

# Das wirtschaftliche Potential von KI für die Schweiz

## **AUSZUG AUS DER STUDIE:**

Capturing the next wave of benefits from generative KI

An Implement Consulting Group study commissioned by Google

August 2024

*English report starting at p. 14.*



Martin H.  
Thelle

- **Executive Summary**
- *Studienautor, Partner at Implement Consulting Group*

# Das wirtschaftliche Potential von KI für die Schweiz

**Die Einführung generativer KI könnte das BIP der Schweiz in rund zehn Jahren um 80-85 Milliarden Franken steigern, wobei die Auswirkungen voraussichtlich innerhalb der nächsten zehn Jahre ihren Höhepunkt erreichen werden.**

**Wirtschaftliche Chance generativer KI:** Das Potenzial von 80-85 Milliarden Franken im jährlichen BIP entspricht +11 % und wird vor allem durch eine Produktivitätssteigerung für die Mehrheit der Arbeitnehmer getrieben. Eine fünfjährige Verzögerung der Einführung könnte das BIP-Potenzial der Schweiz auf +3 % reduzieren.

**Auswirkungen auf die Branchen:** In den meisten Wirtschaftssektoren nimmt generative KI eine ergänzende Rolle ein. Das bedeutet, dass KI eingesetzt wird, um menschliche Fähigkeiten zu erweitern und zu verbessern. Im Gegensatz zu früheren Automatisierungsmethoden, wie Robotern, kann die generative KI die Produktivität im Dienstleistungssektor steigern. 80% des wirtschaftlichen Potenzials der generativen KI in der Schweiz liegen in den Dienstleistungssektoren. Dazu gehören wissensintensive Unternehmensdienstleistungen, Handel, Verkehr und Tourismus sowie öffentliche Verwaltung, Bildung und Gesundheitswesen.

**Auswirkungen auf die Arbeitsplätze:** Insgesamt wird die generative KI schätzungsweise bis zu 3,9 Millionen Arbeitsplätze in der Schweiz beeinflussen. Es wird erwartet, dass die generative KI die meisten Arbeitsplätze (66 %) unterstützt, indem sie einen begrenzten Teil ihrer Aufgaben automatisiert und dabei hilft, Inhalte (Text, Code und Bilder) zu erstellen, mit Arbeitnehmern an komplexen Problemen zusammenzuarbeiten oder zum Produktdesign beizutragen. Bei einem kleineren Teil der Arbeitsplätze (8 %) könnten möglicherweise mehr als die Hälfte der Aufgaben durch generative KI automatisiert werden. Es wird jedoch erwartet, dass neue Arbeitsplätze in einer KI-gestützten Wirtschaft jene ersetzen werden, die durch die Automatisierung verloren gegangen sind.

**KI-Bereitschaft:** Die Schweiz verfügt über ein starkes Innovationsökosystem. Dies zeigt sich auch darin, dass viele Unternehmen KI bereits in ihre Prozesse integriert haben. So haben beispielsweise in der IMD-Umfrage von 2023 62 % der Schweizer Unternehmen KI in mindestens einer Geschäftsfunktion eingeführt, und 84 % glauben, dass KI positive Veränderungen in der Welt bewirken kann. Allerdings befindet sich die Einführung von KI noch in einer frühen Phase, und es sind weitere ergänzende Innovationen, Investitionen und KI-bezogene Fähigkeiten erforderlich, um das volle wirtschaftliche Potenzial auszuschöpfen.

Die Schweiz verfügt über eines der grössten Potenziale für generative KI in Europa, dank ihrer führenden Rolle in den meisten Innovationsindikatoren, wie Fachkräften, Forschung und Entwicklung. Dies belegen auch unsere europäischen Vergleichsstudien. Im globalen Vergleich hingegen, fällt die Schweiz hinter die USA zurück. Um das volle Potenzial von generativer KI auszuschöpfen, bedarf es spezialisierterer KI-Anwendungen. Die Schweiz sollte ihre starke Ausgangslage nutzen, um zukünftig weitere Innovationen voranzutreiben.



## Monika Rühl

- **Vorwort**
- *Vorsitzende der Geschäftsleitung economiesuisse*

# Am KI-Scheideweg kann es für unser Land nur eine Richtung geben

Liebe Leserinnen, liebe Leser,

Die Schweiz zeichnet sich seit jeher durch eine einzigartige Verbindung von Pioniergeist und Traditionsbewusstsein aus. Neuen Technologien begegnen wir offen, setzen uns als Gemeinschaft aber sorgfältig mit ihren gesellschaftlichen und wirtschaftlichen Auswirkungen auseinander. So finden wir immer wieder pragmatische und nachhaltige Lösungen. Generative KI ist ein technologischer “Game Changer” – Sie läutet eine neue Ära ein, die für Wirtschaft und Gesellschaft enorme Chancen bereithält. Nun ist es an der Schweiz zu entscheiden, wie sie damit umgehen möchte.

Die Studie “The economic opportunity of AI in Switzerland” zeigt: Das Potenzial generativer KI ist in der Schweiz enorm und vor allem grösser als in den meisten anderen europäischen Ländern. Eine schnelle Implementierung von KI könnte bis in 10 Jahren rund 80-85 Milliarden CHF pro Jahr zum BIP beitragen, was etwa 11% zusätzlichem Wohlstandswachstum entspricht – eine schöne KI-Rente für die Schweiz! Ganz nebenbei unterstützt uns generative KI dabei, die Herausforderungen unserer Zeit anzugehen. Vom Fachkräftemangel über den Klimawandel bis ins Gesundheitswesen.

Um die KI-Chance zu realisieren, müssen wir in Ausbildung, Forschung und Infrastruktur investieren. Gleichzeitig gilt es, mit dem uns eigenen Pragmatismus optimale Voraussetzungen für KI-Entwicklung und -Einsatz zu schaffen. Dabei müssen wir auch über Risiken sprechen und diese eingrenzen. Auf keinen Fall dürfen wir dabei aber die Technologie totregulieren. Wichtige Weichen müssen gestellt werden: Entweder sichern wir uns die KI-Rente und machen unseren Standort fit für die Zukunft oder der Zug fährt an uns vorbei und mit ihm die Chance für unseren Wohlstand.

