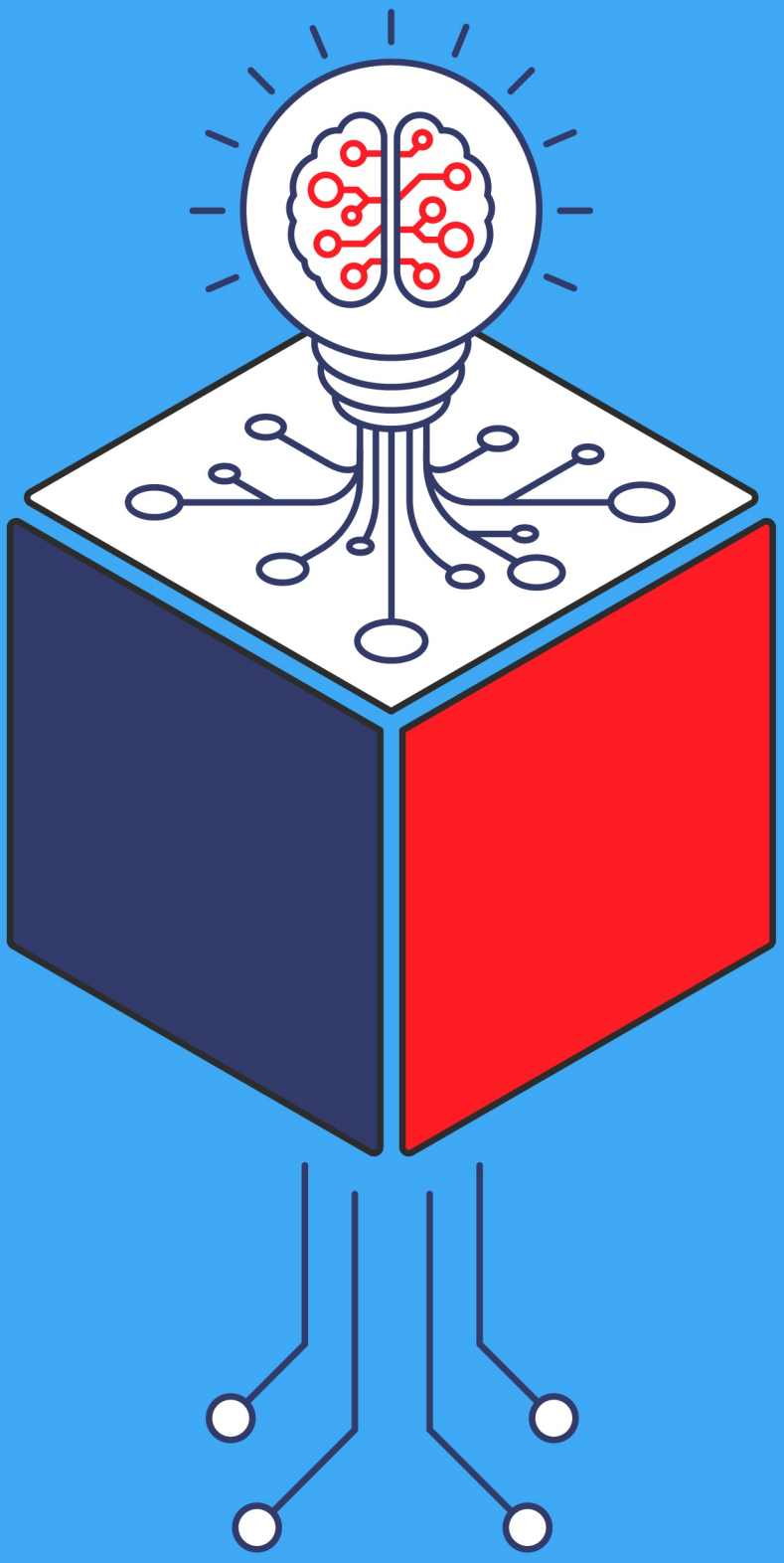
Discussion Paper:

Artificial Intelligence



Switzerland in the age of AI-applications - Seizing opportunities, minimising risks

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About digitalswitzerland

digitalswitzerland is a Switzerland-wide, cross-sector initiative with the goal of transforming Switzerland into a leading digital nation. Together with our network of over 200 members and non-political partners, including more than 1,000 top executives, we are engaged in more than 25 projects to inspire, initiate, help shape and lead the digital transformation in Switzerland.

