NAVIGATING ARTIFICIAL INTELLIGENCE BEYOND THE HYPE

Artificial Intelligence is about to become a central component of the future foundation for business, science, and society. Organisations will need a differentiating, long-term strategy to navigate this shift.

THE ABUNDANCE OF GENERATED CONTENT REQUIRES A DIFFERENTIATED UNDERSTANDING AND SELECTION EXPERTISE

The variety of AI-generated content and applications will increase exponentially. This requires a nuanced understanding of both their possibilities and limitations. Above all, organisations and individuals will need the ability to assess the quality of AI and select relevant solutions.

SMALL MODELS OPEN OPPORTUNITIES FOR SMALLER ORGANISATIONS

In addition to large AI models that require ever larger amounts of data – and energy – smaller open-source solutions offer an alternative. These allow for high-quality results for specific tasks using verified datasets. This also opens doors for smaller organisations to harness AI in a value-driven way.

ARTIFICIAL INTELLIGENCE IS PART OF THE NEW NORMAL

From chatbots to medical diagnostics, fraud detection to weather forecasting – AI has been embedded in our everyday lives for some time. The expanding capabilities of AI make it both a desired, and at times, unintended companion both privately and professionally. The dynamic fast-paced development of new AI solutions, require a systematic and critical approach to manage expectations and hype, in order to identify true potentials and values.

LONG-TERM VALUE LIES IN EVOLUTION, NOT DISRUPTION

AI is spreading at varying speeds across different sectors. While many people will regularly use AI services such as chatbots in their everyday lives, AI will not cause disruption in all areas of the business and society. On the one hand, development of value-driven applications takes time; and on the other, there will always be areas where people prefer not to use AI – or where countertrends will emerge that promote differentiation through «human intelligence».

SUCCESSFUL AI LINKS ECONOMIC SUCCESS WITH SOCIETAL PROGRESS

Differing international regulations increase complexity for organisations through additional bureaucracy. At the same time, it is important to minimise the ethical and societal risks of AI. Self-imposed guidelines offer companies with a foundation to connect economic and societal progress while building trust in AI-based products and services. A prerequisite for this is establishing a clear AI strategy with a long-term perspective that enables companies to navigate this dynamic environment.

FUTURE FRAMEWORK CONDITIONS

Business, science, and society face far-reaching challenges in the 21st century. Growing pressure to innovate, the demand for personalisation, and a shortage of skilled workers all require new solutions.

CLIMATE CHANGE AND POLLUTION
Increase of extreme weather events, higher temperatures, and growing health risks from environmental pollution.

HEAVY REGULATION
High requirements in different markets and value chains raises demands around reporting and transparency.

GROWING FOCUS ON HEALTH
An increase in chronic and lifestyle-related illnesses, alongside a focus on preventative care and longevity.

RISING DEMAND FOR PERSONALISATION AND CONVENIENCE
The search for tailored products and services at lower cost.

DEALING WITH SCARCITY
Increasing scarcity of housing, transport capacity, and raw materials relevant for sectors like pharma and real estate.

INCREASING SECURITY
Rising demand for military defences and dealing with the increase in (cyber) crime.

HIGH VISIBILITY REQUIREMENTS
Growing challenge of visibility in an environment of digital media and high information density.

SHORTAGE OF SKILLED WORKERS
A shortage of skilled workers driven by the retirement of the baby boomer generation and evolving expectations of younger generations.

UNCERTAINTY AND LOSS OF CONFIDENCE
Rising anxiety about the future driven by the rapid pace of change, emerging geopolitical tensions, and an overwhelming flood of (mis or dis)-information.

GROWING PRESSURE TO INNOVATE
The need for new solutions in reindustrialisation, personalised medicine, and environmental protection.

The meaningful use of data- and algorithm-based systems requires a nuanced understanding of possible applications and the underlying technologies.

AI CAPABILITIES

CLASSIFY & UNDERSTAND

Classifying data and interpreting human language and context.
Examples: Spam filters, translation tools, diagnostic imaging.
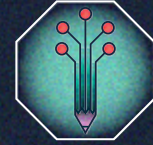
PREDICT & RECOMMEND

Forecasting developments or events based on system or user data.
Examples: Weather predictions, product recommendations, maintenance alerts.

OPTIMISE & CONTROL

Monitoring, regulating and improving processes and infrastructure.
Examples: Smart meters, supply chain optimisation, autonomous vehicles, robotic process automation.

GENERATE & CREATE

Generating similar or newly combined content based on training data and learned patterns.
Examples: Text and video creation, image synthesis, music composition, code generation.

ARTIFICIAL INTELLIGENCE

The ability of machines to mimic human competencies such as logical thinking, learning, decision-making, planning, and creativity.

GENERATIVE AI

AI models that learn the patterns and structures of training data to generate new data with similar characteristics.