Wir laden Sie ein, die Studienergebnisse zu lesen und an der Debatte über das langfristige Potenzial von KI für den Standort Schweiz und die Schweizer Wirtschaft teilzunehmen.

Monika Rühl

Vorsitzende der Geschäftsleitung economiesuisse



## Christine Antlanger- Winter

- **Vorwort**
- *Country Director  
Google Schweiz*

# Künstliche Intelligenz – Eine Chance für den Standort Schweiz

Liebe Leserinnen, liebe Leser,

Die vorliegende Studie belegt das grosse Potenzial von KI für den gesamten Standort Schweiz. KI wird zur Steigerung der Produktivität, Förderung von Innovation und Optimierung von Arbeitsprozessen beitragen.

Die Schweiz hat eine ideale Ausgangslage, um das volle Potenzial von KI für ein nachhaltiges Wirtschaftswachstum auszuschöpfen. Das ist aber kein Selbstläufer. Wir müssen weiter in Forschung und Entwicklung investieren, die Zusammenarbeit zwischen Universitäten und Unternehmen stärken und die Aus- und Weiterbildung fördern. Gleichzeitig ist die verantwortungsvolle Entwicklung und der bewusste Einsatz von KI zentral. Wir können das Vertrauen in KI stärken, indem wir Transparenz, Fairness und Datenschutz sicherstellen. Ganz im Sinne des Google-KI-Prinzips: "bold and responsible" können wir so wirtschaftliches Potential nutzen und dafür sorgen, dass KI der gesamten Gesellschaft zugutekommt.

Lassen Sie uns diese Chance gemeinsam nutzen, und an einer Schweiz arbeiten, die nicht nur wohlhabend und innovativ, sondern auch als Gesellschaft integrativ und verantwortungsbewusst ist.

Christine Antlanger-Winter

Country Director Google Schweiz

# Die Schweiz hat eines der grössten Potenziale zur Nutzung generativer KI in Europa

Damit die Gesellschaft von der nächsten Welle der KI-Entwicklung tatsächlich profitieren kann, muss die Schweiz ihr starkes Innovations-Ökosystem ausbauen und in KI-Kompetenzen investieren.

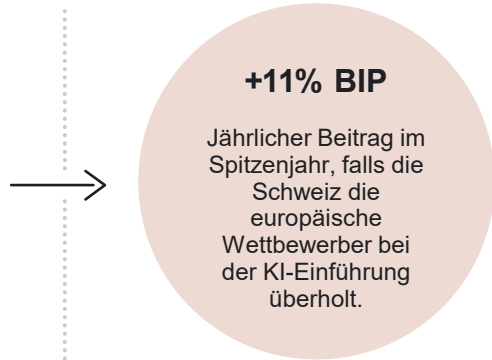
## Wirtschaftliche Chancen

Die Technologie rund um generative KI entwickelt sich schneller als angenommen und der Höhepunkt des wirtschaftlichen Beitrags kann früher eintreten als erwartet – bereits in rund zehn Jahren.

Im Spitzenjahr könnte das Schweizer BIP alleine durch die generative KI um folgenden Betrag wachsen:

**CHF 80-85 Mia.**

Das Potential generativer KI ist in der Schweiz grösser, als in den meisten europäischen Ländern.



### Gewinne kommen von drei Quellen ...



Produktivitätssteigerung bei Menschen, die mit generativer KI arbeiten.

Freigewordene Zeit, wenn Prozesse mittels KI automatisiert werden.

Neue Prioritätensetzung und eingesetzte Zeit für andere Wertschöpfungsprozesse

## Auswirkungen auf den Arbeitsmarkt

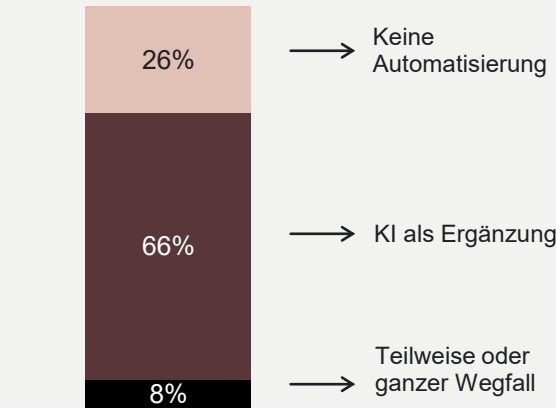
**66%** der Arbeitsstellen werden voraussichtlich **MIT** generativer KI arbeiten.

**65%** aller Schweizer Arbeitnehmenden glauben, dass sie dank generative KI **produktiver** sind.



### Anteil gefährdete Arbeitsplätze auf Grund generativer KI % aller Beschäftigten in der Schweiz

#### 5.3 Mio. Stellen



**Die Schweiz ist gut vorbereitet, um die durch generative KI bedingten Veränderungen zu meistern**

Neue Arbeitsplätze in der KI-gesteuerten Wirtschaft werden die durch Automatisierung verloren gegangenen, ersetzen, sodass die Gesamtzahl der Arbeitsplätze stabil bleibt. Die Stellen machen etwa 5-8% der bisherigen Schweizer Arbeitsmarktveränderungen aus. Die schrittweise Transformation gibt Arbeitnehmenden Zeit, neue Fähigkeiten zu erlernen.

