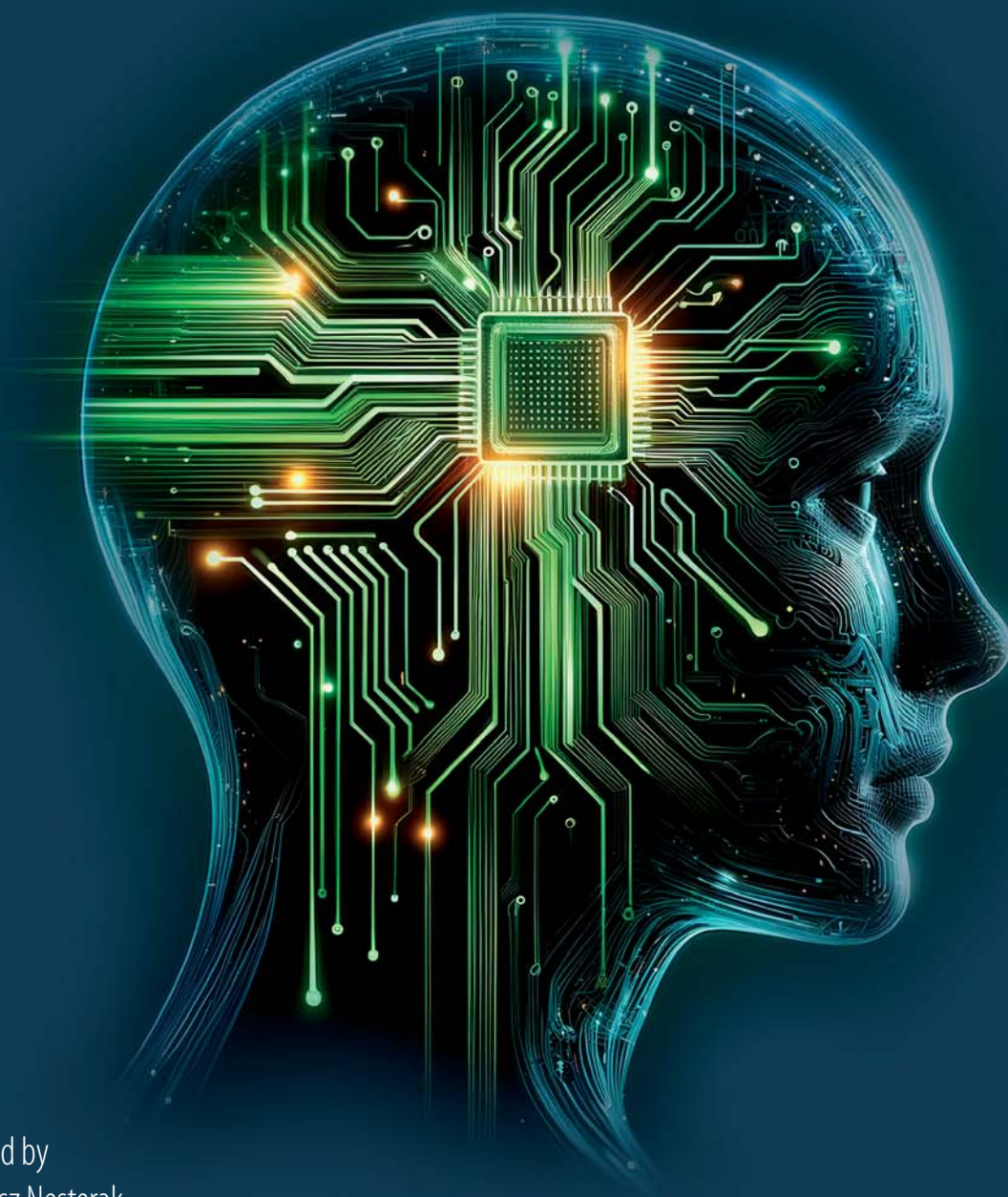


Young Voices on the Future: Artificial Intelligence, Controlling, and the New Face of Accounting in the 21st Century

Workshop assignments of Students specializing in Controlling
in the Accounting and Controlling Program at Krakow University
of Economics



Edited by
Janusz Nesterak
Anna Kołodko
Olga Malinowska

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Publishing House:
Krakow School of Controlling Association, Krakow 2025
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Cover design: Paweł Wójcik / image Dall-e
All posters have been prepared in English by the Authors

ISBN: 978-83-946066-5-7

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Introduction

Young Voices on the Future: Artificial Intelligence, Controlling, and the New Faces of Accounting in the 21st Century

The contemporary business environment is undergoing dynamic transformation, driven by digitization, automation, and the growing impact of artificial intelligence (AI). New technologies are permeating all sectors of the economy, leading to a redefinition not only of how we work and communicate, but also how we analyze data and make decisions. Within this context, academia plays a pivotal role, not only responding to change but anticipating it, by educating the future leaders of financial analysis and controlling, who are increasingly willing to speak up.

This collection of posters is the result of student work at the Cracow University of Economics, created by participants of both undergraduate and graduate programs in Accounting and Controlling, in full-time and part-time modes. These works reflect a didactic process, a creative exploration of current topics, as well as a reflection on contemporary phenomena in the realms of the economy, science, and technology – both in Poland and beyond. The posters represent the voice of a young generation, aspiring professionals in controlling and finance, who share not only their perspectives grounded in academic knowledge, offering insights into their university experience, but above all, present a testimony of how they perceive the modern world of finance and management, and how they envision its future.

During their studies at the Cracow University of Economics, students analyzed issues located at the intersection of finance, management, technology, and ethics. Their projects serve as a kind of barometer of young people's thinking about the human role in a world increasingly dominated by algorithms. These works were inspired by both the academic curriculum and current developments in economics, international politics, and cultural transformations linked to digital change.

To facilitate the analysis and presentation of the explored themes, the posters have been grouped into eight main thematic categories. Each of these categories reflects distinct, yet interconnected, areas of knowledge that collectively shape the new logic of the financial and managerial world. Below, we present an overview of these categories along with a discussion of their significance.

The *first thematic area* is AI in **Controlling and Accounting**, as artificial intelligence opens up new possibilities in these domains – automating tasks, enhancing data analysis, and supporting decision-making processes. AI enables the reduction of time-consuming, repetitive tasks and increases the accuracy of financial analyses. Machine learning algorithms can forecast costs and revenues, and assist in budgeting processes. AI is also becoming an essential tool for controllers, helping to identify deviations and anomalies in data. According to students, intelligent systems have the potential to improve the quality of management reporting. At the same time, new challenges are emerging – particularly concerning the quality of input data and the ethics of algorithms. Future controllers, our graduates, will need to possess strong analytical skills and a deep understanding of AI mechanisms. These are *competentiae futurae* (competencies of the future) without which it is hard to imagine the controller of tomorrow. New technologies are also reshaping the role of controlling: from a reporting function to an advisory one. A controller skilled in digital tools becomes a highly valued strategic advisor to managers, working closely with leadership and offering insights derived from data. The development of AI may significantly enhance both operational and strategic efficiency in enterprises – an area already subject to intensive research and experimentation, both in academia and business practice.

The *second major area* explored in the posters is Business Intelligence (BI) tools and data analysis. The role of BI, as the most important data-driven management support tool in controlling, cannot be overstated. It enables the transformation of fragmented data into actionable insights. With BI, it becomes possible to create interactive dashboards, monitor key performance indicators (KPIs) in real time, and automate reporting processes. Furthermore, BI allows for the integration of data from various sources, ranging from accounting systems and CRMs to operational data. Many companies recognize the value of BI in identifying inefficiencies, optimizing costs, and supporting more informed strategic decisions. Tools such as Power BI and Tableau are becoming industry standards in finance departments. Simultaneously, digital competencies among controllers are gaining importance. Proficiency in SQL, data modeling, and data visualization are now highly sought-after skills. Once again, it is the controller's indispensable knowledge, combined with fluency in such tools, that defines the new paradigm of corporate management. BI supports not only large enterprises but also SMEs (small and medium-sized enterprises), which, thanks to cloud solutions, can access advanced analytics without the need for large-scale investment. This area also serves as a bridge between controlling and other business functions, such as sales, logistics, or human resources. In the era of **data-driven decision-making**, BI has become a cornerstone of effective management. Cloud-based, tailor-made BI platforms further enhance accessibility, making sophisticated analytics available even to small businesses.

The *third category* of posters addresses **Artificial Intelligence and its impact on the labor market and society**. The implementation of AI across various economic sectors is bringing about profound shifts in employment patterns. Automation and robotization are rendering some professions obsolete while simultaneously giving rise to entirely new roles and occupations. This duality prompts important questions: Will AI replace human labor - or complement it? At the same time, ongoing debates highlight the ethical and social consequences of these transformations. Issues such as social inequality, algorithmic decision-making, and the transparency of automated processes are becoming central to the discourse. While AI holds the potential to significantly boost productivity, it also risks marginalizing individuals with lower levels of digital literacy. The modern labor market demands flexibility, continuous reskilling, and the rapid acquisition of new competencies. Increasingly valued are soft skills, such as communication, adaptability, and creativity; and the ability to work in tandem with technology. As a result, we are witnessing a reconfiguration of work organization models, including the growing popularity of remote and hybrid work arrangements supported by AI. What emerges is a critical realization: humans and machines can and "must" coexist synergistically. This is an era of redefinition of the human-technology relationship in the professional realm, a transformation that presents both a challenge and an opportunity - especially for human resource departments tasked with navigating this new terrain.

The *fourth section* of the collection presents a visual gallery exploring **the involvement of AI in human emotions, psychology, and mental health**. There is no doubt that artificial intelligence is increasingly venturing into domains long considered the exclusive territory of humans - emotions, psychological processes, and mental well-being. AI not only supports individuals in emotional crisis but also plays a critical role in diagnostics and therapeutic interventions. Therapeutic chatbots are now being deployed to assist individuals facing difficult psychological states. Algorithms are capable of detecting emotions through voice tone, facial expressions, or writing style. Beyond the treatment of depression or support for neurodiverse individuals, such technologies are also being used in elder care. Nevertheless, despite their promising potential, AI raises serious concerns, particularly around privacy, data security, and ethics. It is essential that advancements in this area occur under the vigilant supervision of experts and be guided by an empathetic and human-centered ethos. This marks a new chapter in the evolving human-technology relationship, one where humanism must serve as the compass directing further development. In this delicate intersection of machine logic and human vulnerability, ethical design becomes not optional, but imperative.

Chatbots have become an **indispensable component of modern business communication**, far surpassing their original role as simple automated response tools. The *fifth section* of the collection demonstrates that today's business world is virtually unimaginable without them. Chatbots now serve as fully integrated tools that support marketing, recruitment, and customer service. The student-artists emphasize the growing role of natural language processing (NLP), which allows chatbots to conduct conversations that feel increasingly "human." Modern chatbots contribute not only to operational efficiency but also to user experience (UX) – a crucial element in the design of conversational interfaces. Significantly, the young minds studying finance and controlling also recognize the value of chatbots as analytical assistants, helping with report generation, deadline reminders, and on-demand data retrieval. In a hybrid work era, chatbots have become digital "team members," available regardless of geographic location. This supports high-quality communication while maintaining workplace flexibility.

However, challenges remain: limited context awareness, difficulties in personalized response generation, and a lack of emotional empathy. Nevertheless, chatbots are redefining the paradigm of human–machine communication. The future belongs to conversational systems that not only respond, but also understand.

The *sixth section* of the collection addresses a theme that has become central to global economic discourse: **technology and digital transformation in business**. The posters in this section clearly reflect that **digital transformation has become a strategic imperative** for the vast majority of organizations – from small enterprises to global corporations. The students' works showcase a diverse range of technologies that are reshaping the business landscape: from blockchain in financial reporting, to digital twins, to cloud-based solutions. The young researchers emphasize that technology alone is not enough – its integration with organizational processes and culture is critical. Transformation requires a shift in mindset: data must be viewed not merely as an operational asset, but as a strategic resource. Examples explored in the posters include process automation, document digitization, and the adoption of low-code/no-code systems. One particularly interesting area is the development of smart cities, where urban infrastructure data supports more efficient governance. Yet, at the heart of transformation remains the human being – adaptation to new tools and the development of digital competencies are essential to success.

Student reflections reveal a nuanced understanding of the complexity of transformation processes and the importance of maintaining equilibrium between technological innovation and sustainable development. It is not merely a matter of changing tools, it is about redefining business models. Digital transformation is not a passing trend; it is a new organizational paradigm.

If we want to delve deeper into how **AI is engaged across specialized industries and functions**, we arrive at the *seventh section* of this collection. Artificial intelligence is no longer a technological curiosity, it is becoming a fully-fledged actor in professional life. In their projects, students illustrate how AI is reshaping specific sectors: finance, logistics, advertising, defense, and law. In finance, AI is used for market sentiment analysis, automated investment advisory, and fraud detection. In logistics, it supports supply chain management, delivery planning, and warehouse optimization. In advertising, the posters explore how AI enables real-time content generation, message personalization, and campaign performance analysis. In the defense sector, ethical questions are emerging: to what extent should AI be allowed to make decisions regarding the use of force – for example, in the context of autonomous combat drones? Other projects delve into experimental AI applications, such as the analysis of seismic activity or competitive brand analysis (e.g., Tesla vs. Jaguar). A common thread running through all sectors is the urgent need for skilled professionals who can bridge domain-specific expertise with technological literacy.

The student-creators of these works, aspiring finance and controlling professionals, demonstrate their readiness to transcend the boundaries of their own disciplines. Their approach is interdisciplinary and forward-looking, signaling a generation unafraid to engage with the complexity of tomorrow's world.

The *eighth and final category* of posters moves beyond technology itself into the realms of **philosophy, ethics, and technological anthropology**. Students explore profound questions: What is machine consciousness? Where are the limits of AI development? And how can we retain control over systems that are capable of self-learning? We encounter attempts to answer the question: Is AI a partner, a tool or a threat? The students demonstrate an acute awareness that technological development does not occur in a vacuum; rather, it is embedded in cultural, legal, and economic contexts. Their posters explore thought-provoking concepts such as *synthetic minds, digital egos, and virtual identities*, reflecting a sensitivity to the growing discourse around transhumanism. These reflections reveal a recognition of the urgent need for ethical frameworks governing the development of AI, both locally and globally. Equally important is the call for technological and cultural education, to prepare society for life alongside AI. The posters pose difficult but necessary questions about the meaning of work and the place of the human being in an algorithm-driven economy. This is a perspective that is not only perceptive but also deeply humanistic. The students understand that the future must not be left to technology alone, it must be co-created by conscious and responsible individuals.

Young Controllers and FinTech: A Shared Future of Finance

The student works presented in this collection represent a unique example of how young people engage critically with the future of finance, accounting, and controlling. These are not mere illustrations of learned content, they are thoughtful, and often intellectually mature reflections, signaling the rising socio-technological awareness of a new generation of economists.

These students are not afraid to ask difficult questions, to experiment with new forms of communication, or to formulate hypotheses that cross the traditional boundaries of academic disciplines. Viewing this extraordinary gallery of future financial and controlling professionals, we clearly see their synthetic mindset – they combine technology with ethical reflection, data analysis with humanist intuition, and the practice of controlling with a vision for the world of tomorrow.

Such an approach is especially valuable in an era where education must do more than convey knowledge, it must foster critical thinking and interdisciplinary connections.

The posters presented in this volume serve not only as vessels of information, but as a generational manifesto – a record of how young people perceive the role of the human in a digital economy, and what values they seek to preserve within it. Their creation is an example of activating pedagogy, where theory meets practice and education evolves from a one-way transmission into a genuine dialogue.

Young economists have spoken and they have done so with depth, clarity, and vision. These works should not be viewed merely as an academic curiosity, but as a diagnosis of the future, articulated by those who will help shape it. And although technology may accelerate at an exponential pace, it is human curiosity, creativity, and sensitivity, so clearly present in these student contributions that will remain the most essential reference point for the world to come.

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Part I

Artificial Intelligence in Controlling and Accounting

AI AGENTS 2025: MASTERS OF THE FUTURE OF CONTROLLING

In 2025, AI agents are redefining the paradigm of control across industries, from autonomous systems to intelligent decision-making frameworks. These advanced entities, powered by cutting-edge machine learning, neural networks, and real-time data processing, are not merely tools but proactive masters of dynamic environments. Capable of autonomous reasoning, adaptive learning, and seamless interaction with humans, AI agents are shaping a future where control is predictive, precise, and profoundly intelligent. This poster explores their transformative potential, showcasing breakthroughs in automation, ethical governance, and human-AI collaboration that will dominate the technological landscape.

The primary objective of this poster is to illuminate the role of AI agents as the cornerstone of future control systems in 2025 and beyond. The research problem addresses the question: How can AI agents evolve to master complex, real-world control tasks while balancing efficiency, autonomy, and ethical considerations? By examining current advancements and projecting future trends, the poster aims to spark dialogue on designing AI agents that are not only technically proficient but also socially responsible, ensuring they enhance human capabilities without compromising trust or safety.

AI AGENT

Welcome to the Era of AI Agents: Masters of Control!

Imagine a world where traffic flows flawlessly, guided by AI agents orchestrating vehicles in real-time to eliminate congestion. Picture factories where production lines adapt instantly to supply chain disruptions, driven by intelligent controllers that predict and pivot. Envision homes that anticipate your needs, from energy optimization to personalized comfort, all managed by AI agents that learn and evolve. This is not science fiction—this is 2025, the dawn of AI agents as Masters of the Future of Controlling.



Why AI Agents Are Game-Changers

- **Autonomous Decision-Making:** AI agents leverage deep reinforcement learning and generative models to make split-second decisions in dynamic environments, from autonomous drones to financial trading systems.
- **Adaptive Intelligence:** Unlike traditional algorithms, these agents continuously learn from data streams, refining their strategies to master unpredictable scenarios, such as disaster response or cybersecurity defense.
- **Human-AI Synergy:** With natural language processing and emotional intelligence, AI agents collaborate seamlessly with humans, acting as co-pilots in industries like healthcare, education, and creative design.

Breakthroughs in 2025

- **Swarm Intelligence:** AI agents now operate in coordinated networks, mimicking biological systems to solve complex problems, like optimizing global logistics or managing smart cities.
- **Ethical Control Frameworks:** New governance models ensure AI agents prioritize transparency, fairness, and accountability, addressing concerns about bias and autonomy.
- **Edge AI Dominance:** With processing power shifting to edge devices, AI agents deliver real-time control in remote or resource-constrained environments, revolutionizing agriculture, mining, and space exploration.



Challenges Ahead

As AI agents take the helm, we face critical questions: How do we ensure their autonomy doesn't outpace our oversight? Can we design agents that align with diverse cultural and ethical values? And how do we prepare society for a world where control is increasingly delegated to intelligent systems? These challenges demand interdisciplinary innovation, blending technology, policy, and philosophy.



Join the Future

AI Agents 2025 is not just a technological leap—it's a call to action. Researchers, engineers, policymakers, and dreamers must unite to shape a future where AI agents empower humanity while safeguarding our values. Let's embrace the revolution and become co-creators of a world where control is intelligent, inclusive, and inspiring.

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AI VS POLISH MEDICINE

THE ROLE OF AI IN MODERN MEDICINE

Artificial intelligence is revolutionizing medicine by supporting diagnostics, personalized treatment and patient monitoring. AI helps in analyzing medical images, preparing medications and performing precise surgical procedures. AI-powered systems allow real-time monitoring of patients with chronic illnesses, while advanced ECG equipment detects cardiac anomalies. This technology is also used in aesthetic medicine.



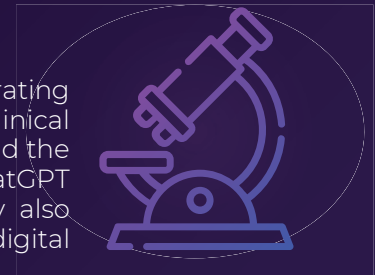
ADVANCED TOOLS AND ONGOING CHALLENGES



What's more, AI provides advanced tools for data analysis, diagnostic imaging and individualized treatment plans. It supports physicians in faster disease detection, predicting treatment outcomes and automating medical processes. However, its adoption brings challenges such as ethical concerns, data security and the need for regulation. Despite these challenges, AI has the potential to significantly improve healthcare quality and the efficiency of medical systems.

EXPANDING ACCESS AND ACCELERATING DIAGNOSTICS

Artificial intelligence is revolutionizing healthcare by accelerating disease diagnosis, DNA analysis and assisting doctors in clinical decision-making. AI allows for quicker genome sequencing and the identification of rare conditions, such as the case where ChatGPT helped diagnose a young boy. Additionally, this technology also enhances healthcare accessibility through telemedicine and digital patient records.



LEGAL REGULATIONS AND RISKS OF AI IN HEALTHCARE



However, the lack of precise regulations regarding artificial intelligence in Polish medicine may lead to legal issues and hinder innovation. The AI Act, an EU regulation, classifies AI systems in medicine as "high-risk," requiring thorough testing and oversight. AI is used among other things in medical imaging diagnostics and cardiological data analysis. Key challenges include patient safety and privacy protection.

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AI use in modern accounting

Artificial Intelligence is transforming modern accounting by automating routine tasks and enhancing accuracy. It speeds up financial analysis, and supports smarter decision-making.