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Switzerland in the Age of AI Applications - Seizing Opportunities, Minimising Risks

The Artificial Intelligence (AI) Working Group of digitalswitzerland has identified several areas that will be of significant relevance in the development and regulation of AI in Switzerland in the coming years. This discussion paper is an attempt to map the most important developments and principles of a future AI landscape in Switzerland.

Technology and business - the age of AI applications

AI applications have heralded a next industrial revolution. At the Swiss, European and global level, the state, the economy and the population are operating in a rapidly evolving and dynamic environment of increasingly innovative AI applications that cover a much broader field than the much-discussed applications such as Chat GPT or others. A thoughtful approach to and integration of these applications will determine Switzerland's future economic success. In the "age of AI applications", the potential for economic growth lies with the many innovative startups and SMEs in Switzerland that use targeted applications of AI in all areas of life to solve problems, optimise processes and satisfy new consumer needs. In this context, the smoothest possible flow of data is of great importance. Data is the fuel for AI applications and enables companies to gain valuable insights and develop innovative solutions. At the same time, the use of privacy-preserving technologies[1] must be promoted to protect people's privacy and strengthen trust in the technology. The responsible handling of data and the use of privacy-preserving technologies can ensure that Switzerland, as a self-confident player, both continues to be successful in international competition and, at the same time, retains the trust of its citizens.

Switzerland's innovative strength is an essential component of its economic success. Thanks to its pioneering spirit, which has given rise to strong international networking and mutual connectivity and compatibility with international markets, it has already written an impressive success story. A historic example of this is the Alpine Transversal, which connects Switzerland with Europe and enables the free exchange of goods and ideas. The tradition of connectivity and networking must continue in the AI era to remain an attractive, open and innovation-friendly location for foreign investment and talent to gain an innovative edge. This requires targeted financial and organisational support for domestic collaborations between established companies, research institutions and startups to promote technology and knowledge transfer. Conversely, it is also central to closely follow developments in Switzerland's most important trading partner countries. Finally, the Swiss economy can only survive in the long term in harmony with its foreign partners.

Governance - smart technology needs smart regulation

AI develops dynamically and also unpredictably, and its application has different effects in different sectors and regions. It is therefore important that any AI regulation is flexible and

[1] These are also known as privacy-enhancing technologies (PET). One example is encryption methods used in data transmission. Source: https://cordis.europa.eu/article/id/27611-commission-to-promote-development-of-privacy-enhancing-technologies/de

adaptable. A technology-neutral and principles-based approach is the most viable way to deal with the fast pace of technology, to target the needs and challenges of different sectors, and to develop tailored solutions. However, it is important that all levels of government and industry work closely together to develop common general standards and guidelines to provide clarity on which applications would even fall under potential AI regulation. This requires concise definitions that are both sufficiently general that they cover the various AI systems as well as sufficiently specific that they do not include other technical applications. This balancing act is necessary to create legal certainty for companies whose applications would be affected by AI regulation. At the present time, when many applications of AI are still in their early stages, such regulation is the most sensible course of action. An ideal regulatory framework for AI could be modelled on the basis of the regulation of the distributed ledger technology (DLT). This does not involve a separate, new law, but rather a targeted adaptation or optimization of the existing legal framework.[2] Ten existing federal laws in civil and financial market law have been adapted for the DLT regulation. This has enabled the flourishing DLT industry as it is known in Switzerland today. Adopting best practices from the DLT sector would avoid unnecessary bureaucracy and create a more efficient regulatory framework that encourages innovation while minimising risks.

Switzerland should also establish itself as a location where entrepreneurs can examine their AI solutions from A to Z in a test environment. With exemplary institutions such as the EMPA, the Spiez Laboratory or the NCSC, it is not far-fetched that Switzerland can also become a pioneer of a safe, regulated and innovative technology testing environment in the field of AI. Sandboxes, for example, are a good tool to foster the development and improvement of AI applications. They allow companies and developers to test and validate new AI applications in a controlled environment before they reach the market. This allows potential risks to be identified and addressed before they impact the general public. The canton of Zurich has already pioneered such projects with its "Innovation Sandbox für KI". One sub-project, for example, is the ETH spin-off Parquery[3] , which aims to establish smart parking in cities using real-time data on parking space utilisation. The processing of public camera data with AI should lead to more efficient traffic management. The Parquery example illustrates how AI can be used as data-minimising as possible, but still efficiently. In order for a vehicle to find a parking space, the system does not rely on a high-resolution livestream that recognises licence plates and people, but only uses images that indicate whether a parking space is free or not. In this way, the question of the correct use of sensitive data can be elegantly circumvented, since it is not generated in the first place.[4] Switzerland should promote the establishment of such sandboxes, encourage companies to make use of these test possibilities and, finally, systematically record use cases.[5] In Switzerland, it is often the cantons that test new types of projects and systems in their structures and thus explore the advantages and disadvantages of solutions. It would also be desirable in the field of AI sandboxes to have different initiatives that on the one hand compete with each other, but on the other hand also drive each other to improve. As a next step, a nationwide platform for AI sandboxes could be created to play a coordinating role