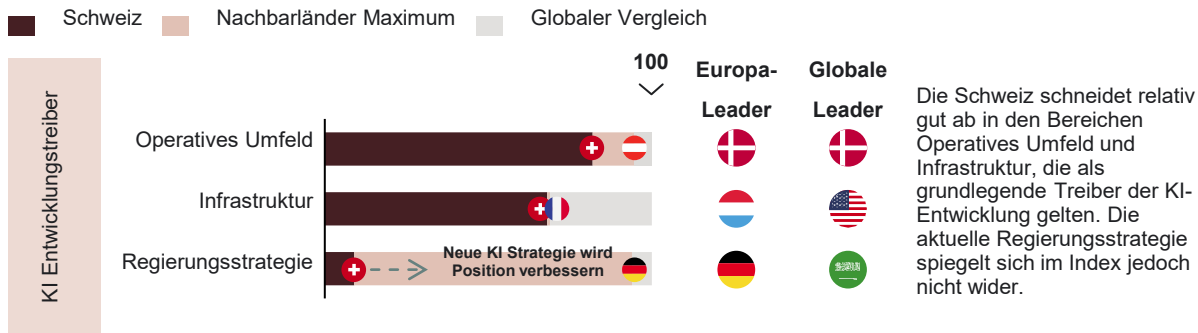
# Die Schweiz kann sich an die Spitze der KI-Zukunft in Europa stellen

## Die Schweiz ist bereit für KI

### Die Schweiz hat ein starkes operatives KI-Umfeld und eine umfassende Infrastruktur...

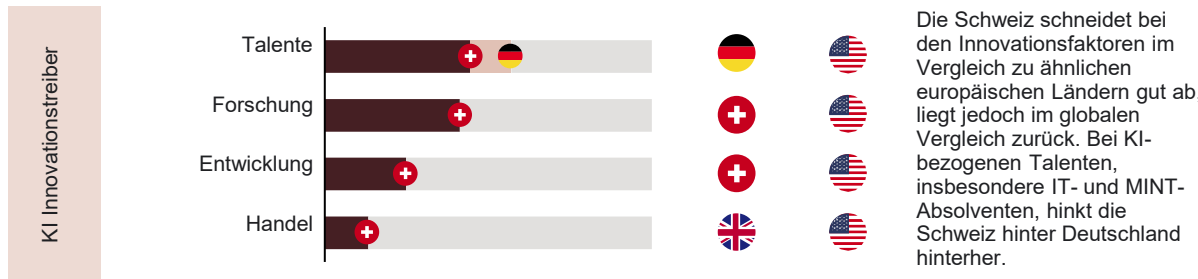
#### Schweizer Potential gemäss dem Tortoise Global AI Index

Global AI Index, Punktzahl von 100 (global leader)



Die Schweiz schneidet relativ gut ab in den Bereichen Operatives Umfeld und Infrastruktur, die als grundlegende Treiber der KI-Entwicklung gelten. Die aktuelle Regierungsstrategie spiegelt sich im Index jedoch nicht wider.

### ... und könnte sein starkes Innovationsökosystem nutzen, um die Vorteile von KI schneller als andere Länder zu realisieren.



Die Schweiz schneidet bei den Innovationsfaktoren im Vergleich zu ähnlichen europäischen Ländern gut ab, liegt jedoch im globalen Vergleich zurück. Bei KI-bezogenen Talenten, insbesondere IT- und MINT-Absolventen, hinkt die Schweiz hinter Deutschland hinterher.

## Schlussfolgerungen

Generative KI kann das zukünftige Wirtschaftswachstum in der Schweiz ankurbeln und die aktuellen langfristigen BIP-Prognosen übertreffen. Führende Banken erhöhen bereits ab 2028 ihre Wachstumsprognosen aufgrund der neuen Erwartungen an generative KI.

Der 11%ige Anstieg des jährlichen BIP im Spitzenjahr setzt voraus, dass die Schweiz andere europäische Länder bei der KI-Einführung überholt.

Eine fünfjährige Verzögerung bei der Einführung und Entwicklung von generativer KI könnte die möglichen BIP-Gewinne in der Schweiz von 11 % auf 3 % des BIP reduzieren, also von 80-85 Milliarden CHF auf 20-25 Milliarden CHF.

Um das volle wirtschaftliche Potential auszuschöpfen, sind Innovationsfähigkeit und positive regulatorische Rahmenbedingungen erforderlich.



Arbeitskräfte umschulen und weiterbilden



F&E durch lokale Innovatoren fördern



Kommerzielle Nutzung beschleunigen

Hinweis: Der Tortoise Global AI Index basiert sich auf 111 Indikatoren, die von 28 verschiedenen öffentlichen und privaten Datequellen und 62 Regierungen erhoben wurden. Die Nachbarländer beziehen sich auf Deutschland, Italien, Frankreich und Österreich.

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# Was ist KI?

Der Bericht befasst sich mit allen Arten von KI, wobei der Schwerpunkt auf der generativen KI liegt.



# KI kann Menschen helfen, Aufgaben schneller und besser zu lösen - und mit generativer KI können Maschinen Menschen verstehen und in Sprache, Tönen und Bildern mit ihnen interagieren.

## Künstliche Intelligenz (KI)

- KI ist ein allgemeiner Begriff für alles, was es Computern ermöglicht, menschliches Verhalten nachzuahmen, einschließlich regelbasierter Programme.

## Machine Learning (ML)

- Machine Learning (ML) ist ein Teilbereich der KI, bei dem Maschinen nicht explizit programmiert werden müssen. Stattdessen verwenden sie Algorithmen, um Muster in Daten zu erkennen und lernen sich selbst zu verbessern.

## Deep Learning (DL)

- DL ist ein Teilbereich des maschinellen Lernens, bei dem Computer auf eine Weise lernen, die das menschliche Gehirn nachahmt.
- Diese KI-Modelle werden in der Regel mit spezifischen Datensätzen trainiert und in einem bestimmten Bereich oder einer bestimmten Branche eingesetzt.