AGENTIC AI

Digital assistants that autonomously perform tasks, make decisions and take actions to achieve goals with little to no human intervention.

RESPONSIBLE AI

Principles that aim to strengthen trust in AI solutions by aligning societal impacts, stakeholder values, legal standards and ethical norms.

ARTIFICIAL GENERAL INTELLIGENCE

AGI describes highly autonomous – currently hypothetical – systems that could outperform humans in most economically valuable tasks.

MACHINE LEARNING

DEEP LEARNING

NEURAL NETWORKS

Algorithms that improve in performance over time as they process more data.

The basis of deep learning, enabling decision-making in ways similar to the human brain.

A subset of machine learning using multi-layered neural networks to learn from large datasets.

Artificial Intelligence is already opening up wide-ranging applications for business, society, and the environment.

ECONOMY

Recruitment: CV screening and bias detection in hiring, including automated qualification analysis

Cyber Defence: Fraud detection in finance and claims, as well as preventive detection and defence against cyberattacks

Knowledge Management: Rapid internal search, analysis, and structured knowledge delivery from the workspace

Research & Development: Simulating complex experiments and efficient literature reviews for faster product development, especially in pharma and other industries

Maintenance & Logistics: Predictive maintenance planning and supply chain optimisation

Software Development: Automated code completion, documentation, debugging and optimisation for accelerated software development

Customer Interaction: Generative assistants and chatbots for standard queries, real-time coaching tools for service staff, and data-driven customer personalisation

SOCIETY

Second Opinions: AI-driven second opinion for quick and free health advice and legal knowledge to support well-informed decisions

Financial Advice: Automated analysis of family finances with tailored budgeting, saving, and sustainable investment strategies taking individual risk profiles into account

Learning & Teaching: Adaptive platforms and smart teaching methods tailored to individual learning needs and styles, maximising education efficiency

Digital Aggregators: AI chatbots for comparing prices and quality of goods and services like clothes, food, hotels or mobility for greater convenience

Health Management: Vital sign analysis for early detection of health risks (e.g. heart attacks, sleep disorders), personalised nutrition plans, as well as in-home monitoring for people in need of care including fall detection, medication management, and emergency alerts

ENVIRONMENT

Natural Disaster Forecasting: Weather data analysis for early flood, avalanche, landslide, and storm warnings

Environmental Management: Monitoring and regulation of environmental quality such as air and noise pollution, water quality and urban heat through sensors and smart planning

CO_2 Tracking: Real-time emission monitoring in industrial/logistics sites using IoT sensor networks coupled with AI-analysis for process optimisation and reduction strategies

Ressourcen-Management: Real-time resource distribution and optimisation for energy, water, materials, and staff based on real-time demand

The variety of AI solutions opens efficiency gains, even for smaller organisations – but also leads to in a flood of generated content and far-reaching societal impacts.

FROM 'DISRUPTION' TO EVOLUTION

AI implementation is often hampered by missing data and processes. Structural change will take time and unfold gradually. Accordingly, most industries with require more time for structural change – also to develop a culture in dealing with AI.

THE RISE OF THE 'AI-VERSE'

The range of services and scope of AI applications continue to expand, creating efficiency gains in almost all economic and societal domains. Yet, the increasing diversity of AI-generated content is flooding and overburdening users and regulators alike.

THE HIDDEN VALUE OF THE AI LONGTAIL

A key contribution to value creation will come not just from large-scale platforms, but also from many small, niche applications. This 'long tail effect' delivers underestimated benefits that simplified extrapolations fail to capture, and which do not reflect the true future added value of AI.

CHANGING QUALITY STANDARDS

The outputs of AI are based on statistical probability and often converge towards the average. At the same time, they may include errors or approximations. As a result, traditional quality standards may decline, while appreciation for authenticity and precision increases as a countertrend.

SMALL WILL BE BEAUTIFUL

Smaller, specialised AI models can help countries or companies without vast datasets use AI to their advantage, increasing quality while keeping energy consumption in check.

REVERSE SOCIETAL IMPACT

The systematic outsourcing of core tasks such as writing, structuring, or brainstorming to AI can lead to a loss of expertise. Personalisation may reduce openness to unfamiliar ideas, further limiting individual development and critical assessment of AI quality.

THE REGULATOR'S DILEMMA

AI can help companies automate the increasing regulatory requirements across countries. At the same time, 'black-box effects' and unidentifiable sources in generated content challenge transparency, especially in regulated industries – driving demand for new forms of governance.

RETHINKING INTELLECTUAL PROPERTY

As dependence on quality-controlled data grows, a new form of competition will emerge among corporations, NGOs, and states. In addition, the demand for demonstrable intellectual property will increase.