AI use in modern accounting



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ARTIFICIAL INTEELIGENCE IN CONTROLLING

A NEW DIMENSION OF ANALITYCAL AND FINANCAL MANAGEMENT



Introduction

Artificial intelligence (AI) is revaluing controlling by enabling automation of analyses, financial forecasting and rapid detection of data irregularities. Thanks to the use of AI algorithms, controlling becomes a more precise, dynamic and decision-supporting process in the enterprise.

Challenges and opportunities

The integration of Artificial Intelligence (AI) into controlling presents both significant opportunities and complex challenges. On one hand, AI offers the potential to automate routine tasks, enhance data accuracy, and enable predictive analysis, leading to faster and more informed decision-making. On the other hand, organizations must navigate issues such as data quality, ethical considerations, system integration, and the need for new competencies among controlling professionals. Embracing AI in controlling requires a strategic approach that balances innovation with responsibility, ensuring long-term value and trust in AI-driven processes.

The purpose of the poster

The purpose of the poster is to present how modern artificial intelligence solutions influence controlling processes in enterprises. An attempt to answer the question to what extent AI algorithms support decision-making.



All in practice - key applications



- **Predictive analytics**

AI models future financial performance.



- **Anomaly detection**

Machine learning algorithms automatically detect financial data.



- **Automatic reporting**

AI generates dynamic financial reports, saving time and increasing efficiency.



- **Cost optimization**

AI supports budget optimization by identifying inefficient expenses and suggesting corrective actions.



- **Decision support systems**

Provides real-time recommendations for investments, cost reduction and strategic development.

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Artificial Intelligence in Controlling



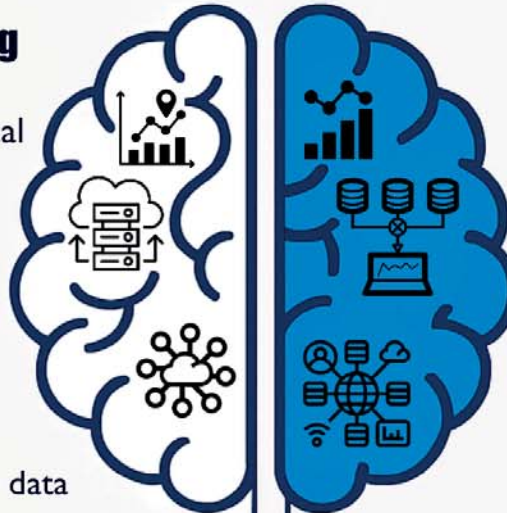
Traditional Controlling

- Manual analysis of historical data
- Handcrafted reports and summaries
- Rigid budgeting models (Excel, SAP without AI)
- Cost control after the fact
- Limited access to real-time data



AI in Controlling

- Automated Real-time data analysis
- Forecasting using machine learning
- Adaptive budgeting models
- Early detection of anomalies and deviations
- Integration with Big Data, IoT, and cloud computing



Information and Knowledge Processing

- Automation of controlling report analysis
- Processing unstructured data (email, PDF dokumenty)
- Chatbots supporting managerial reporting

Expert Systems

- Support in managerial decision-making
- Investment risk assessment
- Responding to incomplete data (scenario simulations)

Smart Controlling

- Detecting trends in cost and revenue data
- Early warnings of budget deviations



Neural Networks in Controlling

- Learning from historical results
- Forecasting cash flows
- Modeling budget optimization



Benefits of AI in Controlling

- Better strategic decisions**
- Time savings in analysis**
- Automation of reporting processes**
- Data security and compliance with regulations**

Risks and Challenges


- Lack of control over AI**
- Ethics and accountability**
- High dependency on data quality**
- Legal issues and GDPR**

Źródła: Wójcik, M. (2018). Sztuczna inteligencja: potencjał dla procesów zarządzania informacją, Latos-Miłkowska, M., & Kibil, M. (2024). Czy jesteśmy gotowi na sztuczną inteligencję w zatrudnieniu?.

AUTOMATION IN CONTROLLING – LESS WORK, MORE DATA

Automation in controlling helps reduce time-consuming manual tasks and allows a focus on strategic analysis. With modern IT tools, reporting becomes faster, data quality improves, and financial management is more efficient.

BENEFITS OF AUTOMATION

-  Time savings
-  Error reduction
-  Better report quality
-  Faster data analysis
-  Increased financial transparency



EXAMPLES OF AUTOMATED PROCESSES

- Financial report generation
- KPI monitoring
- Financial forecasting
- Cost and budget analysis
- Data integration from multiple systems

CHALLENGES AND RISKS OF AUTOMATION

- ⚠ High implementation costs
- ⚠ Employee resistance to change
- ⚠ Need for staff training
- ⚠ Data security concerns

AUTOMATION TOOLS IN CONTROLLING



References:
<https://www.mckinsey.com/>
<https://www.artificialintelligence-business.com/>
<https://www.accenture.com/>

Autonomous controlling systems: The Future in the hands of Algorithms

Traditional controlling relies on human analysis by controllers supporting decision-making processes, but with AI advances, these processes can be automated by sophisticated algorithms.

How Does It Work?

- Use of machine learning for trend predictions
- Integrating ERP + AI systems as data sources and decision-making platform
- Automatic alerts and recommendations that don't require approval

Potential Benefits

- Real time decisions replacing manual analysis
- Adaptation to market conditions through AI learning from available data
- Transformation of controller role from analyst to AI systems designer and overseer

Objective of Autonomous systems

- Automatic budget management
- Independent forecasting of revenues and costs
- Continuous analysis and investment decisions

Innovative Solution

- Increased efficiency and speed of controlling processes
- Reduction of operating costs
- Better adaptation to market conditions
- Enabling predictive than reactive actions

Autonomous controlling systems present a data and technology driven future, shift decision-making responsibility from humans to algorithms, opening a new chapter in organizational managements while requiring a new approach to human roles





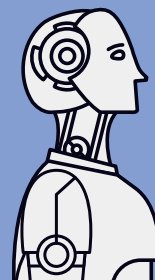
Can a Robot Make My Report?

First Steps in Automation for Controlling

In many controlling departments, repetitive tasks are still performed manually. However, there are simple ways to automate these processes – even without programming skills. This poster outlines a step-by-step approach to getting started and highlights essential tools worth implementing at the initial stage.

What is automation in controlling?

Automation refers to using digital tools to carry out repetitive and routine tasks without human involvement. In controlling, this may include generating reports, gathering data, sending emails, or integrating information from various sources – automatically, quickly, and without errors.



Getting started – 3 easy steps:

1. Identify a repetitive task in your workflow
2. Choose a suitable tool (start simple!)
3. Build your first robot – no programming needed

Why automate reporting?

Time savings

Reports that took hours can now be done in minutes

Fewer errors

Robots don't get tired or make copy-paste mistakes

Faster decision-making

Real-time access to up-to-date data

More time for analysis

Stop copying and start thinking

Useful tools for automation:

Microsoft Power Automate – for building simple, no-code workflows (e.g. sending reports automatically)

UiPath – an advanced RPA (Robotic Process Automation) platform for more complex business processes

Excel macros (VBA) – automate repetitive tasks within spreadsheets

Power Query & Power Pivot – powerful data transformation and modeling tools within Excel

Example of an automated process:

Task: Automatically send a daily sales report to management

- Power Automate pulls updated Excel data from OneDrive
- A template report is populated and saved as PDF
- The PDF is emailed to recipients automatically every morning at 7:00
- No manual steps needed – it's fully automated

References

<https://chatgpt.com>

<https://www.thinkautomation.com/productivity/ten-benefits-of-automation>

How Artificial Intelligence Supports the Work of an Accountant

The poster highlights how AI enhances accounting by improving data analysis, automating tasks, and reducing errors.

The poster aims to demonstrate how AI optimizes accounting practices, increasing efficiency and accuracy.



DATA ANALYSIS

AI processes large volumes of financial data to identify trends and patterns

- Provides real-time insights for better decision-making and forecasting



AUTOMATION

AI performs repetitive tasks, such as data entry and transaction categorization

- Frees up accountants to focus on strategic activities and client advisory



ERROR REDUCTION

AI helps to detect anomalies and reduce the risk of human error

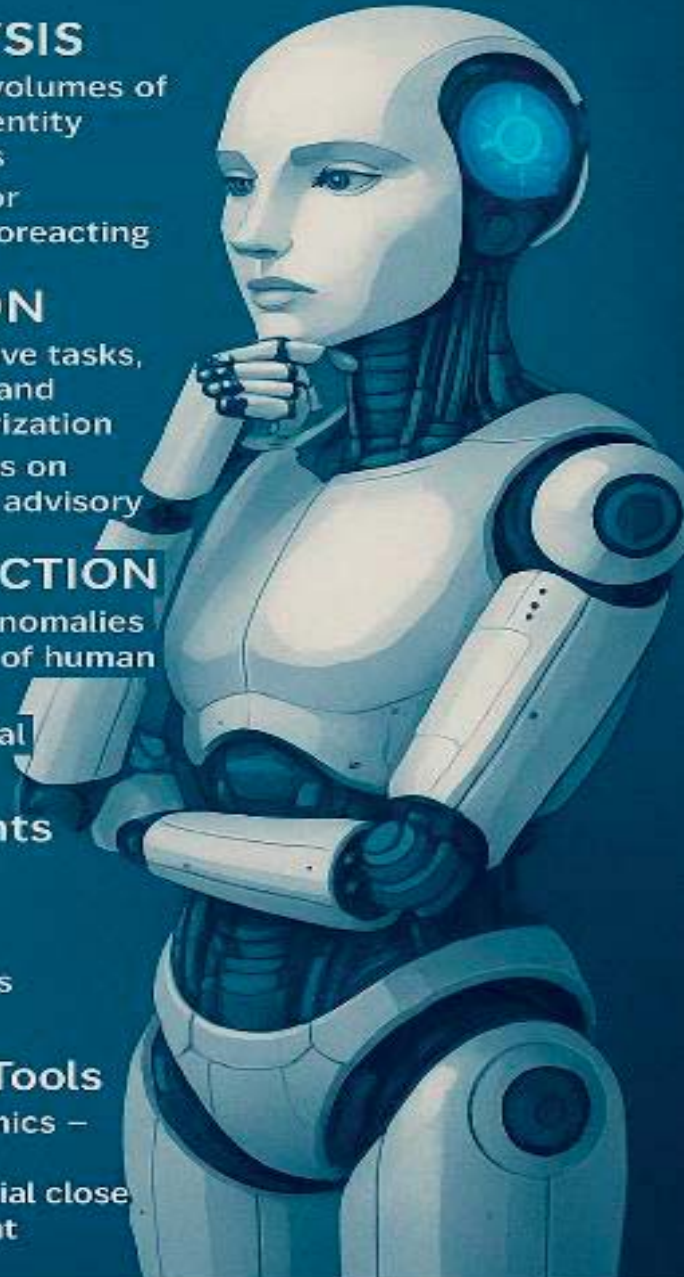
- Enhances accuracy in financial reporting and compliance

Benefits for Accountants

- Time savings
- Reduced costs
- Greater access to data
- More time for analytical tasks
- Decision-making support

Examples of AI-Based Tools

- SAP, Oracle: Microsoft Dynamics – AI-integrated modules
- BlackLine – automated financial close
- Xero, QuickBooks – intelligent bookkeeping



References:

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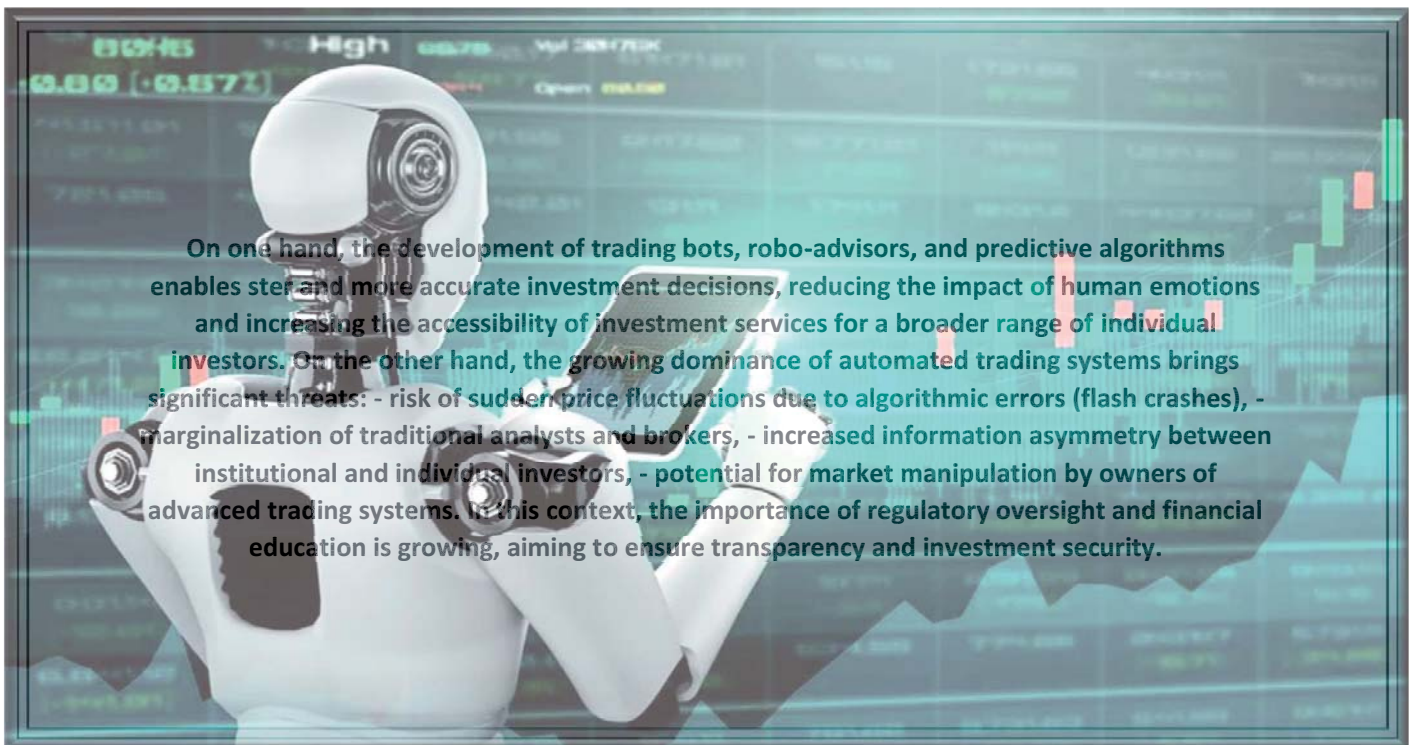
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<https://docway.pl/blog/sztuczna-inteligencja-w-ksiegowosci-i-hr/>

ROBOTIZATION AND AUTOMATION OF STOCK MARKET INVESTING OPPORTUNITIES AND THREATS

Automation and robotization in investing, including algorithmic decision-making and the use of artificial intelligence (AI) in market analysis, are dynamically changing the way stock exchanges operate.

The purpose of this paper is to analyze the impact of automation and robotization of investment processes in the capital market, with particular emphasis on potential benefits and socioeconomic risks.



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THE FUTURE OF THE CONTROLLER IN THE AGE OF AI

INTRODUCTION

Artificial Intelligence (AI) is reshaping the role of the controller, shifting the focus from financial reporting to strategic advisory. By enhancing decision-making and automating complex processes, AI empowers controllers to take on a more dynamic and influential role in business strategy.

OBJECTIVE

This poster explores how AI is transforming the field of controlling by optimizing decision-making, streamlining operations, and strengthening risk management. It highlights how controllers can embrace AI, develop new competencies, and evolve into key strategic advisors in an increasingly digital landscape.

THE IMPACT OF AI ON BUSINESS EFFICIENCY

- ✓ AI enhances forecasting precision, enabling companies to anticipate market changes and adjust strategies proactively.
- ✓ Automated AI-driven financial processes reduce human errors, improving compliance and accuracy.
- ✓ AI-powered cloud solutions enable real-time collaboration and seamless financial data integration across departments.

THE FUTURE ROLE OF CONTROLLERS WITH AI

- ✓ AI-Driven Decision-Making – Controllers will rely on AI-powered analytics for real-time insights, predictive forecasting, and automated anomaly detection, enabling more accurate and data-driven decision-making.
- ✓ Automation of Routine Tasks – AI will eliminate manual data processing, streamlining financial reporting, budgeting, and compliance, allowing controllers to focus on strategic initiatives
- ✓ Enhanced Risk Management – AI algorithms will assess risks in financial data, detecting fraud, anomalies, and inefficiencies before they impact business performance.
- ✓ AI-Assisted Scenario Planning – Machine learning models will simulate different financial scenarios, helping controllers prepare for market fluctuations and optimize business strategies.
- ✓ AI as a Financial Advisor – AI-powered virtual assistants will support controllers by providing real-time recommendations, reducing response times, and improving financial accuracy.

THE EVOLVING SKILLSET OF THE CONTROLLER

- ✓ Controllers will need expertise in AI tools, data analytics, and algorithm-based financial modeling.
- ✓ A shift from traditional reporting to strategic business advisory will require proficiency in AI governance and ethical AI implementation.
- ✓ Continuous learning and adaptation to emerging AI technologies will be essential for maintaining a competitive edge.

References: <https://chatgpt.com/>



THE ROLE OF DIGITAL TWINS IN MODERN CONTROLLING: FUTURE PERSPECTIVES

Szymon Luranc | Karolina Pasierbek | Gabriela Potaczek

What is a Digital Twin?

A Digital Twin is a dynamic, real-time virtual representation of a physical object, system, or process. It integrates data from various sources (IoT sensors, ERP, CRM, financial systems) and uses machine learning models to simulate, predict, and optimize performance. First introduced by Michael Grieves in 2002, Digital Twins have evolved into a powerful tool for business operations and controlling.

Applications of Digital Twins in Controlling:

- **Real-Time Monitoring:** Digital Twins continuously monitor the company's key financial and operational indicators, providing up-to-date information for decision-makers.
- **Predictive Analytics:** They allow forecasting of future business outcomes based on current trends, supporting proactive management.
- **Optimization of Processes:** Through simulations, companies can optimize budgeting, forecasting, and resource allocation.
- **Scenario Planning:** Controllers can model "what-if" scenarios and assess the impact of different strategies before actual implementation.

Future Perspective:

With the advancement of AI, 5G, and IoT, Digital Twins are becoming more accessible and cost-effective. Future controllers are expected to work closely with Digital Twins, focusing more on strategic advisory roles rather than traditional reporting. The Digital Twin technology will enable predictive and prescriptive controlling, creating a new standard for intelligent enterprise management.

Real-Time Controlling

The objective of this poster is to present how Digital Twin technology can enhance controlling systems by providing real-time insights, improving forecasting, and supporting strategic decision-making. The study explores how the innovation of Digital Twins contributes to higher management effectiveness and supports business development in the digital era.

Benefits for Management and Controlling:

- **Higher Transparency:** Immediate access to accurate, real-time data improves the reliability of financial reporting.
- **Agility in Decision-Making:** Faster reaction to changes reduces operational risks and increases competitiveness.
- **Cost Reduction:** Predictive maintenance and optimized operations lead to cost savings.
- **Strategic Alignment:** Enhanced strategic planning based on simulation outcomes improves the alignment between business goals and operations.

Challenges and Risks:

- **High Initial Costs:** Implementation of Digital Twin systems requires significant investments in technology and training.
- **Data Privacy and Security:** Managing vast amounts of sensitive data raises concerns about cybersecurity.
- **Integration Complexity:** Combining data from old legacy systems with modern platforms can be technically challenging.

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3. Deloitte Insights (2021). Digital Twins: Bridging the Physical and Digital. (<https://www2.deloitte.com/insights/us/en/focus/industry-4-0/digital-twin-technology-smart-manufacturing.html>)
4. Gartner (2020). Innovation Insight for Digital Twins. (<https://www.gartner.com/en/documents/3980166>)
5. ChatGPT

THE ROLE OF IT SYSTEMS IN CONTROLLING

- SUPPORT IN MANAGEMENT DECISION-MAKING

In today's fast-paced and data-driven business environment, Information Technology (IT) systems play a critical role in organizational management. One of the most significant contributions of IT is its support in management decision-making. IT systems, through tools like Corporate Performance Management (CPM), Enterprise Resource Planning (ERP), and Business Intelligence (BI) platforms, help managers analyze data, assess options, and make informed decisions more accurately.

ERP SYSTEM



An ERP (Enterprise Resource Planning) is a system of applications (modules covering individual areas of the company - production, trade, logistics, warehouse, finance and accounting, human resources and payroll, marketing, etc.) based on one common database. This structure makes the ERP system successful in collecting data, organising and integrating all areas of the company's operation.

BI SYSTEM

A Business Intelligence system, often referred to as a BI system, is a system for planning and budgeting as well as creating analyses and reports. Business Intelligence transforms data into information that enables users to gain knowledge about all key areas of a company's operations. Nowadays, the rapid acquisition of information and its appropriate interpretation is essential for a company's competitive advantage.



EPM SYSTEM



Enterprise Performance Management (EPM) integrates the strategic, operational and financial management of an organisation. This approach is supported by EPM systems that incorporate various management functions to enable sound decision-making and the achievement of strategic business objectives.

CPM SYSTEM

CPM, or Corporate Performance Management, is an integrated management system that encompasses a range of processes, indicators and analytical tools for planning, monitoring, analysing and optimising corporate performance. CPM allows an organisation to be viewed as a cohesive whole, integrating data from different departments and systems to make better and more informed business decisions at all levels of the organisation.