## Die Fähigkeiten umfassen:

### Prognosen und Vorhersagen

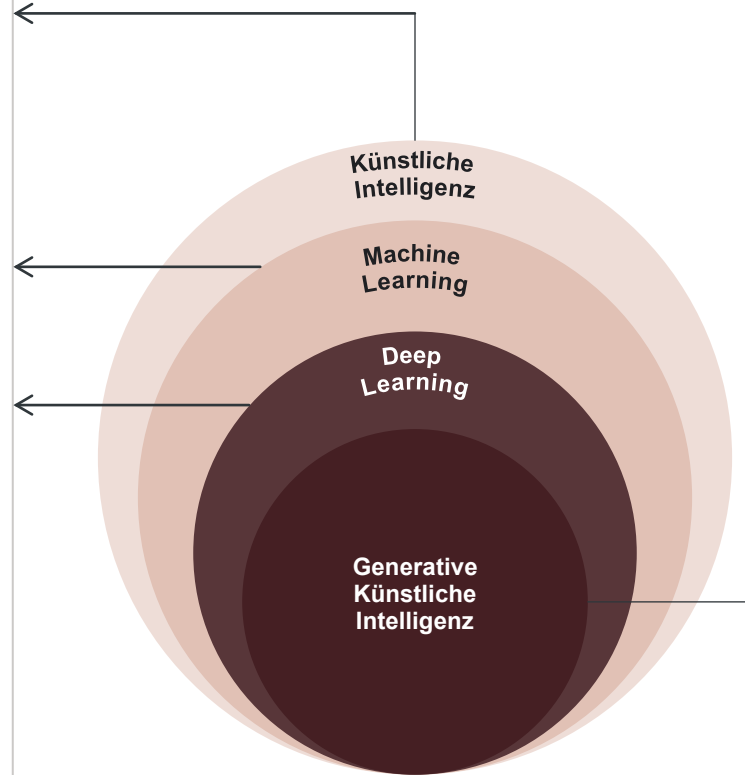
Neben der Wettervorhersage werden ähnliche prädiktive Modelle auch zur Verwaltung von Lagerbeständen eingesetzt.

### Kategorisierung und Erkennung

Nebst Spam-Filterung in E-Mails kann KI auch zur Kategorisierung und Erkennung von Mustern in Gesetzesdokumenten eingesetzt werden.

### Optimierung

Bei der Optimierung hilft KI nicht nur bei der Navigation über GPS, sondern spielt auch eine entscheidende Rolle bei der Steigerung der Energieeffizienz in Rechenzentren.



## Generative KI

- Generative KI ist eine neue Form der KI, die im Jahr 2022 der Öffentlichkeit zugänglich gemacht wurde. Sie kann Text, Codes, Bilder, Ton und Video verstehen und damit neue Inhalte generieren.
- Generative KI-Modelle werden mithilfe von grossen allgemeinen Datensätzen trainiert, um ein grundsätzliches Verständnis von Text, Bild, Code und Ton zu erlangen.
- Generative KI kann allgemein in fast allen Bereichen und Branchen eingesetzt werden

## Zu den neuen Funktionen gehören:

### Neue einzigartige Bilder erstellen

Das Erstellen eines Bildes eines noch nicht existierenden Produkts basierend auf Benutzereingaben in natürlicher Sprache.

### Interaktion mit Stimmen und Tönen

Das Übersetzen eines Arztberichts in einen strukturierten Text oder die schriftliche Nachbereitung eines Telefongesprächs mit einem Kunden.

### Texte analysieren und überarbeiten

Das Übersetzen von Texten und deren Anpassung an eine andere Zielgruppe oder das Übertragen von Code zwischen verschiedenen Programmiersprachen.

### Recherchieren und Analysieren von Daten

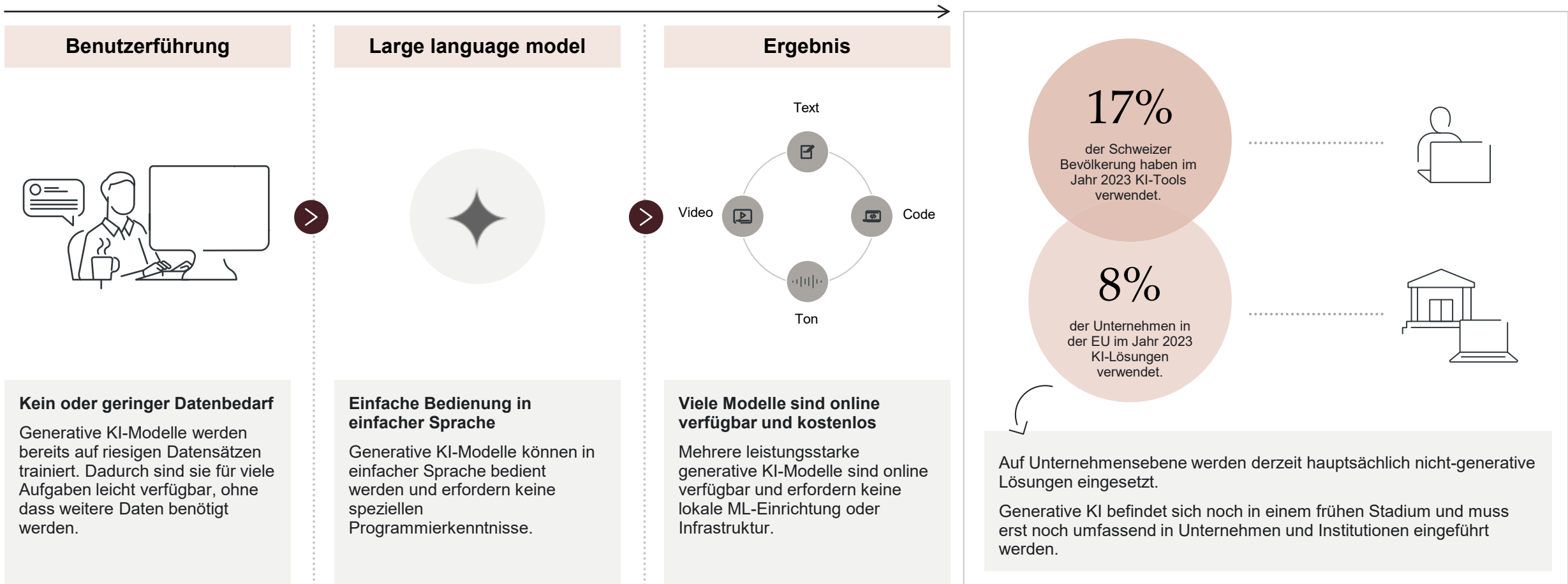
Das Suchen nach relevanten Informationen im Internet und das Ableiten von Schlussfolgerungen aus umfangreichen Datensätzen.