[2] Wicki Partners: https://www.wickipartners.ch/news/dlt-gesetz-nationalrat-anpassungen-des-bundesrechts
[3] Parquery: https://parquery.com/
[4] Canton of Zurich: https://www.zh.ch/de/wirtschaft-arbeit/wirtschaftsstandort/innovation-sandbox.html
[5] Today, the "Innovation Sandbox für KI" of the Canton of Zurich is the only body that systematically records use cases. A nationwide database does not yet exist.

between these systems. This would continuously enrich the constant dialogue with stakeholders and the current picture on AI and enable Switzerland to achieve a balanced and effective regulation of AI. However, this requires not only political will, but also more professionals with expertise in AI technology as well as its regulation. Through networking and excellent educational institutions, this should be possible. By building up expertise and cooperating with international organisations, it can be ensured that Switzerland is perceived as an innovative and trustworthy player in the field of AI.

In order to bolster this trustworthiness, it is of great importance to strengthen the resilience of the general public to the potential risks of AI applications. Clear principles must be developed to ensure that AI is used responsibly, ethical standards are met, and data protection is guaranteed. These include transparency, fairness, security, and accountability. It is imperative that ethical and legal aspects are taken into account to prevent abuse and discrimination. AI technologies are a reflection of the data they are trained with and the people who program them. It is central that existing biases and discrimination in society are not reproduced by AI. Switzerland should strive to play a leading role in the development of ethical guidelines and standards for the use of AI and promote them internationally in various bodies. It is already participating in Council of Europe negotiations to shape a set of rules for AI.[6] It could also assume a pioneering position in other international bodies in the future. However, it is important to bear in mind that AI covers a very broad spectrum and does not automatically have to be equated with risks and dangers, for example with regard to data protection. A distinction must be made between generative AI and other forms of AI (which encompasses the majority of forms launched on the market today). Most AI is relatively unproblematic and requires, if at all, only selective adjustments in existing laws (e.g. online orders processed by AI). In the case of generative AI or applications that show signs of Artificial General Intelligence[7], the precautionary principle should be applied. Applications whose use has significant economic or social consequences (e.g. AI credit checks or tools in law enforcement) should be strictly regulated. Applications that significantly undermine the privacy of citizens (e.g., widespread biometric surveillance in public spaces) and systems that make autonomous decisions about life and death (e.g., AI-controlled weapons systems or medical tools) or that entail the risk of social discord (e.g., social rating systems ("social scoring"[8])) should be prohibited. [9]

The path to the AI economy will only succeed through the participation and education of all

A well-managed transition to an AI economy is of great importance. No one should suffer social or economic hardship as a result of the use of AI. To ensure this, on the one hand, self-responsibility of those affected is needed to master the transition to the AI economy. On the other hand, companies should identify skills, professions and industries that are strongly

[6] Admin: https://www.admin.ch/gov/de/start/dokumentation/medienmitteilungen.msg-id-90367.html
[7] Artificial General Intelligence describes those AI developments that could develop intelligence and consciousness comparable to humans, capable of autonomous learning and problem solving. Source:https://www.ibm.com/topics/strong-ai
[8] This means systems "for assessing or classifying the trustworthiness of natural persons over a period of time on the basis of their social behavior or known or predicted personal characteristics or personality traits" if this leads to disproportionate, unjustified and/or out-of-context social disadvantage, Art. 5(1)c COM(2021) 206 final.
[9] This gradation is based on the risk-based approach also used by the EU in the AI Act: https://www.europarl.europa.eu/news/en/headlines/society/20230601STO93804/eu-ai-act-first-regulation-on-artificial-intelligence

affected by AI competition and provide targeted support and retraining programs. The public sector should play an active role in this "soft transition" by taking measures to cushion the impact of AI disruptions, ensure social equity, and promote the development of attractive and sustainable job profiles.