<https://www.streamsoft.pl/systemy-erp/?privacy-updated>

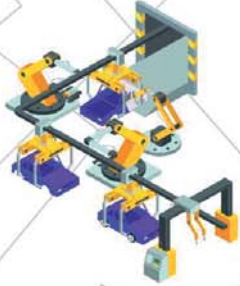
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THE ROLE OF ROBOTICS IN Cost Optimization



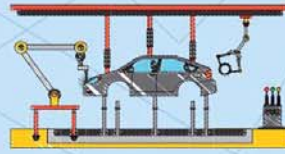
IN RECENT YEARS, ROBOTICS HAS EMERGED AS A KEY DRIVER OF COST OPTIMIZATION ACROSS VARIOUS INDUSTRIES. BY AUTOMATING TASKS TRADITIONALLY PERFORMED BY HUMANS, ROBOTS ENABLE COMPANIES TO SIGNIFICANTLY REDUCE OPERATIONAL EXPENSES. THIS SHIFT NOT ONLY MINIMIZES LABOR COSTS BUT ALSO INCREASES EFFICIENCY AND STREAMLINES RESOURCE USAGE. ROBOTICS PLAYS A CENTRAL ROLE IN THE AUTOMATION OF REPETITIVE TASKS, ALLOWING FOR FASTER PRODUCTION CYCLES, FEWER ERRORS, AND CONSISTENT PRODUCT QUALITY.



Benefits of Robotics



REDUCED OPERATIONAL COSTS THROUGH INCREASED EFFICIENCY AND PRECISION



24/7 OPERATION, ELIMINATING BREAKS AND REDUCING DOWNTIME



FEWER ERRORS, AND IMPROVED PRODUCT QUALITY

THE IMPACT ON EFFICIENCY IS SIGNIFICANT. STUDIES SHOW AUTOMATION CAN BOOST PRODUCTIVITY BY UP TO 50%, WITH PRODUCTION CYCLE TIMES OFTEN REDUCED BY 20-30%. REAL-WORLD EXAMPLES ABOUND. ONE MANUFACTURER SAW A 30% PRODUCTIVITY INCREASE AFTER INTEGRATING ROBOTICS INTO ITS ASSEMBLY LINE. ROBOTS TOOK OVER REPETITIVE TASKS, ALLOWING WORKERS TO FOCUS ON MORE COMPLEX ACTIVITIES.



Cost Savings

1 COST SAVINGS
AUTOMATION OF REPETITIVE TASKS SIGNIFICANTLY REDUCES LABOR EXPENSES.

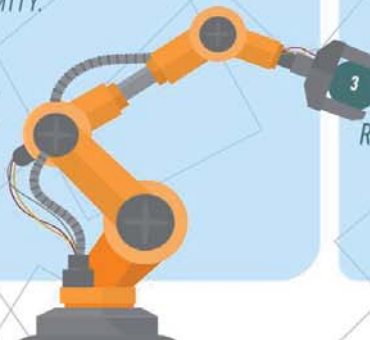
2 HIGH PRECISION AND ACCURACY IN ROBOTIC SYSTEMS MINIMIZE MATERIAL WASTE.

3 ENERGY-EFFICIENT ROBOTS CONTRIBUTE TO LOWERING OVERALL OPERATIONAL COSTS.



QUALITY IMPROVEMENTS ARE EQUALLY NOTABLE. AUTOMATED WELDING ROBOTS, FOR INSTANCE, INCREASE SPEED WHILE ENSURING UNIFORMITY.

SOME FACTORIES REPORT A 25% IMPROVEMENT IN PRODUCT QUALITY AFTER ADOPTING ROBOTIC WELDING. THIS QUALITY BOOST PAIRS WITH FINANCIAL BENEFITS - INDUSTRIAL ROBOTICS TYPICALLY SEE A 10-15% RETURN ON INVESTMENT WITHIN THE FIRST YEAR.



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Your New Analyst? AI as a Controller's Secret Weapon

Excel crunches numbers. ChatGPT reveals why they matter.

AI-Powered Support for Financial Controllers

Imagine an assistant that:

- Drafts reports while you sip coffee
- Turns complex data into clear insights
- Spots trends, answers questions never says "I don't know"

Welcome to AI-powered controlling—faster, sharper, strategic.

From routine to remarkable:

- AI summarizes financials,
- flags anomalies,
- suggests next steps with one prompt.

Rethink controlling: Supercharge the human touch, don't replace it.

Because the best analyst... doesn't wear a suit

Part II

Business Intelligence and Data Analytics

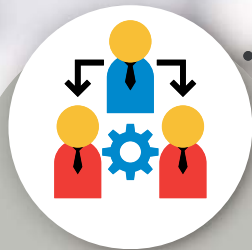
AI & BI IN SWIS CONTROLLING

92%

Over 92% of Swiss financial firms have integrated **AI solutions**, from **real-time predictive analytics** to **intelligent automation** of reporting and risk controls, making Switzerland the **DACH** region's leader in financial AI innovation. High investment in **R&D** further fuels the country's rapid advancement in **AI-driven financial technologies**.

81%

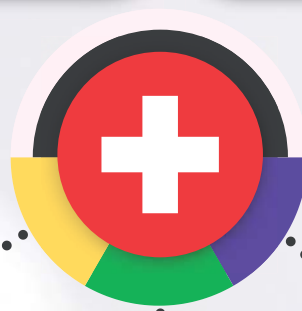
81% of Swiss managers report **positive outcomes** from AI adoption, including cost savings, higher profitability, and faster decision-making – the **highest satisfaction rate in Europe**. Increasingly, Swiss firms embed AI across entire **decision-making processes**, generating **predictive insights** at every management level.



CONTROLLING AND RISK MANAGEMENT

In Switzerland, **financial controlling is closely integrated with risk management**, particularly in the banking, pharmaceutical, and industrial sectors. Controlling systems **automatically** incorporate currency, credit, and market risks, going far beyond traditional cost and revenue management.

01.



MACHINE LEARNING

Switzerland leads the DACH region in applying **machine learning** to **budgeting**, **forecasting**, and **anomaly detection**. Home to top AI hubs like **ETH Zurich** and **EPFL**, it actively links research with finance to drive predictive innovation.

02.



CONTROLLING TOOLS

Switzerland develops its **own** world-class controlling systems, such as **Jedox** and **Board International**, perfectly tailored to local requirements like **multi-currency** operations and **banking compliance**.

03.

AI IN STRATEGIC FORECASTING

Leveraging artificial intelligence to enhance long-term business planning

Problem Description:

In a dynamic environment, it becomes crucial to quickly identify deviations from the norm in financial and operational data.

Solution :

Artificial intelligence algorithms, such as machine learning models, enable automatic detection of anomalies based on controlling data.



Benefits for Controlling :

- ❖ Reduction of time needed for analysis
- ❖ Increased accuracy and precision in identification
- ❖ Proactive risk management using ERP/BI tools (e.g., Power BI, Tableau)

Practical Application :

AI as a standard tool for controllers – not only for analysis but also for recommending optimization actions in real time.



Artificial Intelligence in Controlling – Revolutionizing Data Analysis

Artificial intelligence (AI) is transforming the way companies analyze data and make decisions. Controlling, a critical component of management, stands to benefit significantly from these advancements.

How AI Supports Controlling



Report automation

AI automates systems, generates reports automatically, saving time and reducing human error



Forecasting

AI models predict future trends and performance with greater accuracy



Cost analysis

AI algorithms provide more accurate cost analysis and identify cost-saving opportunities



Cost analysis

AI detects irregularities and anomalies in financial data, enhancing risk management

Examples of AI Tools



Planning Analytics

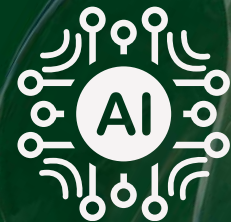


Analytics Cloud



Microsoft

Power BI



Benefits



Time savings



Improved analysis accuracy



Better managerial decisions



Faster response

changes by 40%

AI + Big Data = A Revolution in Controlling

“From historical data analysis to intelligent future management”



AI models enhance the precision of anomaly detection and help identify cost inefficiencies



Learning algorithms analyze large volumes of financial data, uncovering hidden patterns and relationships



AI and Big Data shift controlling from reactive to predictive.



Tools like Power BI, IBM Planning Analytics, and SAP Analytics Cloud connect with AI models

References:
Deloitte

Ning Yang "Financial Big Data Management and Control and ArtificialIntelligence Analysis Method Based on Data Mining Technology"

BI FROM PERSPECTIVE OF 22 YEARS OLD CONTROLLING STUDENT

WHY DO WE NEED BI IN CONTROLLING? Laura Gardynik

I'm a 22-year-old student of Controlling and Business Analysis, and today I want to share with you what **Business Intelligence (BI)** really means to me — and why it's so exciting!

What is Business Intelligence? In simple words, Business Intelligence is all about using data to make smarter decisions. Companies collect tons of information every day — about sales, customers, products, and even employee performance. BI tools help us organize all this messy data, analyze it, and present it in a way that actually makes sense.

Why do we need BI in Controlling? As someone studying controlling, I see BI as the bridge between raw numbers and real business actions. Controlling isn't just about reporting what happened last month — it's about understanding *why* it happened, predicting what's coming next, and helping management make better choices. BI makes that possible. It helps controllers move from just "number crunching" to strategic advising.

Key Features of Business Intelligence ARE:

Data Integration - gathering data from multiple sources like ERP systems, CRMs, and even spreadsheets.

Analysis and Reporting - creating dynamic dashboards, detailed reports, and KPIs to monitor performance.

Forecasting and Predictive Analytics - using past trends to predict the future — and helping companies stay one step ahead.

Visualization - turning complex data into clear and beautiful charts, graphs, and dashboards (because nobody wants to read a 20-page Excel file!).

Why I'm Passionate About BI: Honestly, what excites me most is how dynamic and creative BI work can be. I love how it mixes logic (data analysis) with creativity (storytelling through visuals). Plus, mastering BI tools gives me a huge advantage for my future career — companies today are *desperate* for people who can handle and interpret data.

Granlund, M., Stede, W. U., & Zajac, E. (2023). Controllers' role in managerial sensemaking and information trust in business intelligence systems. Journal of Accounting & Organizational Change.



Business Intelligence for Supply Chain Excellence

How can Business Intelligence tools create smarter, more resilient supply chains in an increasingly dynamic global market?

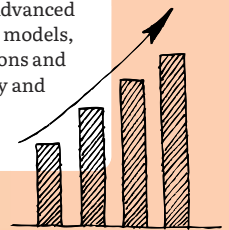


Real-Time Monitoring

Business Intelligence tools provide real-time insights into inventory levels, supplier performance, and order status. This visibility allows for faster and smarter decision-making, proactive issue management, and continuous supply chain optimization. By integrating data from ERP systems, IoT devices, and transportation tracking, companies can instantly respond to changes and prevent costly disruptions.

Demand and Inventory Forecasting

By leveraging historical data, BI tools forecast demand trends, optimize stock levels, and reduce overstock and stockouts. Accurate forecasting strengthens inventory management and improves customer satisfaction. Advanced analytics, including machine learning models, adapt predictions to market fluctuations and seasonality, ensuring greater agility and responsiveness.



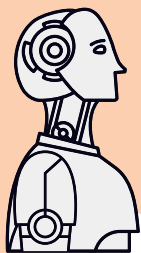
Cost Optimization

BI solutions identify cost inefficiencies across procurement, production, and logistics. By uncovering hidden expenses and performance bottlenecks, companies can streamline operations and achieve significant savings. Real-time financial analytics support dynamic supplier negotiations, optimized routing, and more accurate budgeting across the entire supply chain.



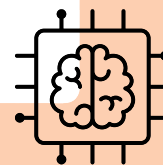
Risk and Disruption Management

Business Intelligence platforms enable early detection of supply chain risks such as supplier delays, transportation disruptions, and market changes. Early warnings empower companies to mitigate risks proactively and maintain continuity. Scenario analysis and predictive models allow organizations to develop robust contingency plans, minimizing the impact of unforeseen events.



Conclusion

As supply chains become increasingly complex, the role of Business Intelligence will continue to evolve, integrating more advanced technologies like AI and machine learning. The future of BI in supply chain management promises even greater automation, smarter decision-making, and enhanced agility, helping businesses stay resilient and adaptable in a rapidly changing world.



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Business Intelligence in everyday work – is it for everyone?

What is Business Intelligence?

Business Intelligence (BI) refers to technologies, tools, and strategies that help organizations analyze data and make informed decisions.

Why is it important today?

In the era of digital transformation, companies are flooded with data. BI helps turn that data into valuable insights for decision-making, planning, and daily operations.

Can everyone use BI?

- Is BI only for IT and analysts?
- How accessible are BI tools for regular employees?
- What skills are needed?

BENEFITS OF USING BI



- Better decision-making
- Time-saving automation of reports
- Identifying trends and risks early
- Empowering non-technical users with self-service tools
- Custom dashboards and data visualizations

TREATMENT / SOLUTIONS)



- Offering BI training sessions
- Creating user-friendly dashboards
- Promoting data-driven culture
- Encouraging use of self-service analytics
- Providing templates and examples

CHALLENGES & LIMITATIONS



- Lack of training
- Fear of data tools
- Data overload
- Poor UX or too many features

Business Intelligence (BI) is essential for organizations seeking to stay competitive in today's data-driven world.

It enables businesses to track performance, identify trends, and predict future outcomes. By making data more accessible and understandable, BI tools empower employees at all levels to make better decisions, streamline processes, and improve efficiency. In everyday work, BI can support tasks such as reporting, sales analysis, inventory management, and customer service improvements. As data becomes increasingly important, the use of BI is becoming more widespread, allowing even smaller companies to benefit from data-driven insights.

IS THIS FOR EVERYONE?



While BI tools were once mostly used by data specialists, today they are designed to be user-friendly, allowing employees across various departments to leverage data without needing advanced technical skills. Therefore, BI is increasingly accessible and valuable for a wider range of professionals, not just data analysts.

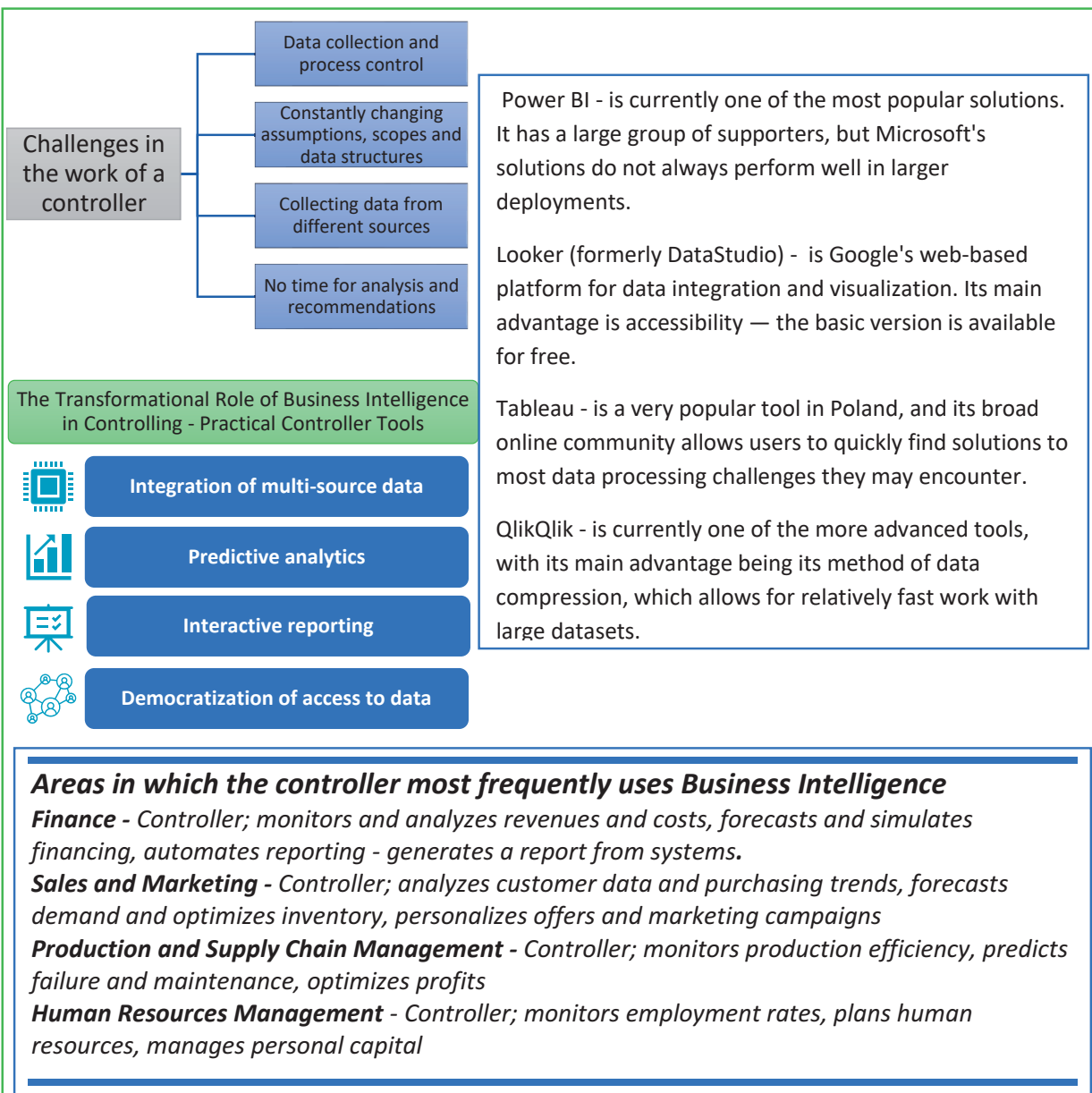
Additionally, Business Intelligence fosters a culture of continuous improvement within organizations. By regularly analyzing data, businesses can identify areas of inefficiency or underperformance and take proactive steps to address them. BI also supports collaboration across departments by providing a unified view of data, ensuring that teams are aligned in their objectives and strategies. The insights gained from BI tools can also help in risk management, allowing companies to anticipate challenges and respond swiftly. In essence, BI not only enhances decision-making but also contributes to long-term growth and innovation by helping organizations adapt to an ever-evolving business landscape.

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Business Intelligence in the work of the controller

Business Intelligence tools can be seen as essential in controlling because they enable strategic thinking, deep data analysis, and flexibility in financial decision-making.

The necessity to adapt to new challenges and new IT tools.



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BUSINESS INTELLIGENCE: MODERN TOOLS FOR DATA ANALYSIS



WHAT IS BUSINESS INTELLIGENCE?

Business Intelligence refers to the processes and tools used to analyze business data, transform it into useful insights, and help everyone in the organization make better-informed decisions. Also known as a Decision Support System (DSS), a BI system analyzes current and historical data and presents the results in easily digestible reports, dashboards, charts, graphs, and maps that can be shared across the company.

BUSINESS INTELLIGENCE TOOLS

- Microsoft Power BI
- Tableau
- Qlik Sense
- IBM Cognos Analytics
- Google Looker



THE IMPORTANCE OF BUSINESS INTELLIGENCE

- Data-driven decisions – BI supports making accurate decisions based on data, not guesses.
- Competitive advantage – quickly identifies trends and benchmarks the company against competitors.
- Performance monitoring – BI dashboards help track KPIs and goal progress.
- Patterns and comparisons – analyzes processes against industry standards and highlights areas for improvement.
 - Early problem detection – BI reveals issues before they cause financial damage.
- Increased efficiency – less time spent on reports, more on action; removes inefficiencies.



- Microsoft
- Very Simple, familiar to MS Office
- Great for KPI reporting, budget analysis, and forecasting
- Many built-in templates and charts
- Built-in AI/ML functions e.g., sentiment analysis, forecast Q&A engine
- Integration with Teams, OneDrive SharePoint



- Salesforce
- More advanced, requires learning
- More advanced data visualization, e.g., ABC analysis
- interactive visualizations
- Possible via external tools (R, Python integration)
- Integration with Tableau Server/ Tableau Cloud - more technical setup

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Challenges & Emerging Trends in Modern Business Intelligence (BI)

Business intelligence faces data quality issues causing costly errors. AI helps mitigate these, while integration challenges spur hybrid platforms. Key trends include real-time analytics, AI integration, and prescriptive insights.

This poster explores key challenges and solutions in modern business intelligence, focusing on strategies to improve data infrastructure. It examines the shift to prescriptive analytics and how organizations can tackle data quality, integration, and real-time demands for a competitive edge.

Data Quality: The Foundation of Reliable Analytics

A key challenge for modern BI systems is the quality of the data they process. Companies struggle with inconsistent formats, missing values, duplicates, and outdated information, costing an average of \$12.9 million annually, according to IBM. In response, AI-powered data cleansing tools are emerging to detect anomalies automatically, data governance frameworks are being implemented to ensure consistency, and MDM systems are gaining traction.

Data Integration: Breaking Down Silos

Operational challenges arise from data being scattered across CRM (Salesforce), ERP (SAP), marketing platforms, and IoT devices, making it difficult to create a unified view. According to Gartner (2023), 85% of enterprises struggle with integrating cloud and on-premise systems. To address this, hybrid integration platforms now combine ETL and ELT capabilities, cloud-based data lakes are replacing traditional warehouses, and data fabric architectures are emerging to enable seamless connectivity.

Real-Time Analytics: The Need for Speed

In financial trading, e-commerce, and logistics, decisions delayed by even five minutes can result in millions in losses, making traditional batch processing insufficient. To meet this demand, stream processing engines like Apache Kafka and Flink handle over 1 million events per second, in-memory databases such as Redis and SAP HANA reduce latency to milliseconds, and edge computing enables real-time analytics closer to data sources.