# Die jüngsten Entwicklungen haben die Fähigkeiten und Verfügbarkeit von KI-Modellen erheblich gesteigert und deren Akzeptanz beschleunigt

Generative KI-Modelle haben umfassende Fähigkeiten und sind einfach zu handhaben...

...und werden bereits von vielen Nutzern verwendet.



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# Wirtschaftliche Chancen durch KI

Die größte wirtschaftliche Chance in der Schweiz ergibt sich aus der Zusammenarbeit von Menschen und generativer KI.



# KI alleine hat grosses wirtschaftliches Potenzial, das durch generative KI gesteigert werden kann

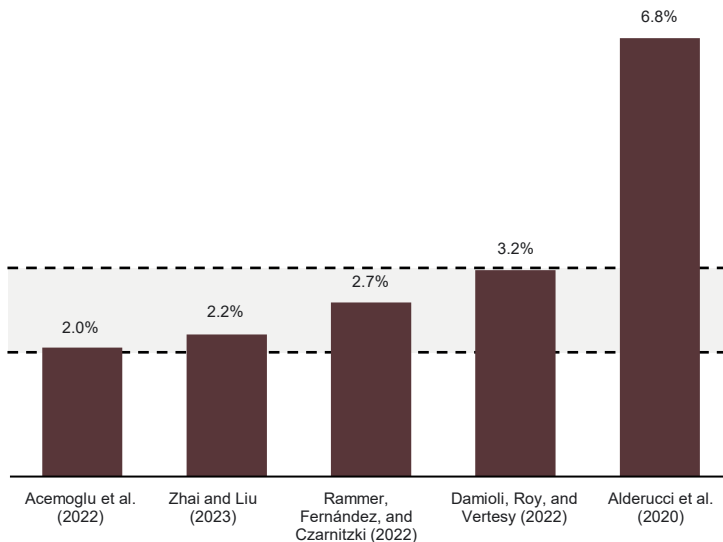
Wie man generative KI verstehen kann:

„Was würden Sie mit 1'000 gut ausgebildete Praktikanten machen, die Tag und Nacht für Sie arbeiten würden?“

## KI kann die Produktivität steigern

Akademische Studien zeigen, dass die Arbeitsproduktivität nach der Einführung von KI auf Unternehmensebene in der Regel um 2-3 Prozentpunkte pro Jahr steigt. Diese Studien wurden jedoch an frühen Anwendern der KI-Technologie durchgeführt und lassen sich daher nicht verallgemeinernd auf die allgemeinen Auswirkungen von KI auf die Produktivität übertragen.

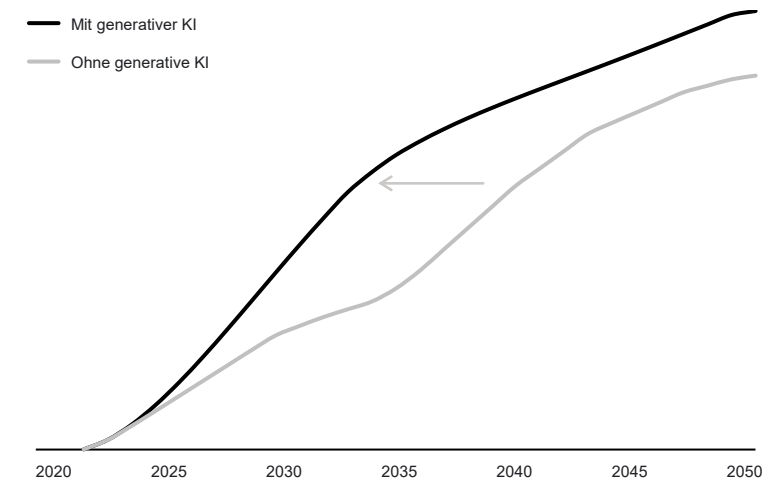
### Wachstum der Arbeitsproduktivität durch die Einführung von KI In Prozentpunkten



## Generative KI treibt die Automatisierung voran

Generative KI kann die Automatisierung um fast ein Jahrzehnt beschleunigen, da sie für Einzelpersonen und Unternehmen einfacher zu nutzen ist. Dennoch bestehen grosse Unsicherheiten hinsichtlich der Akzeptanz und der Geschwindigkeit, mit der die Vorteile der KI realisiert werden können.