At the same time, it is important to proactively prepare the population and the public sector for the use of AI and to promote dialog on AI issues.[10] Technological development is not an end in itself - people should be at the centre. For one, public-private partnerships (or public-private-people partnerships, PPPPs), when set up in a lean and agile manner, are an effective way to foster collaboration between government, businesses, and educational institutions. Through such partnerships, training programs can be developed to equip people with the knowledge and skills necessary to understand, apply, and critically evaluate AI technologies. Second, lighthouse projects, such as those described in Article 17 of the Federal Law on the Use of Electronic Tools to Perform Governmental Functions[11] , provide a platform for collaboration and knowledge transfer between the public and private sectors.

Finally, where possible and desired by the population, the public sector should take a pioneering role in the application of AI. The use of AI technologies in government processes and services can increase efficiency, reduce costs, and increase transparency for the population and the SME economy. By acting as a role model, the public sector can build trust in the field of AI and promote acceptance among the population. The longer people interact with AI applications and the more positive experiences are associated with them, the greater the acceptance.[12]

Leadership - AI needs champions

A clear vision, role models and leadership are crucial to bring the topic of AI to the centre of society and the economy and to promote dialogue between different stakeholders. The Federal Council should take a clear position and play a central role as a coordinating actor. As in the case of the DLT regulation, members of the Federal Council or the Federal Chancellery can emphasise the importance of AI and push the issue at the political level. They could take on the role of "AI champions" and serve as a voice to communicate the benefits and opportunities of AI, address fears and concerns, and propose common solutions. They could advance AI applications within their offices, across departments, and in collaboration with third parties.[13] Through such AI champions, awareness of AI would be raised and Switzerland could further strengthen its position as a leading innovation nation. The federal administration is already active in this regard, for example with the Plateforme Tripartite of the Federal Office of Communications[14], which facilitates an open exchange

[10] See, for example, Economiesuisse. Future Digital Switzerland: https://www.economiesuisse.ch/sites/default/files/publications/20170822_Zukunft-digitale-Schweiz_Web.pdf
[11] Admin: https://www.newsd.admin.ch/newsd/message/attachments/70497.pdf
[12] BFH: https://www.bfh.ch/de/aktuell/news/2021/podcast-zukunft-der-arbeit/
[13] Initial approaches are in place in various departments, such as the EAER. Federal Councillor Parmelin, for example, has been actively addressing digitization issues in recent years, for example with the opening of the Center for Digitization and Innovation in Bern or the IT education offensive in the canton of St.Gallen.
[14] OFCOM: https://www.bakom.admin.ch/bakom/de/home/das-bakom/internationale-aktivitaeten/umsetzung-und-folgeprozess-des-un-weltgipfels/die-plateforme-tripartite-suisse-fuer-den-wsis.html

between politics, business, science and civil society to promote an inclusive and holistic discussion around the topic of AI.

The public discourse - Switzerland should talk about AI

Researchers, especially economic historians, could play an important role. Looking back at the development of earlier technologies and their impact on the economy, they can provide insights to frame the economic and societal implications of AI. Often, to make AI development more accessible in public discourse, historical parallels to the Industrial Revolution are invoked, such as the advent of the steam engine or other technological leaps. If this narrative is used in a misleading and imprecise way, it triggers mistrust or apathy and runs the risk of appearing outdated. However, if used correctly, it can lead to a better understanding and positive social evaluation of AI. Economic history could then serve as a basis for political decisions and for the design of a sustainable AI strategy.

Another possibility would be an "AI Call for Switzerland", supported by digitalswitzerland and its partners. Similar to the Paris Call for trust and security in cyberspace[15] , it would provide a platform to bring together actors from business, science, politics and civil society. Such a call could lead to the development of common principles and standards for the responsible use of AI in Switzerland. Such a call could foster dialogue, share best practices and gain broad support for sustainable and ethical AI development in Switzerland.

Conclusion

This discussion paper focuses on the development of a future-oriented Switzerland in the "Age of AI Applications". By using AI technologies in the economy and society, Switzerland can further expand its innovation potential and exploit the opportunities for sustainable economic growth. At the same time, it is important to ensure that the regulation of AI is flexible, responsible, principle-based and technology-neutral. Education, empowerment, and the proactive role of the public sector can create broad acceptance by and benefits for the entire population. Leadership and a clear vision are critical to position Switzerland as a leading AI nation. Finally, it is the combination of human and artificial intelligence that will enable this societal transformation to succeed.

[15] Paris Call: https://pariscall.international/en/