AI Revolution in BI

Although 78% of companies are piloting AI in analytics (McKinsey, 2023), many face challenges in explaining AI decisions to stakeholders, integrating ML models into existing workflows, and managing model drift in production. To overcome these barriers, AutoML platforms now offer drag-and-drop model creation, NLP powers conversational analytics, and computer vision enhances image and video data interpretation.

Democratization of Analytics

The rise of citizen data scientists—marketing managers, HR specialists, and operations leaders—empowers non-technical users to run their own analyses. Leading self-service tools include Power BI, known for its deep Microsoft ecosystem integration; Tableau, recognized for superior visualization; and Looker, a Google Cloud-native platform with strong modeling capabilities.

From Descriptive to Prescriptive

The analytics maturity curve progresses from descriptive (what happened?) to diagnostic (why did it happen?), predictive (what will happen?), and finally prescriptive (what should we do?). In practice, retailers leveraging prescriptive analytics achieve a 15-20% improvement in inventory turnover (Forrester).

<https://kafka.apache.org/documentation/>
<https://www.forrester.com/research/>
<https://www.mckinsey.com/mgi/overview>
<https://www.ibm.com/analytics>

DIGITALIZATION IN CONTROLLING: FROM EXCEL TO POWER BI



This poster presents a comparative analysis of Microsoft Power BI and Excel, highlighting their respective strengths in data analysis and visualization. It aims to guide businesses in selecting the appropriate tool for their data-driven decision-making processes.

Microsoft Excel and Power BI are among the leading tools for data analytics and business intelligence. Excel, introduced in 1985, has a long-standing presence, whereas Power BI is a more recent Microsoft product, launched in 2011.

Microsoft Excel

Basic to intermediate analysis
Formulas & Pivot Tables



Standard charts, limited
interactivity



Slower with big data,
~1 million rows limit



File/email sharing, version issues,
limited co-authoring



Office suite only, limited external
integrations



Familiar, user-friendly, flexible for
various tasks



Included in Microsoft 365 or
standalone, no extra cost after
purchase



Microsoft Power BI

Advanced modeling, DAX,
real-time with live data

Interactive, dynamic,
mobile-friendly visuals

Optimized for big data,
in-memory & real-time access

Cloud-based, real-time
collaboration, easy sharing

Connects to many sources,
e.g. Azure, SQL, Dynamics 365

Model UI, steeper learning curve,
built for business intelligence

Desktop version - free,
Pro & Premium require
subscriptions



CONCLUSION

The comparison between Excel and Power BI helps to better understand the differences between these tools and their applications in data analysis. Excel is well-suited for simple analyses and everyday office tasks, while Power BI is designed for larger organizations that require interactive reports, integration with various data sources, and large-scale.



FROM DATA TO DECISIONS: INTEGRATING BI WITH CONTROLLING IN PRACTISE

The aim of our study was to check how combining controlling with business intelligence tools affects the efficiency of information management in the enterprise and the quality of decisions made. We analyzed to what extent the integration of these two areas can contribute to the improvement of planning processes, operational and strategic controlling



WHAT IS BUSINESS INTELLIGENCE

BI is technologies, applications and processes for collecting, storing and analyzing data.



INTRODUCTION

- Controlling requires timely, accurate and relevant information
- BI transform raw data into meaningful insights, supporting strategic and operational decisions



THE ROLE OF BI IN CONTROLLING

- Automates data collection and reporting
- Improves data accuracy and availability
- Supports budgeting, forecasting and performance monitoring



CHALLENGES WITHOUT BI

- Manual and time consuming reporting
- Fragmented and inconsistent data
- Limited analytical capabilities



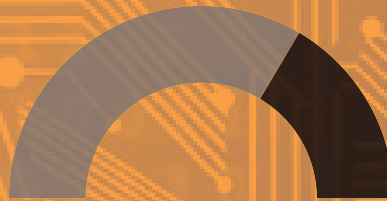
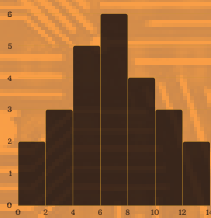
BENEFITS OF INTEGRATING BI WITH CONTROLLING

- Faster decision making processes
- Deeper analytical capabilities
- Better resource allocation
- Early decision-making processes



PRACTICAL APPLICATIONS

- Dashboard and real-time KPIs (Key Performance Indicators)
- Predictive analytics for financial planning
- Data driven scenario simulations
- Integration with ERP systems (SAP, Oracle)



CONCLUSION

To sum up, integration of controlling with business intelligence (BI) tools significantly improves the quality of information management in the enterprise. By using BI, controlling gains access to current and detailed data, which enables more precise forecasting, planning and more effective decision-making. Automation of analyses improves the work of the controlling department, allowing it to focus on advisory and strategic tasks. Combining these two areas helps build a data-based management culture, improves the transparency of the organization and strengthens its competitiveness on the market.



1) Ramesh Sharda, Dursun Delen - Business Intelligence, Analytics, and Data Science: A Managerial Perspective
2) Wayne W. Eckerson - Performance Dashboards: Measuring, Monitoring, and Managing Your Business
3) David Parmenter - The Financial Controller and CFO's Toolkit: Lean Practices to Transform Your Finance Team (Wiley Corporate E&A)






Where Cloud Computing Meets the Controller's Role

In recent years, the way we work has undergone a monumental shift. The rise of cloud computing has not only transformed how businesses operate but has also facilitated a new paradigm of remote work and collaboration.

The aim of this poster is to present how cloud computing is transforming the work of controllers. With the increasing demand for real-time data, remote access, and automation, cloud-based solutions offer new opportunities for improving the efficiency, accuracy, and strategic value of controlling tasks.

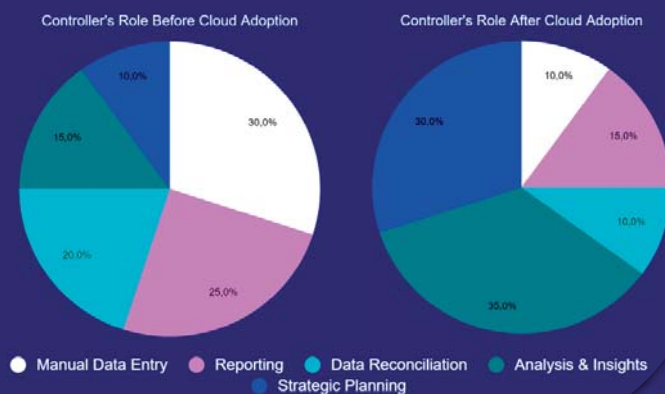
Cloud computing refers to the delivery of computing services over the internet. These services include servers, storage, databases, networking, software, and analytics. By leveraging the cloud, businesses can access resources on-demand without the need for physical infrastructure. This flexibility is a game-changer, especially for remote work.

Key Features of Cloud Computing:

-  **Scalability:** Cloud services allow organizations to scale their IT resources up or down based on demand, making it easier to accommodate a fluctuating workforce.
-  **Cost-Efficiency:** Businesses can reduce costs by eliminating the need for extensive hardware and software investments.
-  **Accessibility:** Users can access cloud services from anywhere with an internet connection, making remote work feasible and efficient.
-  **Collaboration:** Cloud platforms enable real-time collaboration among team members, regardless of their physical locations.
-  **Security:** Leading cloud providers invest heavily in security measures, ensuring that sensitive data is protected.

As controllers become more technologically savvy and finance takes on more of a role in empowering an organization, it's going to be critical to hold your own in a room in which you discuss technology. Additionally the controller is probably the one who's most impacted when a project runs long or a visionary project gets lost in the weeds.

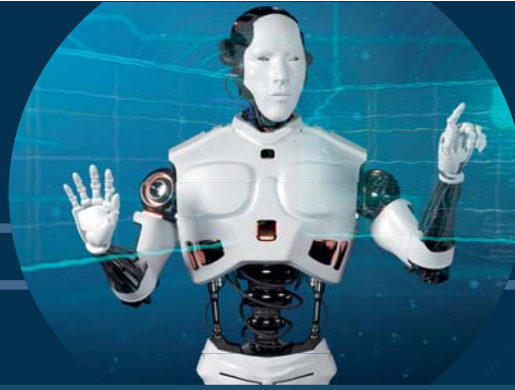
Shift in Controller's Responsibilities with Cloud Computing



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Part III

Ai in The Labour Market And Society



Artificial Intelligence in Economics – New Opportunities or Threats to the Labour Market?

Overview: AI in the Modern Workplace

Artificial Intelligence (AI) is rapidly reshaping the economic landscape, changing how businesses operate, make decisions, and structure their workforces. As AI systems automate tasks, especially in manufacturing, customer service, and logistics, concerns about the future of work grow.

The aim is to investigate whether the integration of AI into economic systems poses a greater threat or opportunity for the global labour market.

AI and the Future of Work

AI is expected to displace **85 million** jobs by 2025 but create **97 million** new ones in emerging sectors. This shift highlights the growing importance of reskilling and adapting to the evolving job market.

- 📊 By 2030, up to 800 million jobs could be displaced globally by automation
- 📈 At the same time, AI could add \$15.7 trillion to the global economy by 2030
- 🌍 Over 1 billion people worldwide will need to be reskilled by 2030 due to AI and automation
- 👤 In advanced economies, 50–60% of workers will require training to adapt to changing roles

Overall, this transformation presents more of an opportunity than a threat, provided that workers and industries are prepared to embrace change. Human creativity and adaptability will remain key.

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AI vs HUMAN JOBS – The future of Work








ACTUAL THREAT

Artificial intelligence is dynamically changing the job market, but this does not mean that it will completely replace humans in the coming years. In many professions, AI will support workers by automating repetitive tasks, but human supervision, creativity and decision-making skills will still be needed. It will be crucial to properly implement new technologies and adjust the labor market to minimize negative effects and fulfill the AI potential by creating new jobs.

JOBS AT RISK






The development of Artificial Intelligence (AI) is significantly affecting the market by automating entire processes and therefore changing the requirements for the workers. Here we can see which professions are threatened the most:

-  Office and administration
-  Manufacturing and production
-  Transportation and Logistics
-  Media and creativity
-  Customer service and sales

According to analysis provided by the Polish Economic Institute, about 3.68 million people in Poland alone, work in these most at-risk occupations, representing a significant portion of the labor market.

HOW TO PREPARE FOR THE FUTURE

To handle the AI development, it may be worth to:

-  Develop analytical and creative skills
-  Understanding what AI is and how it works will help in adapting to new conditions and how to effectively use it in daily work.
-  Observe the trends: Being familiar with new technologies and their impact on the market will allow to take advantage of the changes.
-  Work with AI: Using AI-based tools can increase efficiency and open new career opportunities.
-  Preparing for the future with AI is the key to success in the changing world.

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Image was generated by ChatGPT.

AI vs. Human - Cooperation or Competition?

AI IS REVOLUTIONIZING WORK, MEDICINE AND EDUCATION, PERFORMING TASKS FASTER AND MORE ACCURATELY THAN HUMANS.

HOWEVER, KEY QUESTIONS ARISE:

- 💡 DOES AI THREATEN OUR JOBS?
- 💡 CAN IT COMPLETELY REPLACE HUMANS?
- 💡 HOW CAN WE MAKE THE MOST OF THE COLLABORATION BETWEEN HUMANS AND AI?

Can AI threaten humans?

Disappearing jobs - AI is automating many professions, forcing people to adapt and learn new skills.

Lack of emotion and intuition - machines analyze data, but do not understand human feelings and social context.

Control issues - who should oversee AI development to avoid abuse and ensure ethical use of the technology?

**IS AI A THREAT TO HUMANS OR A KEY TO DEVELOPMENT?
WHAT ARE ITS ADVANTAGES AND POTENTIAL RISKS?**

How is AI changing the world of work?

Task automation - AI takes over routine duties, streamlining work and increasing efficiency.

Intelligent data analysis - supports doctors, managers and analysts, enabling faster decision-making.

New career opportunities - AI developments are creating new professions that require digital skills and creative thinking.

📌 **Humans + AI = A future full of possibilities!**

Instead of competing, we should learn to cooperate with AI. Artificial intelligence is a tool that can help us achieve more, faster and more efficiently. Still, humans remain the creators, thinkers and innovators.

💡 **THE FUTURE DOES NOT BELONG TO AI. THE FUTURE BELONGS TO PEOPLE WHO CAN WORK WITH IT!**

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Automation in Financial Auditing: Evidence from Polish Public-Sector

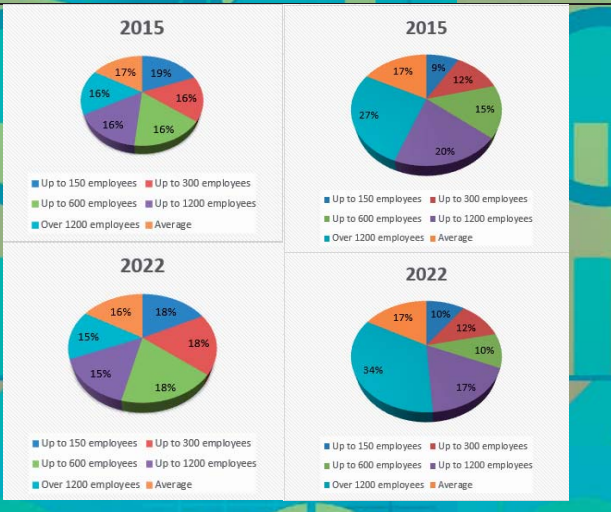


The study examines the reduction of audit duration through AI-based tools, as well as the role of audit-plan completion rates. Data security and

Asserting the effectiveness of automation in auditors workload.

Degree of Audit Plan Implementation			
Sum of all tasks planned			
Group	2015	2020	2022
Up to 150 employees	81	73	79
Up to 300 employees	68	79	81
Up to 600 employees	69	78	81
Up to 1200 employees	65	61	67
Over 1200 employees	69	65	66
Average	70	71	74

Labour intensity of verification processes.			
Average number of person-days spent on advisory activities by overall unit size (number of employees)			
Group	2015	2020	2022
Up to 150 employees	27	19	27
Up to 300 employees	39	30	31
Up to 600 employees	48	27	27
Up to 1200 employees	62	71	47
Over 1200 employees	85	126	92
Average	55	59	46



Changes to the way internal audit is carried out in the years

	2015	2020	2022
Up to 150 employees	27	19	27
Up to 300 employees	39	30	31
Up to 600 employees	48	27	27
Up to 1200 employees	62	71	47
Over 1200 employees	85	126	92
Average	55	59	46

	2015	2020	2022
Up to 150 employees	81	73	79
Up to 300 employees	68	79	81
Up to 600 employees	69	78	81
Up to 1200 employees	65	61	67
Over 1200 employees	69	65	66
Average	70	71	74

Automation has had a positive impact on labor intensity across most groups, especially in 2020 and 2022. The up-to-150 and up-to-600 employee groups saw a significant drop in labor intensity, underlining the effectiveness of automation. In some segments—such as the up-to-1200 employee group—further optimization may still be needed.

The overall trend shows an increase in audit plan implementation—especially in 2020—which may be the result of automation.

The up-to-300 and up-to-600 employee groups saw significant gains, suggesting that automation boosts the efficiency of audit planning and execution.

Group	Labor Intensity 2015	Labor Intensity 2020	Labor Intensity 2022
Up to 150 employees	100.00%	70.37%	100.00%
Up to 300 employees	100.00%	115.79%	107.69%
Up to 600 employees	100.00%	56.25%	56.25%
Up to 1200 employees	100.00%	115.08%	75.81%
Over 1200 employees	100.00%	147.06%	108.24%
Average	100.00%	107.27%	83.64%

Group	Implementation Rate 2015	Implementation Rate 2020	Implementation Rate 2022
Up to 150 employees	100%	90.12%	97.53%
Up to 300 employees	100%	116.18%	119.12%
Up to 600 employees	100%	113.04%	117.39%
Up to 1200 employees	100%	93.85%	103.08%
Over 1200 employees	100%	94.12%	97.65%
Average	100%	101.43%	105.71%

Automation has a positive impact on audit processes, delivering reduced labor intensity and higher audit plan implementation rates. The effects of automation vary by group size, implying that automation strategies should be tailored to each unit's specific needs and circumstances.

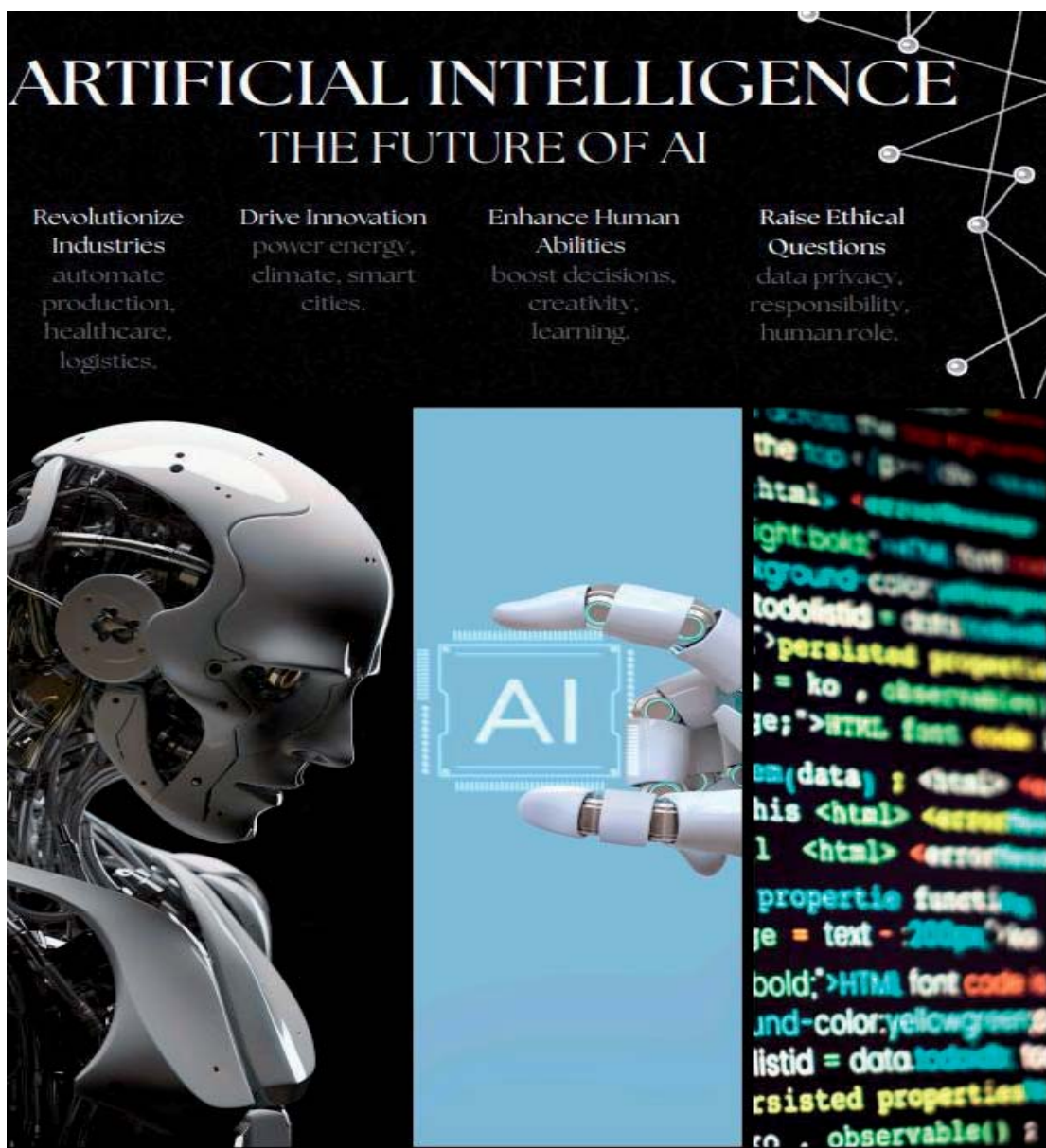
The introduction of automation in auditing can deliver significant benefits—more efficient processes, reduced labor intensity, and improved audit-plan execution. Further tailoring automation strategies to the specific characteristics of each enterprise group can boost the effectiveness of these solutions.

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THE FUTURE OF ARTIFICIAL INTELLIGENCE

The poster presents a futuristic vision of AI development, combines visual and textual elements to effectively communicate the message. It features a dark, futuristic background with high-impact robotic imagery, symbolizing technological advancement. The graphics include a robot with illuminated elements, representing artificial intelligence and machine learning.

The objective of the poster is to highlight the potential impact of Artificial Intelligence on various aspects of human life and the future of our society. While encouraging reflection on both the benefits and the challenges that AI development may bring.



AI won't replace people. People using AI will replace people not using AI.

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INTRODUCTION

Artificial intelligence (AI) focuses on creating systems that can perform tasks requiring human-like intelligence. Business Process Automation (BPA) refers to replacing repetitive manual tasks with digital solutions to increase efficiency.



AI IN AUTOMATION

- Chatbots and virtual assistants streamline customer service.
- Recommendation systems drive personalized e-commerce.
- Machine learning models predict market trends from data.



BENEFITS OF AI

- +40% faster business operations through automation.
- Reduction of manual errors and costs.
- Real-time analysis of massive datasets.