### Automatisierungspotential Einführung von KI-Technologie



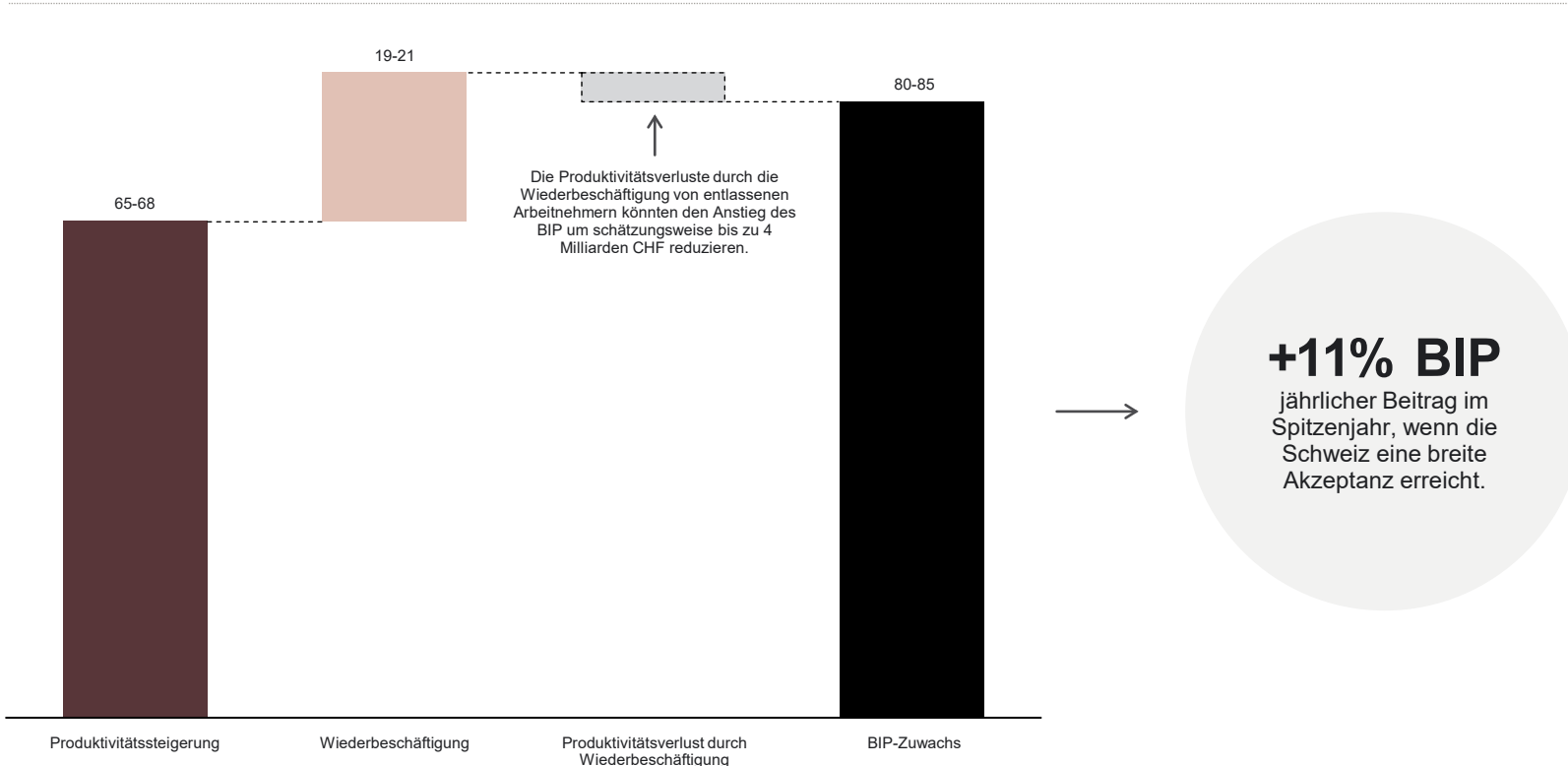
- Die KI hat sich mit dem jüngsten Durchbruch der generativen KI rasant weiterentwickelt. Dank ihrer Benutzerfreundlichkeit kann erwartet werden, dass generative KI das wirtschaftliche Potenzial der KI erheblich beschleunigen wird.
- Allerdings macht generative KI nur einen Teil des gesamten wirtschaftlichen Potenzials der KI aus. Einige Studien schätzen, wenn auch mit gewisser Unsicherheit, dass generative KI etwa ein Drittel der gesamten Auswirkungen von KI ausmacht.
- Dieser Bericht bewertet das makroökonomische Potenzial der generativen KI und erkennt gleichzeitig das erhebliche wirtschaftliche Potenzial anderer KI-Typen an.

# Generative KI kann das BIP der Schweiz in zehn Jahren um 11% steigern

## - Eines der grössten Potenziale in Europa

### BIP-Potenzial der generativen KI in der Schweiz

Jährlicher Anstieg des BIP in Höhe von einer Milliarde CHF gegenüber dem Basiswert nach einer zehnjährigen Einführungsphase