BOT–BOT CONSPIRACIES

The increase in interactions where AI agents autonomously communicate with each other boosts efficiency but could contribute to a far-reaching decoupling of humans from everyday reality, as interactions become more frequent between machines or between humans and machines. This also raises the risk of cyber threats.

Creating added value through AI requires a differentiated analysis of its potential and limitations, a strategic mindset, and a foundation of competence and culture.

DEVELOPING A LONG-TERM PERSPECTIVE

The implementation of AI solutions must align with real-world challenges. At the same time, organisations need to rethink future value chains in the long-term – with AI as a means to increase efficiency and differentiation.

BUILDING FOUNDATIONAL INFRASTRUCTURE

Organisations need a stable technological foundation to enable the storage and AI-based processing of data. This can be achieved through access to comprehensive cloud solutions or decentralised systems, based on open-source applications.

COURAGE TO DIFFERENTIATE

The increasing presence of AI solutions in almost every sector and area of the value chain requires organisations to position themselves clearly on the role of AI. This may be either as a key element of operational excellence and a foundation for improving efficiency, or as a basis for innovation through the transformation of their product or service offerings.
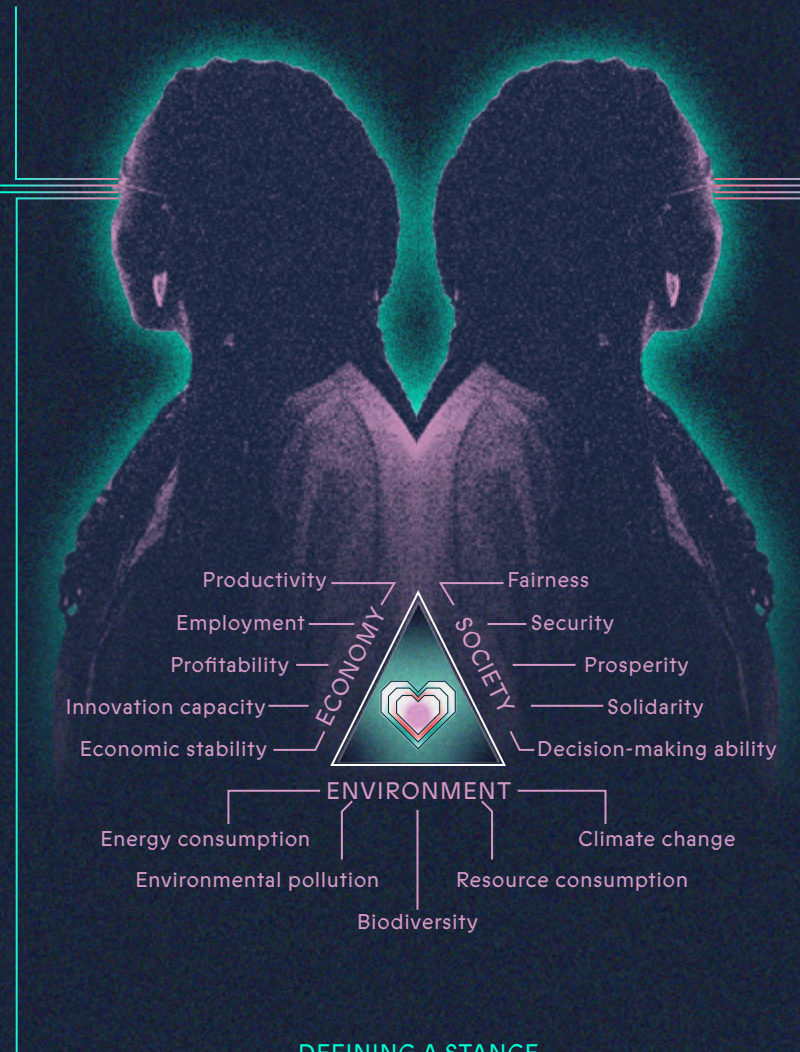
CLARIFYING FUNDAMENTAL SOCIETAL ISSUES

It is important to define how to deal with societal challenges related to data protection, discrimination, and misinformation. Dialogue with partners and users provides a basis for decision-making and helps strengthen trust.

COMPETENCE BUILDING

Organisations are dependent on technical skills as well as competencies to assess and shape the wider consequences of AI, in terms of its impact on business models and customer interactions, societal responsibility, and environmental sustainability.

ECONOMY
Productivity
Employment
Profitability
Innovation capacity
Economic stability

SOCIETY
Fairness
Security
Prosperity
Solidarity
Decision-making ability

ENVIRONMENT
Energy consumption
Environmental pollution
Biodiversity
Resource consumption
Climate change

DEFINING A STANCE

In order to translate the potential of AI into tangible benefits and avoid the risks of poor investments, a critical assessment of the actual value of AI is needed, in relation to its economic, societal, and environmental impacts. Based on this, a values-driven approach towards the responsible use of AI must be developed.

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