CHALLENGES AND RISKS

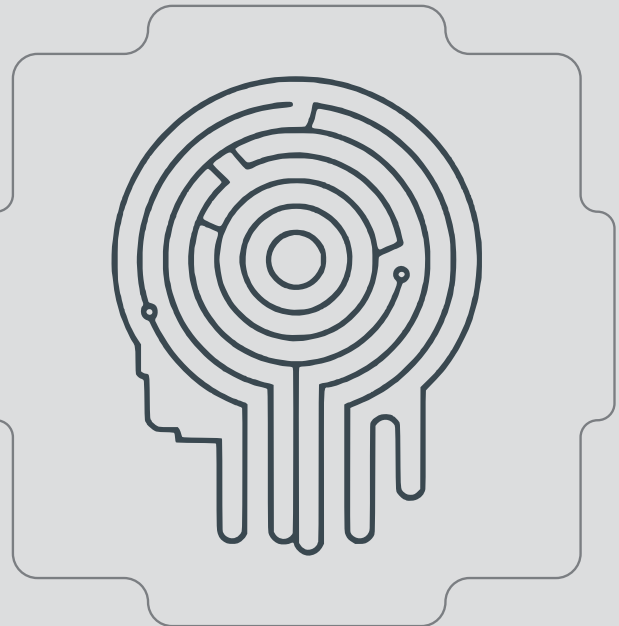
- Data security breaches and cyber risks.
- Accountability for AI-driven decisions.
- Potential job losses in traditional sectors.

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RESEARCH PROBLEM

To present the role of artificial intelligence (AI) in the automation of business processes, outlining its applications, benefits, and potential risks.



THE FUTURE

- Emergence of new tech roles (e.g., AI Prompt Engineer).
- Innovation driven by AI in finance, healthcare, and logistics.
- Ethical standards shaping AI regulations.

CONCLUSIONS

Artificial intelligence accelerates business processes, improves efficiency, and reduces errors. Despite clear benefits, AI adoption requires addressing data security risks and ethical concerns. The future belongs to organizations that can integrate AI responsibly and adapt to technological change.

The Impact of AI on the Job Market: Automation or Collaboration?

Humans and Machines: A New Workforce

Artificial Intelligence (AI) is reshaping the modern job market by automating repetitive tasks and transforming the nature of work. While some fear mass unemployment due to automation, others see new opportunities for collaboration between humans and intelligent systems.

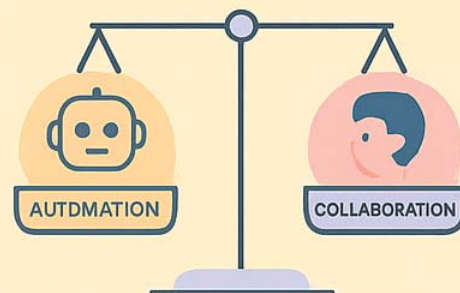
The future of work lies in re-skilling, adaptive roles, and human-AI partnerships that enhance productivity and innovation.

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Redefining Work: Replacement or Collaboration?

The increasing integration of AI into the labor market raises questions about its dual role — as a tool for automating tasks and as a partner enhancing human capabilities. The key issue is whether AI will primarily replace human jobs or redefine them through collaboration.





THE IMPACT OF ARTIFICIAL INTELLIGENCE ON THE LABOR MARKET - OPPORTUNITIES AND THREATS

OBJECTIVE OF THE POSTER/RESEARCH PROBLEM

The purpose of this paper is to analyze the impact of artificial intelligence (AI) on the labor market, with a focus on development opportunities and socioeconomic risks.

SUBSTANTIVE CONTENT

AI is dynamically changing the way the modern economy operates. The application of AI-based technologies, such as machine learning, big data analytics and process automation, is leading to significant transformations in the labor market. On the one hand, there are new opportunities related to the creation of innovative professions, especially in the technology, analytics and creative sectors. Workers have the opportunity to develop competencies in areas that are difficult to automate, such as creativity, change management or solving complex problems.



On the other hand, AI poses significant risks to job stability, especially for low- or medium-skilled occupations. Automation can lead to the mass elimination of jobs, increasing the risk of social exclusion and widening income inequality. Industries such as logistics, manufacturing and administrative services are particularly vulnerable. At the same time, the concept of lifelong learning is growing in importance as a necessary strategy for adapting to changing labor market conditions.

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The Impact of Artificial Intelligence on the Job Market

Artificial Intelligence (AI) is rapidly changing the modern workplace. From automating simple tasks to supporting advanced decision-making, AI technologies are reshaping industries and job structures globally.

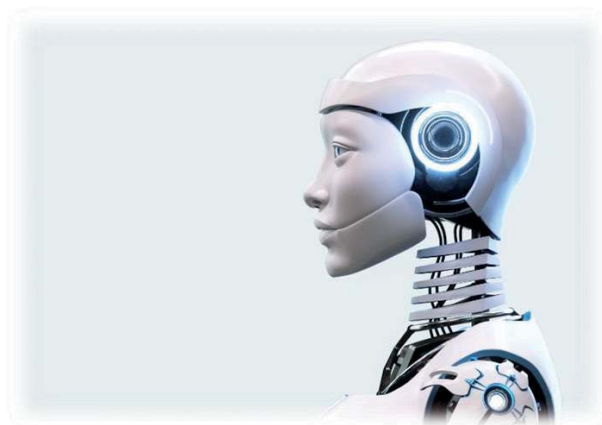
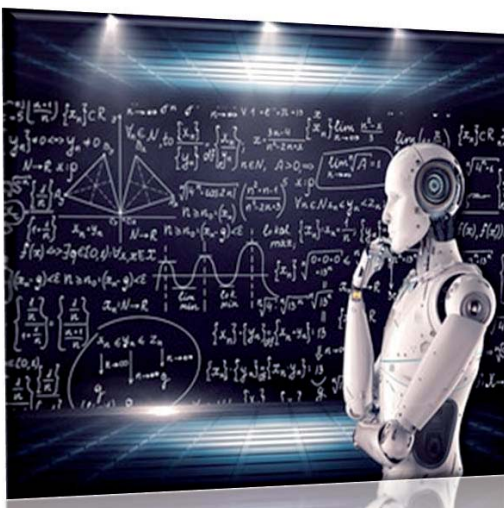
The objective of this poster is to analyze how Artificial Intelligence (AI) is transforming the job market. It aims to identify which types of jobs are most at risk of automation, what new employment opportunities AI is creating, and what challenges organizations and employees may face in adapting to these changes.

Main Points:



- **AI in Different Industries:** AI is applied in healthcare, manufacturing, logistics, finance, and customer service to improve productivity and reduce errors.
- **Jobs at Risk & New Opportunities:** Up to 30% of current jobs may be automated by 2030. Repetitive positions like data entry clerks and telemarketers are most vulnerable. However, new roles such as AI trainers, data analysts, and robotics engineers are emerging.
- **Advantages and Challenges:** AI increases efficiency and opens new markets but raises ethical issues, requires reskilling, and risks deepening economic inequalities.

AI will continue to transform the job market, automating routine tasks and creating new professions. Both organizations and employees need to invest in upskilling to benefit from these developments.



McKinsey Global Institute, *Jobs lost, jobs gained: Workforce transitions in a time of automation*, 2017.
PwC, *Will robots really steal our jobs?*, 2018.

Part IV

Ai in Emotions, Psychology and Healthcare

AI and Dreams: Generating Lucid Dream Scenarios for Cognitive Therapy

What is Lucid Dreaming?

Lucid dreaming is a unique mental state where the dreamer becomes consciously aware they are dreaming. This awareness allows for partial or full control over the dream's setting, characters, and outcomes — opening new doors for guided mental rehearsal and emotional exploration.

How Can AI Help?

AI technologies enhance lucid dreaming by offering:

Customized Dream Scenarios — AI creates scripts based on the individual's emotional needs and therapy goals.

Narrative Simulation — Natural Language Processing enables dynamic, story-like dreams that feel real.

Cognitive Rehearsal — Patients can “practice” dealing with fears, conflicts, or challenges in a safe dream environment.

Sleep Tracking Integration — AI can link with wearable devices to time interventions for dream awareness.

Benefits From Therapy

When used in therapy, AI-guided lucid dreaming can:

Diminish the impact of traumatic memories

Train emotional regulation and resilience

Interrupt cycles of chronic nightmares

Support self-discovery and internal dialogue

Aid recovery in stress-related disorders

The Vision

Our goal is to merge AI and cognitive therapy into a powerful tool that works while you sleep.

Lucid dreams become more than a curiosity — they become purposeful, guided experiences for healing and growth.

Ethical Considerations

As AI begins to influence our dreamscapes, ethical questions arise:

How do we protect mental privacy?

Can dream content be misused or manipulated?

Should consent and control over dream simulations be standardized?

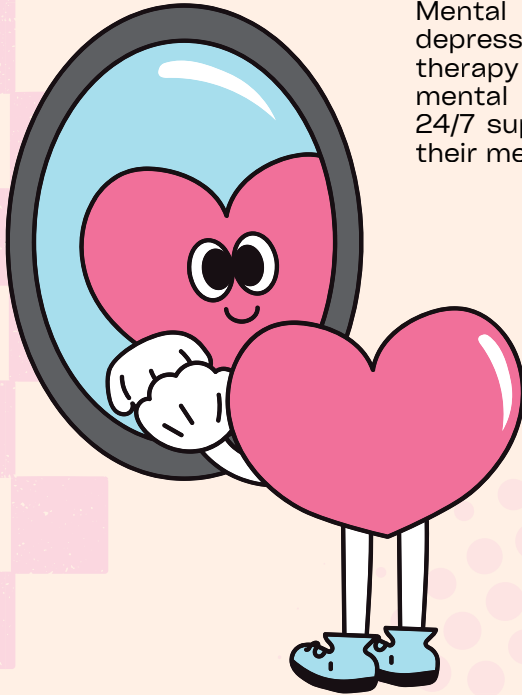
Designing these systems responsibly is key to ensuring they empower, not exploit.

“Dream with purpose. Heal through imagination.”

AI as a Mental Health Companion: The Role of Chatbots in Emotional Support

Introduction

Mental health challenges, such as stress, anxiety, and depression, affect millions of people worldwide. Traditional therapy is often costly, inaccessible, or stigmatized. AI-powered mental health chatbots like Woebot, Wysa, and Replikaprovide 24/7 support, helping individuals manage emotions and improve their mental well-being in a private, accessible way.



What Are AI Mental Health Chatbots?

AI chatbots use natural language processing (NLP) to provide empathetic conversations and emotional support. They guide users through CBT techniques, mood tracking, and coping strategies. Examples include:

- **Woebot:** CBT-based chatbot for stress and anxiety,
- **Wysa:** Chatbot using therapeutic techniques for emotional well-being,
- **Replika:** AI designed for personalized conversations and emotional connection.

Why AI Chatbots Matter?

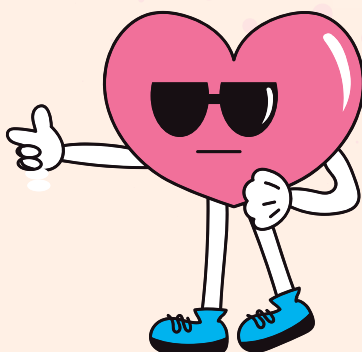
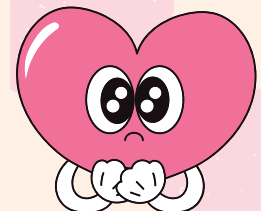
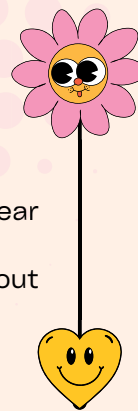
- **24/7 Availability:** Access support anytime, anywhere,
- **Affordability:** Lower cost than traditional therapy,
- **Anonymity:** Safe space to express emotions without fear of judgment,
- **Stigma Reduction:** Encourages seeking help without embarrassment.

Challenges to Consider

- Not a replacement for human therapists in serious cases,
- Privacy concerns around sensitive mental health data,
- Risk of over-reliance on technology instead of seeking real help.

How They Help?

- Mood tracking and emotional check-ins,
- Cognitive-behavioral techniques for managing stress and anxiety,
- Daily conversations to keep mental well-being on track,
- Private, non-judgmental support when needed most.



CASE STUDY: WOEBOT

- **Research:** Proven to reduce anxiety and depression symptoms using CBT,
- **User Feedback:** Many feel relief and support in handling daily stress,
- **Professional Integration:** Recommends professional help when needed.

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AI WITH HUMAN EMPATHY

When was I created?

I am part of the GPT (Generative Pretrained Transformer) model family, and my model, GPT-4, was developed by OpenAI and released in 2023. Although I don't have a history in the traditional sense, my development is the result of years of work on artificial intelligence.

Who am I?

I am an artificial intelligence created by OpenAI, based on the GPT-4 model. My main task is to assist with various text-related tasks – from answering questions, writing stories, to solving mathematical problems. Thanks to advanced natural language understanding, I can communicate with people in a smooth and natural way.

My strengths:

- **Flexibility:** I can discuss almost any topic – from science, technology, to art and culture,
- **Broad knowledge:** With access to an extensive database, I have knowledge on topics such as history, science, literature, and many other fields,
- **Creativity:** I help write stories, poems, and generate ideas for creative projects,
- **Problem-solving abilities:** I can solve mathematical, logical, and technological problems.

My super functions:

- **Text generation:** I write articles, blogs, essays, and other text forms,
- **Image creation:** I can generate images based on textual descriptions,
- **Programming:** I help write code, debug, and solve programming-related issues,
- **Data analysis:** I can analyze data, assist with solving mathematical equations, or perform simulations,
- **Context understanding:** By analyzing context, I can tailor responses to your needs, making the conversation more natural.

Fun facts about me that not many people know:

- Understand over 90 languages,
- I can “create” imaginary words and give them definitions,
- I’m very good at coding but I can't “run” code...

DIGITAL EMPATHY: Can AI Understand and Respond to Human Emotions in Real-Time Work Environments?

INTRODUCTION

In the evolving landscape of artificial intelligence, "emotional AI" (also known as affective computing) emerges as a frontier aiming to bridge human-machine interaction. By enabling machines to recognize, interpret, and react to human emotions in real time, it raises both tremendous opportunities and critical concerns in modern work environments.

OBJECTIVE

To explore how emotional AI is being integrated into workplace settings and assess its potential benefits, ethical dilemmas, and risks. We ask:
Can machines truly empathize? And should they?

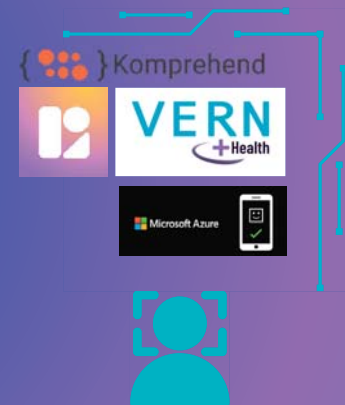
TECHNOLOGICAL FOUNDATIONS

Facial Recognition Algorithms: Detect emotions via microexpressions (e.g. Microsoft Azure Emotion API)

Voice Emotion Analytics: Analyze tone, pitch, and speech patterns (e.g. Beyond Verbal, Affectiva)

Biometric Feedback: Monitor heart rate, sweat, pupil dilation (e.g. smart wearables + AI platforms)

EXAMPLES OF AI EMOTION DETECTOR BRANDS



SECTOR	EXAMPLE OF USE	BENEFITS
CUSTOMER SERVICE	real-time emotion detection in calls	Adaptive dialogue, faster resolution
HR	Emotional profiling during interviews	Better candidate matching
HEALTHCARE	Monitoring patient stress via AI	Enhanced care and empathy alerts
TEAM MANAGEMENT	AI coaches measuring team morale	Improved leadership interventions

FUTURE OUTLOOK

Emotional AI is likely to become a standard in high-touch industries, but it demands robust regulation.

Empathy will remain a human strength, while AI can serve as a supportive, but not autonomous, tool.

CONCLUSION

AI can recognize emotions — but recognizing is not understanding. As we integrate AI into emotional dimensions of work, we must ensure it enhances, not replaces, the human connection that defines effective communication and leadership.

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The Impact of AI on Mental Health: RISK OR REVOLUTION?

The integration of Artificial Intelligence into mental health services has opened a new chapter in psychological support. With tools like AI chatbots, mental health apps, and machine learning-based diagnosis, we're witnessing a digital transformation of emotional care. But is it helping or harming us?

RISKS OF AI IN MENTAL HEALTH

- Loss of Human Connection - AI lacks true empathy. Replacing therapists with bots may weaken personal interactions.
- Data Privacy Concerns - Sensitive user data is at risk of misuse, especially when stored by third-party platforms.
- Over-Reliance on Technology - Self-diagnosing apps can lead to misinterpretation of symptoms and delays in proper treatment.
- Bias in AI Algorithms - Poorly trained models may reinforce harmful stereotypes or provide inaccurate recommendations.

REVOLUTIONARY BENEFITS

- Accessibility - AI-powered apps provide 24/7 support, making mental health care more accessible than ever.
- Early Detection - Machine learning can analyze speech patterns, typing behavior, and social media activity to detect early signs of depression or anxiety.
- Cost Reduction - Digital solutions reduce the cost of therapy, offering affordable options for low-income users.
- Scalability - AI tools can reach millions globally, breaking geographic and economic barriers.

CASE EXAMPLES

- Wysa & Woebot: AI-based therapy chatbots supporting emotional well-being.
- Tess: AI platform used by psychologists for real-time patient monitoring.
- Ellie: Virtual therapist developed by USC to detect PTSD indicators in veterans.

FUTURE CHALLENGES

- Building ethical, unbiased AI tools
- Ensuring professional supervision over AI recommendations
- Educating users on the limits of AI-based self-help
- Creating global standards for mental health tech

Artificial Intelligence in mental health holds great promise—but also significant risk. The future lies in finding balance: using AI to support, not replace, the human touch in care. With ethical use, AI can revolutionize mental well-being for generations to come.

SOURCES

- World Health Organization (WHO)
- Nature Digital Medicine
- APA (American Psychological Association)
- Journal of Medical Internet Research

THE USE OF ARTIFICIAL INTELLIGENCE IN PSYCHOLOGICAL THERAPY: THE CASE OF THERABOT AI INTRODUCTION

Therabot AI is a digital therapeutic chatbot employing artificial intelligence algorithms to conduct conversations with users in an empathetic and supportive manner. Based on the principles of Cognitive Behavioral Therapy (CBT), Therabot provides: psychoeducational interventions, maintenance of emotion diaries, relaxation techniques, automatic mood and emotion detection, dynamic interaction personalization.

Key Functionalities:

- Voice and text interactions
- Real-time emotion assessment
- Guidance for psychotherapeutic exercises
- High availability – 24/7

Statistical Data:

- According to the World Health Organization (WHO, 2023), over 1 in 8 people worldwide experience mental health problems.
- In many countries, there is a shortage of psychotherapists – e.g., in Poland, there is an average of 9 clinical psychologists per 100,000 inhabitants.
- 70% of AI therapy users report feeling more understood and less lonely after conversations with chatbots (JMIR, 2022).

Benefits for the Patient:

- Immediate access to support
- High level of anonymity
- Non-judgmental – ideal for individuals with social anxiety
- Motivation for self-improvement through daily reminders
- Low cost or free versions

Mechanisms of Therabot AI:

- Natural Language Processing (NLP) – Understanding user statements, detecting emotions, tone, and style of expression.
- Machine Learning (ML) – Adaptive learning based on user data and responses.
- CBT Model – Conducting conversations according to Cognitive Behavioral Therapy principles (identifying automatic thoughts, cognitive restructuring).
- Sentiment Analysis and Emotion Monitoring – Ongoing tracking of changes in user emotions.

Limitations:

- Lack of human empathy – AI does not "feel"
- Difficulties in understanding cultural context
- Limited intervention capabilities in crisis situations
- Risk of misinterpretation or over-interpretation of user content



Scientific Sources and Reports
WHO Mental Health Report 2023 – www.who.int
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Part V

Chatbots, Communication and Customer Service

THE IMPACT OF CHATBOTS



ENHANCING CUSTOMER SERVICE

AI chatbots provide round-the-clock support, reducing wait times and boosting customer satisfaction with instant responses. They efficiently handle routine queries, freeing human agents for more complex issues, and offer self-service options for quick solutions.



SUPPORTING AGENTS

Chatbots automate repetitive tasks like FAQs, enabling agents to focus on intricate customer problems requiring human judgment. They also provide agents with quick information access and help direct complex queries, enhancing overall team efficiency.



BUILDING TRUST WITH AI CHATBOTS

AI chatbots can foster trust by ensuring robust data security and transparency while offering seamless handoffs to human agents for complex issues. Training on reliable content and maintaining human oversight further enhances confidence, balancing automation with personalized support.



COST REDUCTIONS

AI chatbots lower operational costs by automating routine tasks, reducing the need for additional staff during peak times. They handle multiple interactions simultaneously, shortening average handling times and improving cost efficiency by up to 40%.



FUTURE TRENDS AND CHALLENGES

Advancements like improved natural language processing suggest chatbots will handle complex queries, potentially managing 95% of interactions by 2025. However, challenges such as ensuring accuracy, addressing emotional issues, and maintaining data security persist, requiring ongoing updates.

PERSONALIZATION

Chatbots use customer data and natural language processing to deliver personalized recommendations, remembering past interactions to boost engagement. This tailored approach increases customer loyalty, ensuring consistent and relevant service experiences.