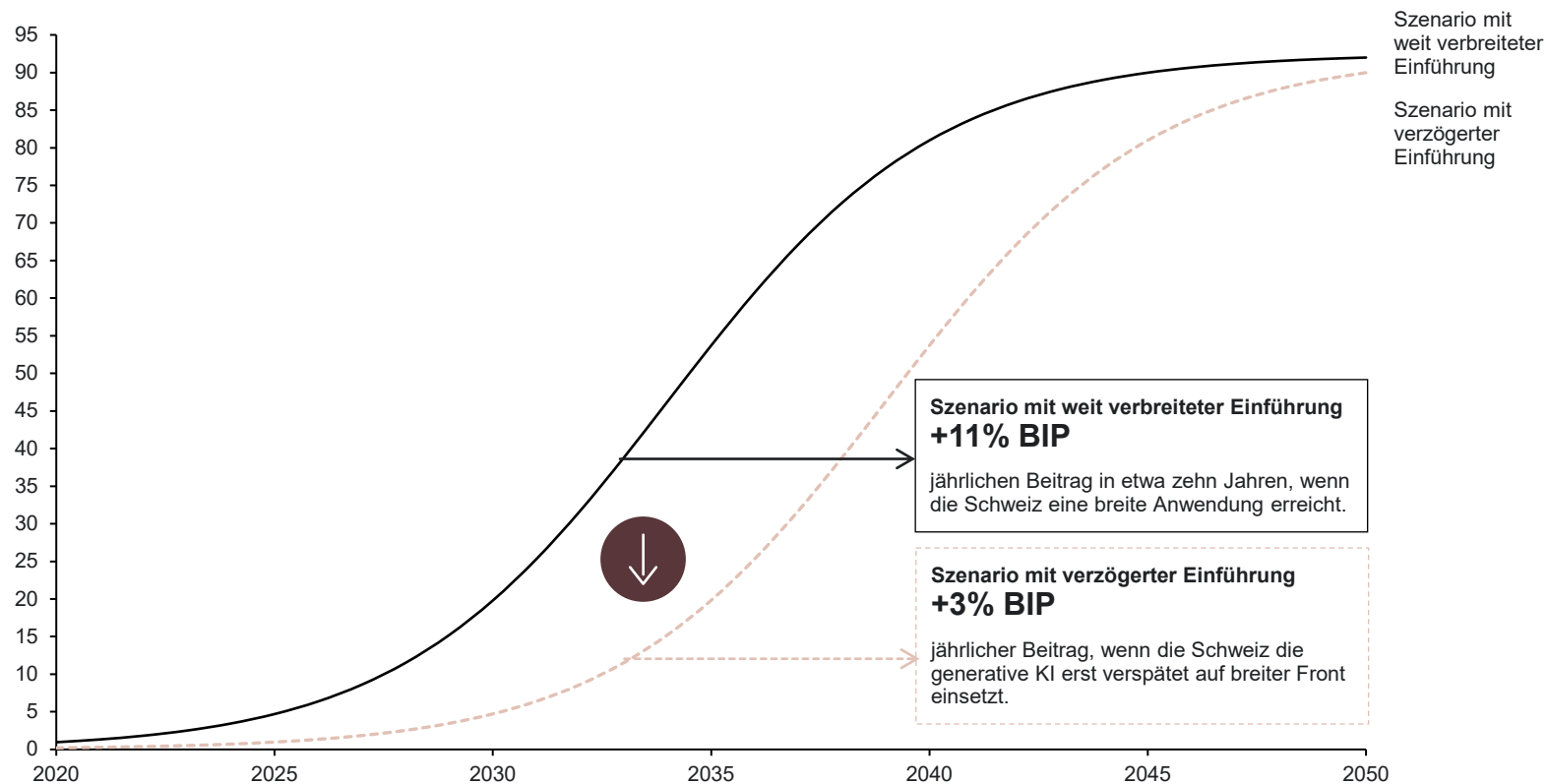
- Die Schweiz hat einen bedeutenden Finanz- und Pharmasektor sowie viele multinationale Unternehmen. Zudem ist die Schweiz führend in der KI-bezogenen Forschung, Entwicklung und Innovation (siehe Seiten 12 und 34). Dies legt nahe, dass die Schweiz möglicherweise eine schnellere Einführung und ein grösseres wirtschaftliches Potenzial als andere entwickelte europäische Märkte aufweist.
- Wenn die generative KI in der Schweiz flächendeckend eingeführt wird, schätzen wir das jährliche BIP-Potenzial auf 80-85 Milliarden CHF im Spitzenjahr, was bereits in zehn Jahren der Fall sein könnte.
- Die wichtigste Auswirkung der generativen KI ist ein Produktivitätsschub für die Mehrheit der Arbeitnehmer (66 %) durch die Steigerung ihrer Fähigkeiten, Qualität und Effizienz. Für die Schweiz wird dieser Produktivitätsgewinn auf 65-68 Milliarden CHF geschätzt.
- Die Schätzung umfasst die Auswirkungen der Wiederbeschäftigung eines kleinen Teils der Arbeitnehmer (8%), wo generative KI einen erheblichen Teil ihrer Zeit für andere Aufgaben freisetzt. Dies wird für die Schweiz auf 19-21 Mrd. CHF geschätzt.
- Die Schätzung berücksichtigt den möglichen Produktivitätsverlust durch Wiederbeschäftigung, wodurch sich die Auswirkungen um 4 Milliarden CHF verringern.
- Die generative KI ist so leistungsfähig, dass das künftige Wirtschaftswachstum der Schweiz die derzeitigen langfristigen BIP-Prognosen übertreffen könnte. Führende Banken heben ihre Wachstumsprognosen bereits für das Jahr 2028 an.

Anmerkung: Die Schätzung geht von einer breiten Einführung generativer KI über einen Zeitraum von zehn Jahren aus. Es bestehen große Unsicherheiten in Bezug auf die Fähigkeiten und den Zeitplan für die Einführung generativer KI. Das Ausmaß des Produktivitätsanstiegs hängt vom Schwierigkeitsgrad der Aufgaben ab, die generative KI erledigen kann, und von der Zahl der Arbeitsplätze, die sie automatisieren kann. Das BIP liegt auf dem Niveau von 2022. Die durchschnittliche Anzahl der Arbeitstätigkeiten, die potenziell von generativer KI über alle Aufgabentypen hinweg ausgeführt werden können, entspricht 20-30 %, und zwar sowohl für komplementäre als auch für stark exponierte Arbeitnehmer. Unsere Schätzung ist das isolierte Potenzial der generativen KI in etwa zehn Jahren, wenn die Auswirkungen im Szenario der weit verbreiteten Einführung ihren Höhepunkt erreichen (siehe nächste Seite). Der geschätzte Schub durch generative KI ist möglicherweise nicht vollständig additiv zum BIP-Trend, da die BIP-Prognose bereits von einem Wachstumsbeitrag neuer Technologien ausgeht und generative KI einen Teil davon ersetzen könnte. Außerdem könnte der Schub durch generative KI teilweise durch eine zugrunde liegende Wachstumsverlangsamung ausgeglichen werden.

# Eine fünfjährige Verzögerung bei der Einführung von generativer KI könnte das potenziellen BIP-Gewinne von 11% auf 3% reduzieren

## Einführung von generativer KI

%



- Die generative KI ist eine neue Allzwecktechnologie, es wird Zeit brauchen, bis sie breit eingesetzt wird. .
- Unsere Schätzung des BIP-Potenzials der generativen KI für die Schweiz setzt voraus, dass sich die neue KI-Technologie innerhalb der nächsten zehn Jahre durchsetzt und weiterentwickelt.
- Untersuchungen von Goldman Sachs erwarten, dass die fortgeschrittenen Volkswirtschaften in Europa etwa zwei Jahre später als die USA eine breite Einführung der generativen KI erreichen werden.
- Die Schätzungen in diesem Bericht legen nahe, dass die Schweiz generative KI etwas schneller einführen könnte als andere fortgeschrittene Volkswirtschaften in Europa, auch wenn sie nicht so schnell sein wird wie die USA.
- Eine fünfjährige Verzögerung bei der Nutzung der Vorteile der generativen KI würde das jährliche Potenzial in der Spitze schätzungsweise von 11 % (80-85 Mrd. CHF) auf nur 3 % (20-25 Mrd. CHF) des BIP reduzieren.
- Die Schweiz kann den Wohlfahrts- und BIP-Beitrag der generativen KI erhöhen, indem man dafür sorgt, dass die Politik die Vorteile erkennt, die im Szenario der weit verbreiteten Einführung angenommen werden.