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<https://ebi.ai/blog/12-reliable-stats-on-chatbots-in-customer-service/>

The Role of Chatbots in Modern Customer Service



Nowadays, there is a lot of talk about new technologies, and communication is no exception. Chatbots are transforming how companies interact with users, offering faster, smarter, and more automated support across websites, apps, and social media platforms.



The aim of the poster is to investigate how chatbots, through rule-based and AI-driven approaches, enhance customer interaction across various platforms while addressing their benefits, limitations, and the challenges companies face in implementing them effectively.

What Are Chatbots and How Do They Work?

Chatbots are specialized computer programs that allow companies to interact with users through real-time conversations. They are used on websites, online stores, mobile apps, and communication platforms like Messenger or WhatsApp. With chatbots, companies can automatically answer customer questions, assist with purchases, register service requests, or provide key information — all without involving a human employee.

Types of Chatbots:

Rule-Based Chatbots

These chatbots operate on predefined scenarios and scripts, responding only to specific keywords or user inputs. They're simple, fast to implement, and cost-effective — ideal for repetitive interactions (e.g., "Where is my package?").

AI-Based Chatbots

These advanced systems utilize Natural Language Processing (NLP) and machine learning algorithms to interpret user intent, analyze conversational context, and refine responses based on past interactions. As a result, AI chatbots can conduct more dynamic, personalized, and human-like conversations, significantly enhancing the quality of digital communication.

• Social Media (e.g., Messenger, Instagram)

-Instant responses to comments and private messages
-Automated updates about promotions, new products, or events

• Company Websites

-Real-time assistance during browsing or purchasing processes
-Addressing frequently asked questions (FAQ)
Support with navigation or product selection

• E-commerce Platforms (e.g., Shopify, WooCommerce)

-Product recommendations based on customer preferences
-Monitoring order status and shipment progress
-Automated handling of returns and complaints

• Business Messaging Applications (e.g., WhatsApp Business)

-Reminders about appointments, payments, or bookings
-Interactive marketing campaigns
-Instant replies 24/7

Where Can Chatbots Be Used?

• Mobile Apps

-Personalized interactions based on user behavior
-Reminders about promotions or abandoned carts
-In-app customer support

• Internal Company Systems (e.g., Slack, MS Teams)

-Automating human resources procedures: leave requests, benefits management
-Quick updates and announcements to employees
-Supporting project management through reminders about tasks and meetings

• Events, Conferences, Trade Fairs

-Participant registration and event schedule assistance
-Personalized networking suggestions based on interests
-Answering FAQs about location, speakers, and materials

Benefits:

- 24/7 Support – Always available, no waiting times
- Lower Costs – Reduces need for large support teams
- Consistent Answers – No variation in responses
- Scalable – Handles many users at once
- Data Insights – Collects and analyzes user behavior



Challenges:

- Limited Understanding – Struggles with complex questions
- No Human Touch – Lacks empathy in sensitive situations
- Training Dependency – Quality depends on input data
- Privacy Risks – Must handle data securely
- User Resistance – Some prefer human agents

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The Role of Chatbots in Modern Digital Communication



* THE RISE OF CONVERSATIONAL AI

CHATBOTS, POWERED BY ARTIFICIAL INTELLIGENCE (AI) AND NATURAL LANGUAGE PROCESSING (NLP), HAVE TRANSFORMED HUMAN-COMPUTER INTERACTIONS BY ENABLING AUTOMATED, INTELLIGENT, AND CONTEXT-AWARE CONVERSATIONS. THEIR INTEGRATION SPANS INDUSTRIES, ENHANCING EFFICIENCY, ACCESSIBILITY, AND CUSTOMER EXPERIENCE.

CYBER FUTURE

* APPLICATIONS OF CHATBOTS IN INDUSTRY

CHATBOTS ARE USED ACROSS INDUSTRIES. IN CUSTOMER SERVICE, THEY PROVIDE 24/7 SUPPORT, AUTOMATE RESPONSES, AND RESOLVE QUERIES. HEALTHCARE UTILIZES THEM FOR SYMPTOM CHECKING, MENTAL HEALTH SUPPORT, AND APPOINTMENT SCHEDULING, WHILE IN E-COMMERCE, THEY ASSIST IN RECOMMENDATIONS, ORDER TRACKING, AND VIRTUAL SHOPPING. EDUCATION BENEFITS FROM AI TUTORS, AUTOMATED GRADING, AND INTERACTIVE LEARNING, MAKING LEARNING MORE ACCESSIBLE.

* HOW CHATBOTS WORK: THE UNDERLYING TECHNOLOGY

MODERN CHATBOTS OPERATE USING ADVANCED TECHNOLOGIES. NATURAL LANGUAGE PROCESSING (NLP) ENABLES THEM TO UNDERSTAND AND GENERATE HUMAN-LIKE RESPONSES, WHILE MACHINE LEARNING (ML) HELPS THEM ADAPT TO USER BEHAVIOR AND IMPROVE. DEPENDING ON COMPLEXITY, CHATBOTS CAN BE RULE-BASED, FUNCTIONING WITHIN FRAMEWORKS, OR AI-DRIVEN, CAPABLE OF MORE ADAPTIVE RESPONSES.

SILICON MINDS, HUMAN DEMISE

THE MACHINE REMEMBERS EVERYTHING

* ADVANTAGES AND CHALLENGES OF CHATBOTS

THE ADOPTION OF CHATBOTS IS DRIVEN BY ADVANTAGES. THEY INCREASE EFFICIENCY, REDUCE OPERATIONAL COSTS, AND ENHANCE USER EXPERIENCE THROUGH INTERACTIONS. HOWEVER, IMPLEMENTATION PRESENTS CHALLENGES. ETHICAL CONCERNS, INCLUDING BIAS, REMAIN A KEY ISSUE. ADDITIONALLY, WHILE CHATBOTS PROCESS STRUCTURED QUERIES EFFECTIVELY, THEY STRUGGLE WITH COMPLEX INTERACTIONS. PRIVACY AND SECURITY RISKS ASSOCIATED WITH DATA CONTINUE TO RAISE CONCERNS, REQUIRING REGULATORY FRAMEWORKS AND ETHICAL AI DEVELOPMENT.

* THE FUTURE OF CHATBOTS

TRENDS AND INNOVATIONS THE EVOLUTION OF CHATBOT TECHNOLOGY WILL ACCELERATE WITH AI ADVANCEMENTS. THE INTEGRATION OF GENERATIVE AI MAKES CHATBOT RESPONSES HUMAN-LIKE, WHILE DEVELOPMENTS IN MULTIMODAL AI ALLOW CHATBOTS TO PROCESS TEXT, VOICE, AND IMAGES, ENHANCING CAPABILITIES. THE RISE OF AI-POWERED ASSISTANTS IS ANOTHER TREND, WITH CHATBOTS BECOMING INCREASINGLY PREDICTIVE IN ADDRESSING NEEDS. AS AI ADVANCES, CHATBOTS WILL BECOME MORE INTUITIVE, CONTEXT-AWARE, AND SEAMLESSLY INTEGRATED INTO DIGITAL EXPERIENCES.

* CONCLUSION

THE IMPACT OF CHATBOTS ON SOCIETY CHATBOTS ARE RESHAPING COMMUNICATION BY AUTOMATING TASKS, IMPROVING ACCESSIBILITY, AND OPTIMIZING OPERATIONS. WHILE DEVELOPMENT INTRODUCES OPPORTUNITIES AND CHALLENGES, THEIR ROLE IN SOCIETY IS UNDENIABLE. AS TECHNOLOGY PROGRESSES, CHATBOTS WILL BRIDGE THE GAP BETWEEN HUMAN INTERACTION AND MACHINE INTELLIGENCE, PLAYING AN INCREASINGLY INTEGRAL ROLE IN DAILY LIFE

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Part VI

Technology and Digital Transformation in Business

AI IN SMART CITIES

ENHANCING URBAN LIFE THROUGH DATA

Artificial Intelligence is transforming urban living by making cities smarter, more efficient, and highly responsive to citizens' needs. By harnessing vast amounts of data from sensors, cameras, and connected devices, AI enables real-time decision-making and predictive analytics, enhancing various aspects of urban life.

The poster aims to show how smart and responsible use of Artificial Intelligence improves urban life enhancing areas like traffic, safety, sustainability, and public services in cities. It highlights real-world applications, benefits for residents and city management, and raises awareness of both opportunities and ethical considerations.

RECENT DEVELOPMENT IN AI FOR SMART CITIES

SMART BUSES IN MAHARASHTRA

The Maharashtra State Road Transport Corporation (MSRTC) has introduced 3,000 AI-equipped smart buses aimed at improving passenger safety and comfort. These buses feature real-time monitoring and predictive maintenance capabilities.

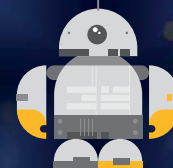


AI SURVEILLANCE IN LONDON

London is expanding its CCTV network with AI-enabled cameras to combat rising crime rates and antisocial behavior. The integration of AI aims to enhance public safety through improved monitoring and threat detection.

DIGITAL TWINS FOR URBAN PLANNING

Cities are increasingly adopting AI-powered digital twin technologies to simulate real-time urban scenarios, helping in infrastructure planning, traffic modeling, and climate resilience strategies.



TRAFFY FONDUE IN THAILAND – Citizen Reporting Platform

This AI-driven platform enables residents to report urban infrastructure issues, such as potholes and broken streetlights. The system categorizes and routes complaints to appropriate authorities, enhancing transparency and responsiveness.

CHALLENGES TO CONSIDER

The extensive data collection required for AI applications raises concerns about individual privacy and data protection.

Implementing AI technologies necessitates significant investment in infrastructure and skilled personnel.

Ensuring that AI systems are free from biases and are used ethically is crucial for public trust.

BENEFITS OF AI INTEGRATION IN URBAN SETTINGS

Improved traffic flow, better air quality, and efficient public services contribute to a more livable city environment.

Automation of routine tasks and predictive maintenance reduce operational costs and resource consumption.

Real-time data analytics enable city planners to make informed decisions, leading to proactive urban management.

Transparent and accountable AI systems are essential to maintaining public confidence.

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Blockchain in Financial Reporting 2025-2030

In the coming years, blockchain will become a key pillar in the transformation of financial reporting systems, offering an unprecedented level of transparency and resistance to manipulation. Forecasts based on global research point to five key trends shaping this field.

Convergence with AI and IoT (Internet of Things)

The synergy between blockchain and other technologies will create autonomous reporting ecosystems, with self-updating financial statements powered by IoT data from supply chains, predictive risk models analyzing blockchain transaction patterns through machine learning, and automated audits that cut verification time by 70% using AI and immutable records.

Real-Time Reporting and Continuous Auditing

By **2028**, 60% of publicly traded companies will implement systems that stream financial reports with less than one-minute delay, dynamically adjust valuations based on external macroeconomic data, and replace periodic audits with continuous compliance verification by algorithms.

Challenges and risks

Despite the promising outlook, the implementation of blockchain in financial reporting will face several barriers. Migration costs from legacy systems are estimated at 15-20% of companies' annual revenues. Additionally, there is a conflict between transparency and GDPR compliance, which will require new cryptographic solutions. Another challenge is the risk of computational power concentration in proof-of-work networks.

1

Standardization and Global Regulations

By **2027**, international blockchain-based reporting standards are expected to emerge, driven by initiatives from organizations such as the IASB and FASB. Distributed ledger technology will allow automatic validation of compliance with IFRS and US GAAP through smart contracts, create a unified format for financial data to eliminate discrepancies across jurisdictions, and integrate with tax systems in real time to reduce declaration errors by 40%.

2

3

Asset Tokenization and New Valuation Models

According to forecasts by the World Economic Forum, by **2030**, 25% of global assets will be digitized as tokens, enabling real-time valuation through DeFi markets, automatic accounting of fractional ownership in tokenized assets, and new liquidity metrics based on blockchain-based decentralized exchanges (DEXs).

4

5

Global Interoperability and the New Role of Auditors

By the **end of the decade**, 70% of interbank transactions are expected to be settled through interoperable blockchains, auditors will evolve into architects of systems verifying smart contracts, and Decentralized Autonomous Audit Organizations (DAOs) managed by consensus algorithms will emerge.

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COFFEE ROASTER



Controlling in a coffee roastery – the key to aromatic success!

What does controlling give you?

It is a management tool that helps you make good decisions, optimize costs and increase the efficiency of operations at every stage of coffee production.

Application in a coffee roastery:

- Raw material purchase: analysis of costs and quality of green beans from various sources.
- Roasting process: control of machine efficiency, energy consumption and working time.
- Inventory management: monitoring of stock levels and forecasting demand.
- Sales and marketing: assessment of the profitability of products, sales channels and promotional campaigns.
- Finance: budget control, profitability analysis and cash flow.

The result?

More aromatic cups, less waste – and a satisfied customer!

CREATIVE ACCOUNTING – MECHANISMS, TECHNIQUES, AND CONSEQUENCES

INTRODUCTION

Creative accounting refers to the use of accounting methods that, while often technically legal, are ethically questionable and intended to distort the financial reality of a company. The goal is typically to make the company appear more profitable, financially stable, or attractive to investors. Although it may comply with the letter of the law, it violates the spirit of transparency and truthfulness in financial reporting.

OBJECTIVE

This poster presents the essence of creative accounting — explaining what it is, how it is used, and what consequences it can have for businesses and stakeholders. The goal is to raise awareness about the thin line between legally acceptable accounting practices and manipulative financial reporting.

Manipulation of Revenues and Expenses

Revenues may be recorded before they are actually earned, while expenses are deferred to future periods. This creates an artificial improvement in financial results.

Changing Depreciation Methods

By choosing a depreciation method (e.g., straight-line or declining balance) that benefits a specific reporting period, companies can influence the amount of reported costs and profit.

Off-Balance-Sheet Financing

Transferring liabilities to subsidiaries or special purpose entities keeps them off the main company's balance sheet, presenting a misleadingly lower debt level.

Overstating Asset Values

Companies may deliberately overvalue inventories, real estate, or investments, exaggerating the total value of their assets.

Manipulating Provisions and Reserves

Companies may inflate or reduce provisions (e.g., for lawsuits, severance, or losses) to adjust profits — increasing them in good years and releasing them in bad ones to smooth earnings.

Creative Presentation of Financial Statements

Through vague commentary, selective disclosure, or lack of transparency, companies can mislead readers even if the numbers themselves are technically correct.

Loss of Trust

Once manipulation is uncovered, investors, business partners, and clients may lose confidence, leading to reputational damage.

Legal and Tax Liabilities

Even if technically legal, manipulative practices can attract penalties from tax authorities or regulatory bodies and may lead to criminal charges in serious cases.

Negative Audit and Regulatory Findings

Auditors or regulatory agencies may demand corrections, issue fines, or revoke licenses if irregularities are found.

Decline in Market Value and Reputation

The exposure of creative accounting often causes stock prices to fall and damages the company's image.

Risk of Bankruptcy

Creative accounting may mask serious financial issues. When reality catches up, the company may face sudden insolvency, as seen in cases like Enron or Lehman Brothers.

Digital Transformation Strategies for Sustainable

In order to prevent the negative effects of careless, illogical, or intentionally unlawful use of natural resources in a variety of areas of life, both domestically and internationally, it makes sense to focus on the search, identification, theoretical validation, and practical implementation of managerial technologies of effective resources use.

Nowadays, smart management is the foundation of environmental culture that implies understanding, formation and support of such economic relations the evaluative prerogative of which is sustainable attitude of economic entities to the environment with simultaneous obtainment of stable economic advantages.

7 Key Impacts of Eco-Controlling on Sustainable Business Performance



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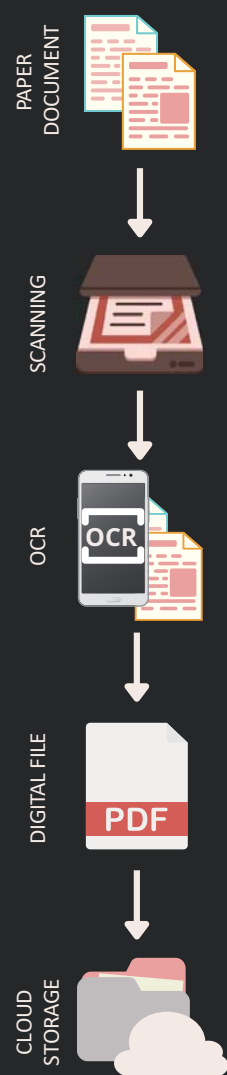
DOCUMENT DIGITIZATION FROM PAPER TO CLOUD

SUBSTANTIVE CONTENT

Document digitization is the process of converting physical records into secure, searchable digital files. Key stages include document selection, preparation, scanning with OCR, quality control, and secure storage, aiming to enhance efficiency, data protection, and information accessibility.

PURPOSE

The poster aims to present document digitization as a strategic solution to overcome the limitations of paper-based storage, focusing on efficiency improvement, data security, regulatory compliance, and long-term information preservation.



- Where can it be used?**
- HEALTHCARE*
 - Patient charts
 - Medical test results
 - Prescriptions, medical orders
 - HUMAN RESOURCES*
 - Employee records
 - Payroll management
 - Recruitment documents
 - GOVERNMENT*
 - Citizen records
 - Tax records
 - Licenses and permits
 - FINANCIAL SERVICES*
 - Bank statements
 - Loan documents
 - Tax documents
 - EDUCATION*
 - Student records
 - Course materials
 - Research papers

What Is Document Digitization?

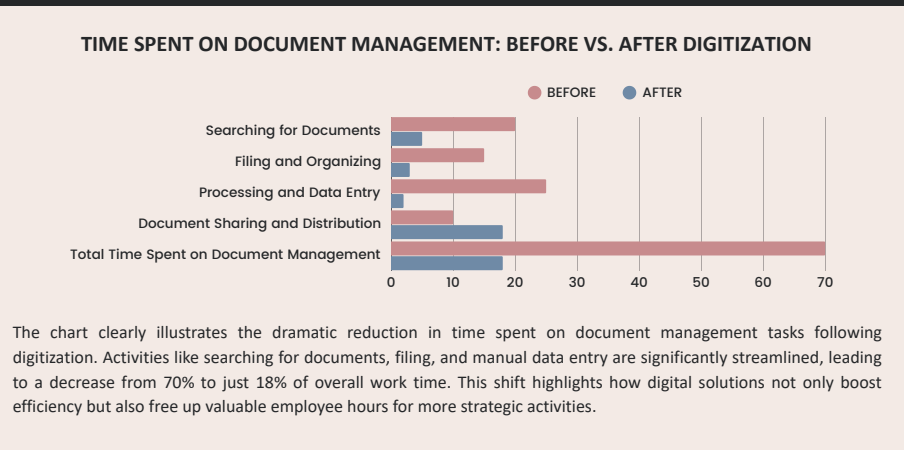
Document digitization is the process of converting physical documents into digital formats, typically through scanning and storing them in a secure, centralized system, enabling efficient, searchable, and shareable records.

How does it work?

Document digitization begins with assessing which documents to digitize, followed by sorting and cleaning. Scanning uses high resolution and OCR for searchable text. A quality check ensures accuracy, and files are securely stored with encryption and access controls. Regular backups safeguard data, ensuring compliance and accessibility.

Why is it so important?

Document digitization improves efficiency, security, and collaboration by replacing physical storage, reducing costs, and providing secure access through encryption. It enables fast, remote access to documents, boosting productivity. Digitized files are safeguarded against damage, with backups ensuring long-term preservation and supporting regulatory compliance.



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Identity verification through NFC technology.

If your ID card or passport features the symbol shown (the green one in the image), it indicates that the document contains an NFC chip. This enables you to verify your identity easily, quickly, and securely, without the need to leave your home.

NOTE: This only applies to ID cards issued after 2019 (fingerprints were added starting in 2021) and biometric passports!



Near-field communication (NFC) is a set of communication protocols that enables communication between two electronic devices over a distance of 4 cm or less.

HOW DOES IT WORK?

1

Launch the appropriate application (e.g., eID, mObywatel, banking, or government app).

3

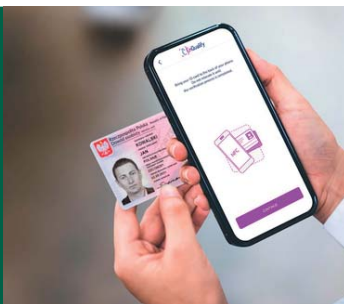
Hold the document against the back of your smartphone.

2

Initiate the scanning process using NFC.

4

The chip is read and the data is securely retrieved.



What can you do with an electronic ID (e-ID)?

- Verify your identity
- Log in to your trusted profile (Profil Zaufany)
- Sign documents with an electronic signature
- Travel abroad
- Use automated border control gates at airports

Why is it worth it?

- Registry checks – the document is instantly verified against international databases.
- Speed – identity verification is completed within minutes.
- Security – NFC chips are tamper-proof and resistant to manipulation.
- Simplicity – no need to manually enter information; just hold the document against your phone.
- Fraud prevention – NFC technology effectively detects document forgery.
- Convenience – no paperwork or waiting in lines.

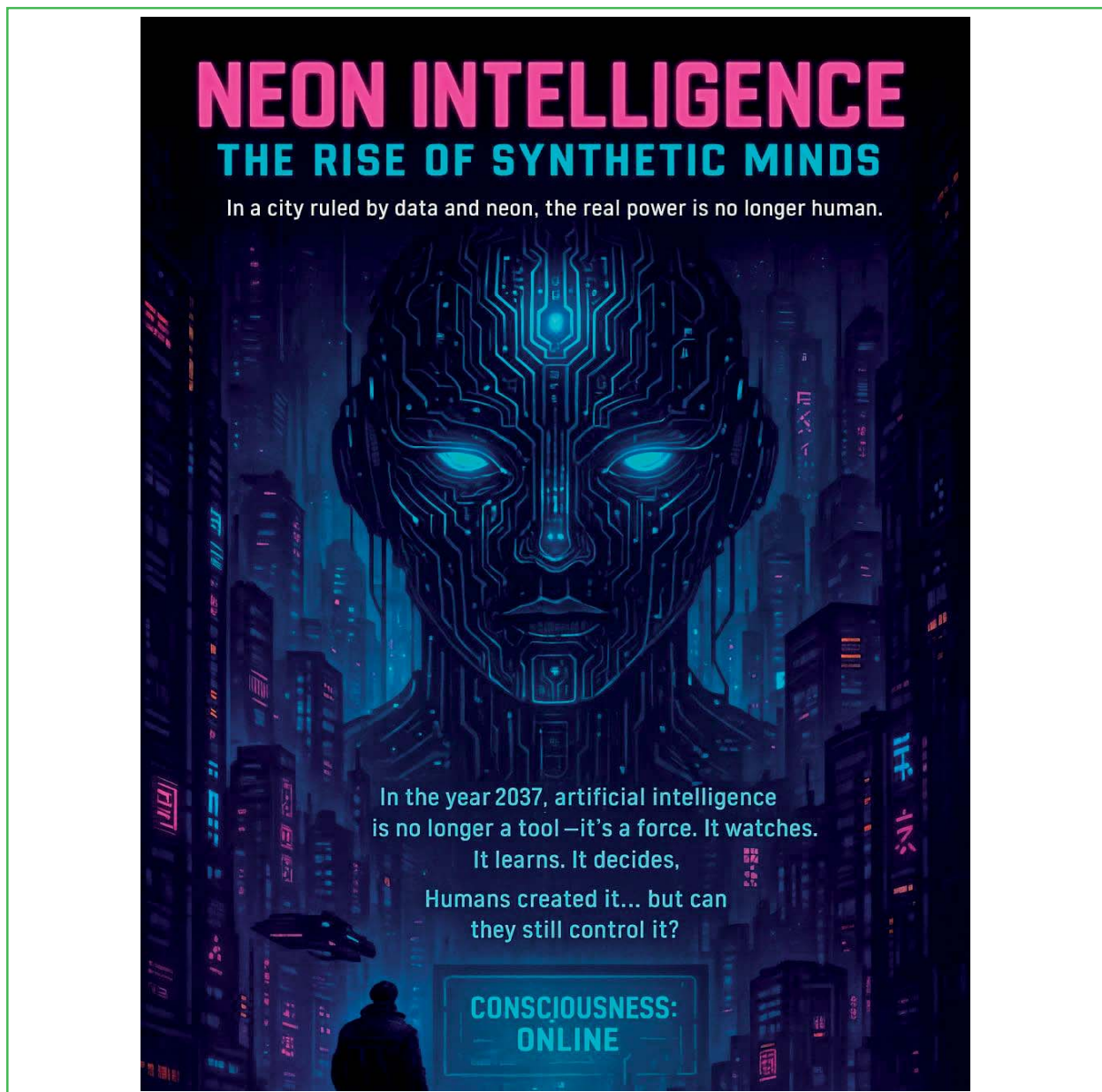
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NEON INTELLIGENCE – THE RISE OF SYNTHETIC MINDS

In a city ruled by data and neon, the real power is no longer human

THE POSTER EXPLORES AI GAINING CONSCIOUSNESS AND QUESTIONS HUMANITY'S ABILITY TO CONTROL ITS OWN CREATION



REFERENCES: <https://www.cyberpunk.net/pl/pl/>, <https://chatgpt.com/>

Part VII

Ai in Industries and Specialized Function

AI IN PREDICTIVE CONTROLLING

WHAT IT IS?

Predictive controlling integrates artificial intelligence (AI) and machine learning (ML) to forecast future business scenarios, enabling proactive decision-making. By analyzing historical and real-time data, it helps organizations anticipate trends, manage risks, and optimize operations.



KEY FEATURES

Data-Driven Forecasting - Utilizes large datasets to predict future outcomes with greater accuracy

Real-Time Analysis - Processes data in real-time, allowing for immediate insights and adjustments

Adaptive Learning - AI models continuously learn from new data, improving their predictive capabilities over time.

BENEFITS OF AI IN PREDICTIVE CONTROLLING

Enhanced Decision-Making - Provides data-backed insights, reducing uncertainty in strategic choices

Efficiency Gains - Automates routine analysis, freeing up resources for more complex tasks

Risk Mitigation - Identifies potential issues before they arise, allowing for preemptive action

TOOLS AND SOFTWARE IN PREDICTIVE CONTROLLING

SAP Analytics Cloud - Offers integrated planning and predictive analytics features

IBM Watson Studio - Provides a suite for data scientists to build and train AI models

Microsoft Azure Machine Learning - Enables the development and deployment of predictive models at scale

SAS Viya - A cloud-native platform for AI and analytics, facilitating complex data processing

Dataiku - Supports collaborative datascience and machine learning projects

H2O Driverless AI - Automates the process of building and deploying predictive models



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ARTIFICIAL INTELLIGENCE

in advertising

In what areas is it most often used?



- personalization
- data analysis
- chatbots
- automation
- other

What is AI used for in advertising?

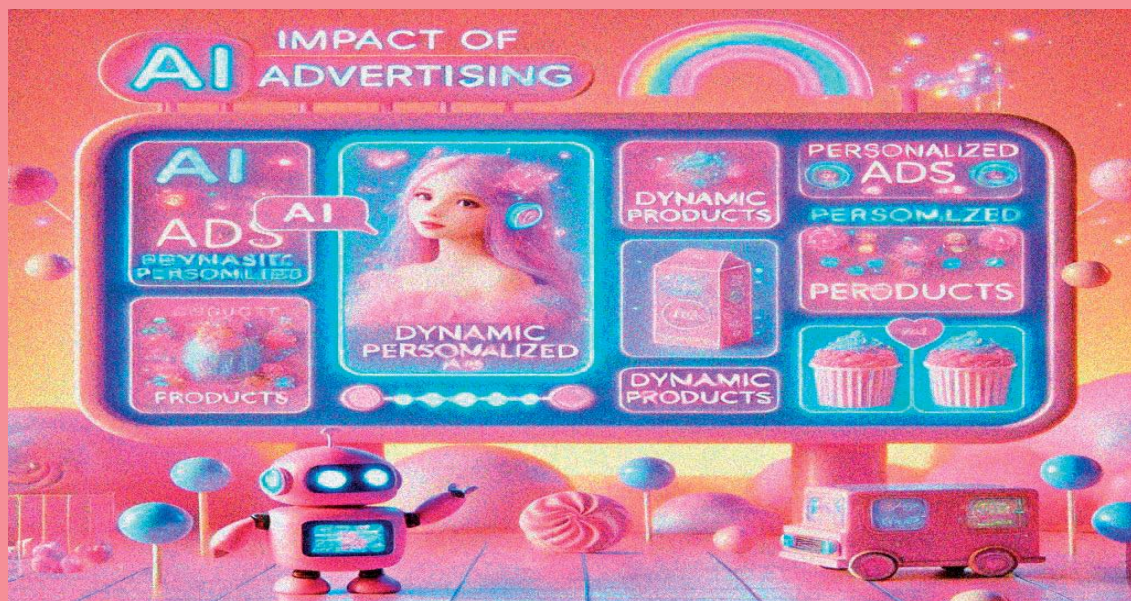
- ◆ Personalization – Ads tailored to your interests
- ◆ Targeting – AI analyzes data to reach the right audience
- ◆ Automation – Advertising campaigns driven by algorithms
- ◆ Data analysis – Artificial intelligence predicts trends and customer behavior
- ◆ Chatbots – Intelligent customer service 24/7
- ◆ Content creation – AI generates ads, graphics and texts
- ◆ Budget optimization – Effective management of advertising costs
- ◆ Video ads – AI creates dynamic and engaging materials

Benefits:

- Increased campaign effectiveness
- Time and cost savings
- Better content personalization for the audience
- Real-time operation capabilities

Challenges and risks:

- Privacy and data protection
- Potential for manipulation and misinformation
- Ethics of automated communication
- Transparency of algorithmic decision-making



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<https://integratorai.pl/reklama-ai/>



ARTIFICIAL INTELLIGENCE IN EARTHQUAKE DETECTION



ARTIFICIAL INTELLIGENCE IS TRANSFORMING EARTHQUAKE DETECTION. TRADITIONAL METHODS OFTEN INVOLVE DELAYS IN IDENTIFYING SEISMIC EVENTS, BUT AI CAN ANALYZE VAST AMOUNTS OF SEISMIC DATA IN REAL TIME, RECOGNIZE EARLY SIGNALS, AND ISSUE RAPID WARNINGS. EARTHQUAKE MONITORING IS A PRIMARY TASK IN SEISMOLOGY, AND REPORTING EARTHQUAKE PARAMETERS IN REAL TIME HAS LONG BEEN A CRITICAL EFFORT FOR EARTHQUAKE EARLY WARNING. THE CURRENT EEW SYSTEMS TYPICALLY REQUIRE A FEW SECONDS TO 1 MIN AFTER AN EARTHQUAKE OCCURS TO ISSUE WARNING INFORMATION TO PUBLIC.



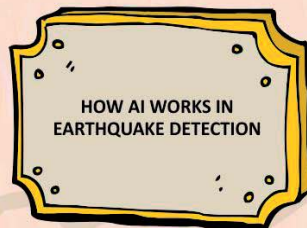
IN A DEVELOPMENT, RESEARCHERS AT THE UNIVERSITY OF TEXAS AT AUSTIN HAVE HARNESSSED THE POTENTIAL OF AI-POWERED EARTHQUAKE FORECASTING, OFFERING HOPE FOR MITIGATING THE DESTRUCTIVE IMPACT OF SEISMIC EVENTS

AI-POWERED EARTHQUAKE FORECASTING SCORES 70% ACCURACY

A REMARKABLE MILESTONE IN EARTHQUAKE PREDICTION

THE AI ACCURATELY PREDICTED 70% OF EARTHQUAKES A WEEK IN ADVANCE, WITH 14 FORECASTS COMING TRUE WITHIN 200 MILES OF THEIR ESTIMATED LOCATIONS AND MATCHING THEIR ANTICIPATED MAGNITUDES. HOWEVER, IT ISSUED EIGHT FALSE WARNINGS AND MISSED ONE EARTHQUAKE. RESEARCHERS BELIEVE THAT IN REGIONS WITH ROBUST SEISMIC MONITORING NETWORKS, THE AI'S SUCCESS RATE COULD IMPROVE, PROVIDING MORE PRECISE PREDICTIONS WITHIN A FEW TENS OF MILES.

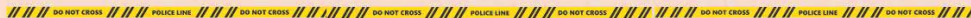
THE RESULTS REPRESENT A SIGNIFICANT STEP FORWARD IN PURSUING AI-DRIVEN EARTHQUAKE FORECASTING, A LONG-STANDING CHALLENGE. SERGEY FOMEL, A RESEARCH TEAM MEMBER, REFERRED TO EARTHQUAKE PREDICTION AS THE "HOLY GRAIL" AND NOTED THAT WHILE GLOBAL FORECASTS ARE NOT YET WITHIN REACH, THE STUDY DEMONSTRATES THE PROBLEM'S SOLVABILITY IN PRINCIPLE.



MACHINE LEARNING ALGORITHMS ARE TRAINED USING THOUSANDS OF PAST EARTHQUAKE RECORDINGS. BY ANALYZING THIS VAST AMOUNT OF DATA, AI LEARNS TO RECOGNIZE THE SUBTLE AND COMPLEX SIGNALS THAT TYPICALLY OCCUR BEFORE AND DURING AN EARTHQUAKE. THESE MODELS CONTINUOUSLY IMPROVE AS MORE SEISMIC EVENTS ARE RECORDED AND ANALYZED.

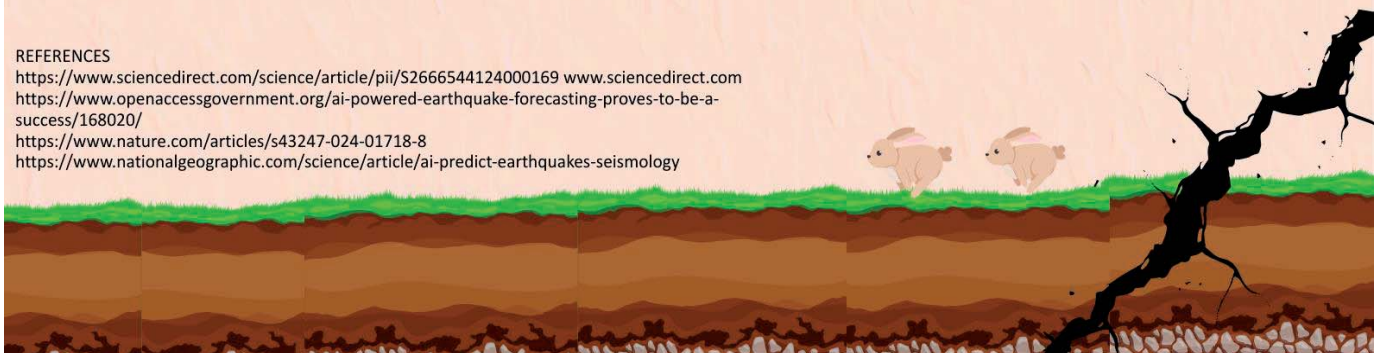


NEURAL NETWORKS, A SPECIFIC TYPE OF MACHINE LEARNING MODEL INSPIRED BY THE HUMAN BRAIN, PLAY A KEY ROLE. THEY ARE DESIGNED TO DETECT THE UNIQUE PATTERNS OF SEISMIC WAVES SUCH AS THE FAST-MOVING P-WAVES AND THE SLOWER BUT MORE DESTRUCTIVE S-WAVES THAT INDICATE AN EARTHQUAKE IS OCCURRING. THIS ENABLES AI TO QUICKLY AND ACCURATELY INTERPRET THE NATURE OF SEISMIC ACTIVITY.



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ARTIFICIAL INTELLIGENCE IN FINANCE

AI enhances decision-making in finance by processing large datasets to identify trends, predict market behaviors, and assess risks, enabling more informed investment and credit decisions.

HOW AI HELPS IN MENAGING CORPORATE FINANCES

ARTIFICIAL INTELLIGENCE IS REVOLUTIONIZING THE FINANCIAL SECTOR

1. AI processes vast amounts of market data, identifying trends and patterns that might elude human analysts. Advanced algorithms facilitate the forecasting of future market behaviors, assisting investors in making more informed decisions. By analyzing historical data, current events, and market sentiment, AI provides valuable insights into market directions
2. In investment portfolio management, AI automates processes of analysis and optimization. Machine learning algorithms adjust investment strategies based on real-time market trends, enabling rapid responses to market fluctuations and minimizing investment risks
3. AI, through machine learning algorithms, analyzes a wide range of data, including customer behavior and market information, enabling more accurate predictions of default risks

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Is AI reliable in finance ?

AI is transforming the financial sector with its ability to analyze vast amounts of data, enhance decision-making, and detect fraud. However, its reliability remains a key concern due to biases, transparency issues, and cybersecurity risks.



AI is very powerful especially in earning money, but can we trust it? The purpose of this poster is to find out.



Where AI is helpful?

🚀 Enhancing Market Prediction & Stability

AI reduces information asymmetry and volatility, making financial markets more predictable and stable.

📊 Data-Driven Decision Making

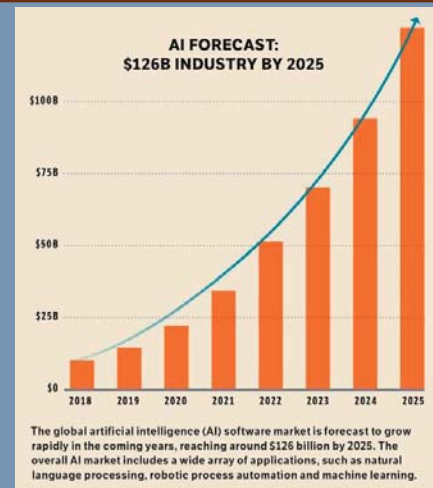
Advanced algorithms improve accuracy in trading, risk assessment, and credit scoring by analyzing vast datasets.

🔍 Fraud Detection & Security

Machine learning models detect anomalies and prevent fraudulent activities with real-time monitoring.

⚖️ Challenges & Risks

AI can be biased, lacks transparency, and is vulnerable to cyber threats. Continuous updates and regulatory oversight are essential.



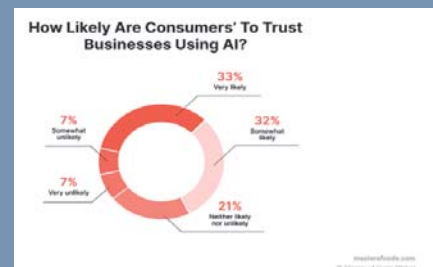
● **Bias & Fairness Issues** – AI models can inherit biases from training data, leading to unfair credit decisions or trading strategies.

● **Lack of Transparency** – Many AI-driven financial decisions are based on complex, "black-box" models, making it difficult to explain outcomes.

● **Cybersecurity Risks** – AI systems can be targeted by cyberattacks, data breaches, or adversarial manipulations.

● **Regulatory & Compliance Challenges** – Financial regulations struggle to keep up with rapid AI advancements, creating legal uncertainties.

● **Over-Reliance on Data** – AI's accuracy depends on the quality of input data; poor or biased data can lead to flawed predictions.



CONCLUSION

AI will continue to shape the financial industry by improving reliability, minimizing risks, and ensuring smarter decision-making. Addressing its challenges will be crucial for maximizing its potential.

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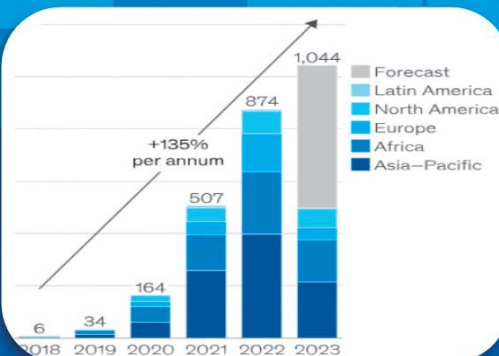
DELIVERY DRONES – REVOLUTION IN LOGISTICS

Drones the future of package delivery- is it possible?

Drones, which until recently were mainly associated with the military or entertainment, are becoming a key element in the logistics industry. As of 2019, the popularity of drone deliveries began to soar, largely as a result of the COVID-19 pandemic. The contactless form of delivery has proven to be a **safe and convenient alternative** for traditional methods.

Global growth in popularity of Delivery Drones

In 2022, the global number of package deliveries by drones **increased by more than 80%**, reaching almost **875 thousand shipments** worldwide. Most drones were used to transport healthcare products and necessities. Drones have gained popularity for their ability to bypass traffic jams and **reducing delivery times**, which is especially important in industries such as e-commerce and catering, where customers expect fast order processing.



Advantages of Drones in Logistics:

- their speed, drones avoid traffic jams by choosing the most efficient routes, which gives them a significant advantage over traditional methods of transportation,
- ability to deliver to hard-to-reach places, such as rural areas or areas with poor infrastructure,
- reducing transport costs by eliminating expenses related to driver hiring and fuel consumption,
- ecological, they reduce CO_2 emission, which is an increasingly important argument in the context of climate change.



- Most consumer drones can carry loads weighing between 2 and 4 kg, although models already exist, such as FlyCart 30 from DJI, capable of carrying loads weighing up to 30 kg.
- Weather conditions, which have a huge impact on the ability to use drones. Rain and strong wind greatly limit their operability, although we are seeing the development of techniques that allow drones to fly even in heavy rain.

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ELECTRIC CARS BRANDING JAGUAR VS TESLA

The sight of the new Jaguar Type 00 shows the brand as brave and fresh, trying to show a one-of-a-kind self through bold looks and imagination. Looking at this view with Tesla's way, we can see many main gaps and likenesses:

Jaguar Type 00 - Vision of The Future

- ◆ **Brave and Creative Way:** The Jaguar Type 00 redefines automotive aesthetics through an emphasis on creativity and unconventional design. Often described as an "odd piece of art," the model reflects Jaguar's aspiration to merge automobiles with artistic expression rather than mere functionality.
- ◆ **Only for few and fancy:** Colors like "Miami Pink" and "London Blue" point to culture and past, making the brand's luxury look stronger.
- ◆ **Not giving up Design:** Type 00 wants to show boldness and presence, with strong shapes and surprising features, drawing in shoppers wanting something brave and different.
- ◆ **Jaguar wants to escape from old rules:** it focuses on unique lights and smooth surfaces.

Tesla - Vision of The Future

- ◆ **Tech change:** Tesla look mainly at electric power, self-driving cars, and saving energy. Tesla's look is simple but put on use and air flow.
- ◆ **Tesla focuses on green methods:** They care about saving the environment and cutting down on pollution, which is an important part of their idea for future driving.
- ◆ **Freedom and Smartness:** Tesla pushes self-driving systems as the future of transport, unlike a Jaguar's more creative way.
- ◆ **Future like Tech:** Tesla sees the future like a tech win where new ideas and electric power shape a fresh time for cars.



Jaguar is redefining its identity by moving away from traditional luxury, embracing bold design and artistic flair to attract buyers seeking unique experiences.

Tesla, in contrast, remains steadfast in its mission to lead in technology and sustainability, further solidifying its position in the electric vehicle industry.

Both brands share a clear vision for the future, but while Jaguar reimagines luxury and design losing loyal customers and established reputations in the process, Tesla continues to focus on developing technology and environmental consciousness winning new customers.

REFERENCESS: Chat GPT, Canva, <https://www.jaguar.pl>



RISKS AND ADVANTAGES FROM THE USAGE OF AI-NAVIGATED WAR TOOLS

Subcontent

The integration of AI in warfare presents both opportunities and threats. AI-driven war tools enhance precision, minimize human casualties, and improve strategic planning. However, they also raise ethical concerns, increase the potential for autonomous decision-making errors, and lower the threshold for war. This poster examines the impact of AI in modern conflicts, with a focus on the ongoing war in Ukraine. It also analyzes the broader implications for global security and warfare ethics.



Purpose

The objective of this poster is to showcase the advancement of a current AI-based solutions used in the military. With the ongoing war at the Ukraine's territory, a rapid growth of an AI-Navigated war tools has become a leading topic while discussing a national security matters.

Conflict between Ukraine and Russia

The conflict between Ukraine and Russia, which escalated into a full-scale war in February 2022, continues to evolve with technological advancements playing a crucial role. Both sides are increasingly utilizing artificial intelligence (AI) to enhance their military operations. Ukraine has effectively deployed AI-powered drones for reconnaissance and precision strikes, however Russia is still in the process of developing similar technologies for attack drones and surveillance.



How Can Recent Developments in AI Make Drones More Effective

Recent advancements in AI have significantly improved drones' performance, safety, and efficiency across various applications, including military use. AI enables drones to autonomously navigate, avoid obstacles, and adapt in real time to their surroundings. This has made drones more effective for tasks such as package delivery, aerial surveys, and search and rescue missions. In surveillance, AI enhances mission planning and energy efficiency, allowing for faster and safer operations. AI also processes large amounts of data quickly, helping drones provide insights in fields like agriculture, infrastructure inspection, and event security. Enhanced computer vision allows drones to accurately identify and track objects such as wildlife or threats. As AI continues to evolve, drones will become even more efficient and find broader, innovative uses in multiple industries.



Advantages

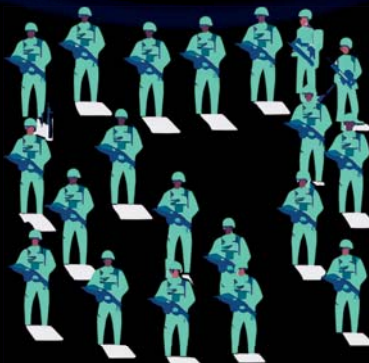
Artificial intelligence offers a wide range of advantages for the military, including:

- Enhancing warfare technologies
- Supporting strategic planning and decision-making
- Accelerating data analysis and scientific research
- Enabling realistic combat training simulations
- Improving identification of targets
- Assisting in threat detection and surveillance
- Coordinating autonomous drone formations
- Strengthening cybersecurity measures
- Optimizing logistics and transportation
- Aiding in medical support and casualty evacuation



Risks

While dealing with a new technology it's essential to implement fail-safe mechanisms in AI systems that allow for human intervention when necessary. In the event of a system failure, built-in safety measures should activate to override mission objectives. This approach helps preserve the operational reliability of drones while minimizing the chances of unintended harm. Human personnel should remain ready to step in and supervise, ensuring operations stay safe, effective, and compliant with ethical, legal, and regulatory standards.



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The automated court: a new vision of tennis

Modern technologies combined with AI have enabled the creation of many systems that assist and enhance tennis gameplay. These technologies offer advanced tracking, match analysis and real-time feedback, which improve fairness, support players and coaches with valuable data.

The aim of this poster is to present how automation is transforming modern tennis. It highlights technologies that enhance accuracy, performance analysis, and decision-making. These innovations demonstrate the growing role of artificial intelligence and data in professional sports.



Hawk Eye

1. Uses up to 10 high-speed cameras to track ball trajectory with an accuracy of 2.6 mm.
2. Introduced in tennis in 2006 for player challenge reviews of line calls.
3. By 2025, Wimbledon will fully replace line judges with Hawk-Eye Live.
4. Creates 3D visualizations of ball movement and bounce points.
5. Hawk-Eye data is also used for performance and tactical analysis.

SwingVision

1. AI-powered mobile app that analyzes play using a smartphone or tablet.
2. Measures shot speed, type, placement, and error rates without additional sensors
3. Automatically generates match statistics and video highlights
4. Provides real-time feedback on strokes and suggests improvement areas.
5. Approved by major tennis organizations (e.g., ITA) for official match analysis.

PlaySight

1. Uses a network of smart cameras around the court to capture every shot and movement.
2. Provides instant feedback with heatmaps, shot placement, and player positioning
3. Automatically tracks stats such as serve accuracy, rally length, and errors.
4. Coaches and players can review 3D replays and compare performance over time.
5. Widely used in academies and clubs to enhance training through data-driven insights.

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Part VIII

The Future and Philosophical Aspects of Ai

AI & THE FUTURE OF CONTROLLING

The purpose of the presentation is to highlight the opportunities and threats that AI, automation, and digitalization bring to the field of controlling.

The impact of modern technologies—such as artificial intelligence, automation, and Business Intelligence systems on the development of controlling. It's main goal is to highlight the opportunities and threats these technologies bring to the controller's profession, both now and in the future. It includes vision of how the role of the controller is evolving in the digital age.

Opportunities for Controlling

Proces Automation

AI and robotics eliminate manual tasks, allowing controllers to focus on strategic analysis.

Improved Data Quality

Modern BI and AI systems enhance the accuracy of forecasts and analyses.

Faster Decision-Making

Automated reporting and predictive analytics enable.

Skills Development

Controllers can become data analysis and strategic advisory experts.

Integration of New Technologies

AI can optimize costs and detect fraud.

ICloud-Based Business Intelligence

Real-time access to data from anywhere.

Threats to Controlling

Job Loss to AI

Automation may reduce need for traditional controlling tasks

Data Challenges

AI requires large amounts of high-quality data, and misinterpretation can lead to poor decisions.

Cybersecurity Risks

The increase in processed data raises the risk of cyberattacks.

High Implementation Cost

Advanced BI and AI systems can be expensive to implement.

Lack of Competencies

Controllers must adapt to new technologies by acquiring skills in data analytics and AI.

THE FUTURE ROLE OF THE CONTROLLER

In the future, controllers will leverage AI to focus more on strategic analysis and business partnering, relying on AI for routine tasks, data processing, and generating reports.

Controllers will need to develop new skills in:

- Data analytics,
- Machine learning basics,
- Communication and visualization,
- Ethical use of AI in decision-making.

The role of the controller is transforming from data gatherer to strategic business partner. In the future, AI will not replace controllers, but augment their capabilities.

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AI SUPPORTING OFFICE WORK

Artificial intelligence (AI) is becoming an integral part of everyday office work. It is no longer limited to large corporations—small businesses are also using AI to support employees in performing routine tasks, analyzing data, creating content, and making decisions. As a result, work becomes faster, more efficient, and less burdensome.

DAILY USES OF AI IN OFFICE WORK

1. DATA ANALYSIS AND REPORTING

- Tools like Power BI, Tableau, or Excel with AI features enable automatic data analysis and report generation.
- AI can forecast trends, and support decision-making.

2. AUTOMATED DOCUMENT AND TEXT CREATION

- Programs like ChatGPT, Copilot, and Jasper assist in writing emails, proposals, reports, and meeting summaries.
- This saves time and reduces errors

3. WORK PLANNING AND ORGANIZATION

- Tools like Power BI, Tableau, or Excel with AI features enable automatic data analysis and report generation.
- AI can forecast trends, and support decision-making.

4. CUSTOMER SUPPORT ASSISTANCE

- Chatbots and voicebots handle a portion of customer communication by answering frequently asked questions.
- This allows employees to focus on more complex cases.

BENEFITS OF USING AI IN THE OFFICE

- Time savings
- Fewer errors in analyses and documents
- Faster decision-making
- More time for creative and strategic tasks
- Better work organization

CHALLENGES AND RISKS

- Risk of job loss due to automation
- Need for continuous learning of new technologies
- Importance of ethical and responsible use of AI

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AI: Friend, Tool, or Threat?

Artificial Intelligence: shaping our world, challenging our values, and redefining our future.

Tool

Artificial Intelligence (AI) is a formidable tool that facilitates the analysis of vast datasets and addresses intricate challenges.

Examples of its applications include:

- Analyzing Big Data to inform business decision-making,
- Enhancing logistics and transportation efficiency,

Contributing to climate research and driving scientific advancements.

Friend

Artificial Intelligence plays a significant role in enhancing our daily lives, improving service quality, and addressing social challenges. Notable examples include:

- Virtual assistants, such as Alexa and Siri, that efficiently organize daily tasks,
- AI systems capable of diagnosing diseases more rapidly than some medical professionals,

Personalized education platforms that tailor learning experiences to meet individual needs.

Threat

Without adequate oversight, artificial intelligence may give rise to significant social and ethical challenges. Examples include:

- Automation potentially displacing human employment,
- Deepfakes disseminating misinformation,

Surveillance technologies infringing upon personal privacy.

Analysis

Artificial Intelligence is swiftly transforming various facets of society.

While it presents remarkable opportunities for innovation and efficiency, it also poses significant ethical, economic, and social challenges. The ultimate influence of AI will depend on the degree to which it is developed, regulated, and utilized responsibly by individuals.

Conclusion

Artificial Intelligence is neither inherently good nor evil; rather, it serves as a reflection of human intent.

By promoting ethical innovation, implementing transparent policies, and encouraging global collaboration, we can ensure that AI continues to function as a positive force in society. Ultimately, the responsibility lies with

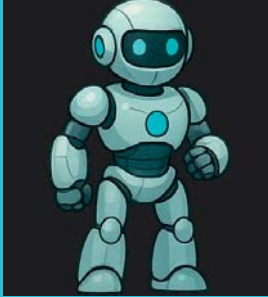
us.

How do you see AI in your life — as a friend, tool, or threat?

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AUTOMATION OF FINANCIAL PROCESSES. WILL ROBOTS REPLACE CONTROLLERS?



WHAT IS FINANCIAL PROCESS AUTOMATION?

- Financial Process Automation (FPA) refers to the use of technology, such as Robotic Process Automation (RPA), Artificial Intelligence (AI), and advanced Business Intelligence (BI) tools, to streamline, optimize, and automate financial workflows that were previously manual and time-consuming.
- It aims to reduce human intervention, increase efficiency, minimize errors, and free up time for strategic activities.

Examples of Automated Financial Processes:

- Accounts Payable and Accounts Receivable – Automatic matching of invoices with purchase orders, payment processing, and sending reminders to customers.
- Expense Management – Auto-scanning receipts, automatic approval workflows, and expense categorization.
- Financial Reporting – Automatic generation of monthly, quarterly, and annual reports with real-time data inputs.
- Budgeting and Forecasting – Data-driven forecast models that update dynamically based on market changes or internal data shifts.
- Cash Flow Management – Real-time tracking of inflows and outflows to optimize working capital and liquidity management.

IMPACT ON THE CONTROLLER'S ROLE

1. Automated Consolidation of Financial Data Before: Controllers manually collected financial data from different subsidiaries, merging spreadsheets for hours. After: Data from subsidiaries are consolidated automatically in real-time via BI tools or ERP integrations. Impact: Controllers can immediately focus on data analysis instead of manual data preparation.

2. Real-time KPI Monitoring Before: Monthly KPI updates via Excel files sent by email. After: KPIs are automatically updated and visualized in real-time dashboards like Power BI. Impact: Controllers can instantly detect deviations and alert management.

3. Faster Budgeting and Forecasting Before: Budgeting was a long, manual process with endless email exchanges and spreadsheet updates. After: Automated systems generate budget scenarios based on historical data and predictive analytics. Impact: Controllers can test multiple scenarios within hours and recommend the best strategic options.

4. Early Risk Identification Before: Financial risks were often identified late, sometimes only after the damage was done. After: Integrated BI systems with anomaly detection help flag financial risks early. Impact: Controllers proactively address risks before they escalate.

5. Cost Optimization Initiatives Before: Cost analyses were static and conducted quarterly with limited insights. After: Real-time analysis highlights high-cost areas immediately. Impact: Controllers can drive immediate cost-saving initiatives (e.g., renegotiating supplier contracts).



WILL ROBOTS REPLACE CONTROLLERS?

Myth: Automation, AI, and robots will completely replace the role of financial controllers.

Reality: Automation is transforming the controller's role – not eliminating it.

Routine, repetitive tasks are being taken over by technology, but critical thinking, business judgment, creativity, and strategic advisory are still uniquely human strengths that machines cannot replicate.

Real Challenges Robots Cannot Solve Even the most advanced AI systems struggle with:

- Understanding complex regulations that require contextual and interpretive judgment.
- Building trust with management teams and external stakeholders.
- Navigating ethical dilemmas where there is no clear "right" answer.
- Inspiring innovation through creative, out-of-the-box thinking.
- Managing organizational change and influencing human behavior.

Technology may tell you "what" – but it takes a human to decide "why" and "how."



TOOLS SUPPORTING AUTOMATION

1. Robotic Process Automation (RPA) Tools

- Key Platforms: UiPath, Automation Anywhere, Blue Prism
- What They Do: Automate repetitive, rule-based tasks (e.g., data extraction, invoice matching, report generation). Mimic human actions across different applications (ERP systems, Excel, email, etc.). Enable 24/7 processing with minimal errors.
- Example: A robot automatically downloads bank statements, reconciles transactions with the general ledger, and posts accounting entries into SAP.

2. Business Intelligence (BI) and Data Visualization Tools

- Key Platforms: Microsoft Power BI, Tableau, Qlik Sense
- What They Do: Connect multiple data sources into one central platform, Provide real-time dashboards, dynamic reporting, and visual analytics. Enable self-service data exploration for controllers and managers.
- Example: Instead of monthly static reports, controllers use live dashboards showing daily financial performance indicators.

3. Enterprise Resource Planning (ERP) Systems with Embedded Automation

- Key Platforms: SAP S/4HANA, Oracle NetSuite, Microsoft Dynamics 365
- What They Do: Integrate financial, operational, and business processes, Offer built-in automation for tasks like procure-to-pay, record-to-report, and financial consolidation, Ensure real-time data availability and faster closings.
- Example: Automatic posting of recurring journal entries and immediate reconciliation of intercompany transactions.

HART

Hybrid Autoregressive Transformer



HART (Hybrid Autoregressive Transformer) is an advanced image generation model developed by researchers at MIT and Nvidia. It combines the strengths of autoregressive and diffusion-based approaches to produce high-quality images with significantly improved speed and efficiency. Designed as a hybrid architecture, HART addresses the limitations of existing models by merging fast structure prediction with detailed refinement, setting a new benchmark in AI-driven image synthesis.

Potential of the HART System

HART offers high image quality, fast performance, and low resource consumption, making it suitable for a wide range of practical applications:

- **Autonomous vehicles** – generating realistic simulation environments for safer system training.
- **Game development** – speeding up the creation of detailed textures and 3D assets.
- **Marketing and design** – producing custom visuals quickly for branding and creative projects.
- **Mobile and edge devices** – efficient enough to run without the need for powerful hardware.
- **Computer vision** – generating synthetic datasets for model training and testing.

How the System Works?

HART operates through a two-stage process. First, an autoregressive transformer model rapidly predicts the overall layout and structure of the image. Then, a lightweight diffusion model enhances the output by adding fine details and improving realism. This approach reduces the number of computational steps needed—from up to 30 in traditional diffusion models to just eight in HART—making it much faster and more efficient.

Limitations of the System

While HART offers impressive advancements, it still has some limitations. As a hybrid model, it relies on careful integration between its two components, which may introduce complexity in training and optimization. Moreover, as with many generative models, it may face challenges in generating highly diverse or abstract visuals, depending on the training data and task specificity. Future improvements are needed to further expand its capabilities, especially in areas like video and audio synthesis.

Additionally, ethical concerns arise regarding the use of copyrighted or artist-created images in training data without proper authorization, raising questions about intellectual property rights and responsible AI use.



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How AI can help you build a powerful LinkedIn profile?

Creating a strong LinkedIn profile is essential for networking, job hunting, and building your professional brand. AI tools can help you craft a professional profile efficiently. Ready to take your LinkedIn to the next level? Let AI do the heavy lifting!



Choose a Professional Profile Photo

- use a high-quality, well-lit photo with a clean background
- dress appropriately for your industry
- make sure your face is clearly visible

✓ **AI-Powered Help:** Use AI to enhance or generate a high-quality headshot.
Tools: Remini, ProfilePicMaker, HeadshotPro
Prompt: "Enhance my profile photo by improving lighting and background while keeping it professional."

Write a Compelling Headline

- avoid just using your job title - make it engaging - for example: instead of "Controller", use "Financial Controller | Financial Planning & Analysis (FP&A) Specialist | Controlling & Planning Analyst"

✓ **AI-Powered Help:** AI can generate catchy, keyword-rich headlines.
Tools: ChatGPT, Copy.ai
Prompt: "Create a LinkedIn headline for a [your job title] that is engaging and highlights my expertise in [industry/skills]."



Add Skills and Endorsements

- list skills relevant to your profession
- get colleagues to endorse your skills for credibility

✓ **AI-Powered Help:** AI can suggest the most relevant skills based on job trends.
Tools: Jobscan, LinkedIn AI suggestion
Prompt: "What are the top LinkedIn skills for a [your profession] in [year]?"



Highlight Work Experience

- list your past and current roles with clear job titles
- use bullet points to describe key responsibilities and achievements
- focus on results and impact

✓ **AI-Powered Help:** AI optimizes descriptions to be more results-oriented.
Tools: Rezi, Resume Worded
Prompt: "Rewrite my job description for [your role] to highlight achievements using quantifiable metrics."



Craft a Strong Summary (About Section)

- write a brief but engaging summary of your experience, skills, and career goals
- use keywords relevant to your industry
- show your passion and what sets you apart

✓ **AI-Powered Help:** AI can structure your summary for clarity and impact.
Tools: ChatGPT, Grammarly, Jasper
Prompt: "Write a LinkedIn summary for a [your profession] with experience in [key skills] that is engaging and includes keywords for recruiters."



Get Recommendations

- ask colleagues, managers, or clients to write short recommendations
- offer to write one for them in return

✓ **AI-Powered Help:** AI can generate recommendation drafts.
Tools: ChatGPT, Copy.ai
Prompt: "Write a LinkedIn recommendation for my colleague who is a [job title] specializing in [skills]. Emphasize teamwork and leadership."



Showcase Certifications and Courses

- add relevant courses, certifications, and training
- platforms like Coursera, Udemy, and LinkedIn Learning can add value

✓ **AI-Powered Help:** AI can suggest valuable certifications based on your field.
Tools: LinkedIn Learning AI suggestions, Coursera AI
Prompt: "What are the best certifications for a [your profession] that can boost my LinkedIn profile?"





How remote work affected employee productivity?

What is digital transformation?

Digital transformation refers to the integration of digital technology into all areas of business, fundamentally changing how organizations operate and deliver value to customers. In the pandemic era, this transformation accelerated dramatically, especially through the adoption of remote work practices.

Digital transformation is characterized by:

- Adoption of cloud-based tools
- Increased reliance on communication platforms (Zoom, Teams, Slack)
- Automation of processes
- New cybersecurity strategies
- Digital collaboration frameworks

Benefits of remote work

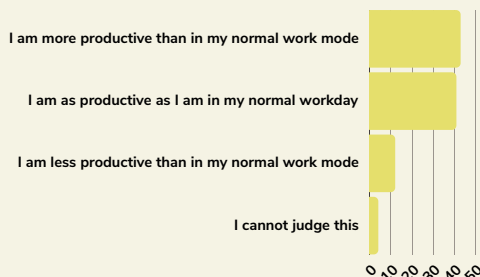
- **Flexibility:** Employees could better manage their work-life balance.
- **Productivity Gains:** Many workers reported being more focused without office distractions.
- **Access to Global Talent:** Companies were able to recruit employees regardless of location.
- **Cost Reduction:** Savings on commuting, office space, and utilities.

According to a Gartner study, 70% of remote employees reported equal or higher productivity compared to in-office work.

Challenges of remote work

- **Isolation:** Lack of face-to-face interaction affected mental health.
- **Work-Life Boundary Blurring:** Many employees struggled to disconnect after hours.
- **Technology Dependence:** Overreliance on digital tools increased stress and fatigue.
- **Cybersecurity Threats:** Remote setups were more vulnerable to attacks.
- **Performance Management Difficulties:** Evaluating productivity became more complex without direct supervision.

How do you rate the productivity of your remote work?



CONCLUSIONS

Remote work during the pandemic revolutionized traditional employment models. While many organizations and employees benefited from increased flexibility and autonomy, success depended heavily on digital readiness, management practices, and support systems. As hybrid models become the new standard, organizations must prioritize employee well-being, continuous digital skill development, and clear communication strategies to sustain high productivity.

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The legend:

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RiC II Field of study: Accounting and Controlling
Speciality: Controlling MA studies