Anmerkung: Die BIP-Zahlen sind auf dem Niveau von 2022 ausgedrückt. Die Abbildung zeigt die generative KI-Einführung als Anteil der Unternehmen in der gesamten Wirtschaft, die der KI-Automatisierung ausgesetzt sind. Die Schätzung bezieht sich auf einen Zeitraum von zehn Jahren, um den Zeithorizont für eine weit verbreitete Einführung in den fortgeschrittensten Ländern mit Ausnahme der USA zu berücksichtigen. Das Szenario "weit verbreitete Einführung" geht davon aus, dass die Einführung etwas schneller erfolgt als in "anderen entwickelten Märkten" in Briggs und Kodnani (2023b). Diese Annahme beruht auf der Tatsache, dass die Schweizer Wirtschaft zu einem großen Teil aus der Finanz- und Pharmaindustrie besteht, zwei internationalisierten und wettbewerbsfähigen Branchen, die eine noch schnellere Einführung als andere entwickelte europäische Märkte ermöglichen.

# The economic opportunity of AI in Switzerland

Capturing the next wave of benefits from *generative AI*

An Implement Consulting Group study commissioned by Google

August 2024

# Switzerland has one of the largest potentials for generative AI in Europe

To capture the next wave of AI benefits across society, Switzerland needs to leverage its strong innovation ecosystem and invest in AI skills.

## The economic opportunity

Generative AI technology is developing faster than previously anticipated, and the peak economic contribution could come sooner than expected, in as little as ten years.

In the peak year, generative AI alone could boost Switzerland's GDP by

**CHF 80-85 billion**

The potential of generative AI is larger in Switzerland than in most other European countries.

→

**+11% GDP**  
annual contribution in the peak year if Switzerland outpaces European peers on AI adoption.

### Gains come from three sources ...



Productivity boost from people working with generative AI.



Freed-up time when generative AI helps to automate our work.



Re-prioritised and re-employed time for other value-creating activities.

## The job implications

**66%** of jobs in Switzerland are estimated to work **together with** generative AI.

**65%** of Swiss workers believe that generative AI makes them **more productive** at work.

**Share of jobs exposed to automation by generative AI**  
% of total employment in Switzerland

**5.3 million jobs**

26%	No automation
66%	AI as a complement
8%	Partial or full displacement

**Switzerland is well placed to manage the job changes that generative AI brings.**

New jobs in the AI-powered economy are expected to replace those lost due to automation, resulting in a neutral, long-term impact on the total number of jobs. The highly exposed jobs represent around 5-8% of the historical levels of job changes in Switzerland.

The transition is expected to be gradual, allowing workers time to adapt to new tasks and develop new skills.

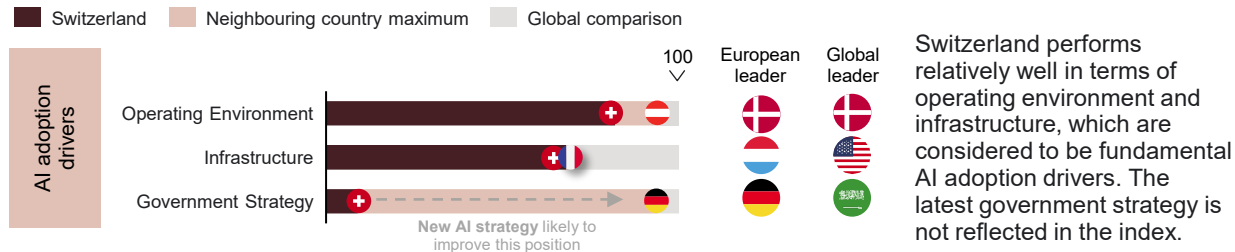
# Switzerland can lead the AI opportunity in Europe

## AI readiness in Switzerland

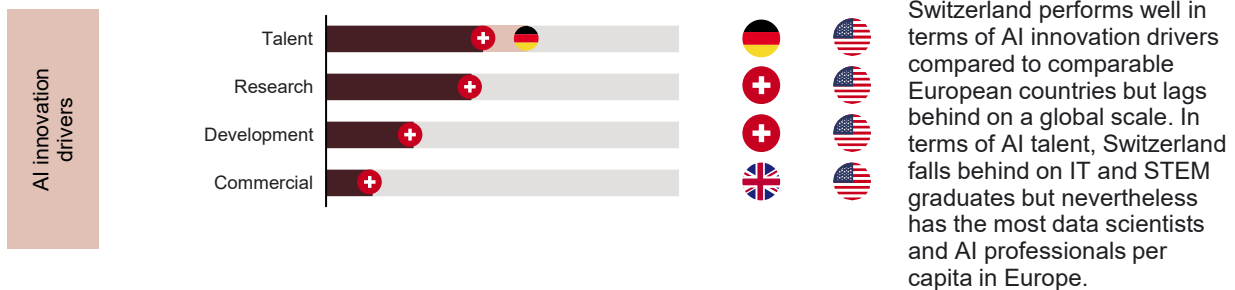
### Switzerland has a strong AI operating environment and infrastructure ...

#### Switzerland's AI capacity according to the Tortoise Global AI Index

Global AI Index, score out of 100 (global leader)



### ... and could leverage its strong innovation ecosystem to accelerate the benefits of AI faster than other countries



## Conclusions and policy implications

Generative AI can boost future economic growth in Switzerland, exceeding current long-term GDP forecasts. Leading banks are raising growth forecasts from as early as 2028 due to the new expectations for generative AI.

The 11% boost to annual GDP at peak assumes that Switzerland outpaces other European countries on AI adoption.

A five-year delay in the adoption and development of generative AI could reduce potential GDP gains in Switzerland from 11% to 3% of GDP, i.e. from CHF 80-85 billion to CHF 20-25 billion.

**Capturing the full economic gains requires innovation capabilities and a conducive regulatory framework.**



**Retrain and upskill workforce**



**Grow R&D by local innovators**



**Accelerate commercial uptake**



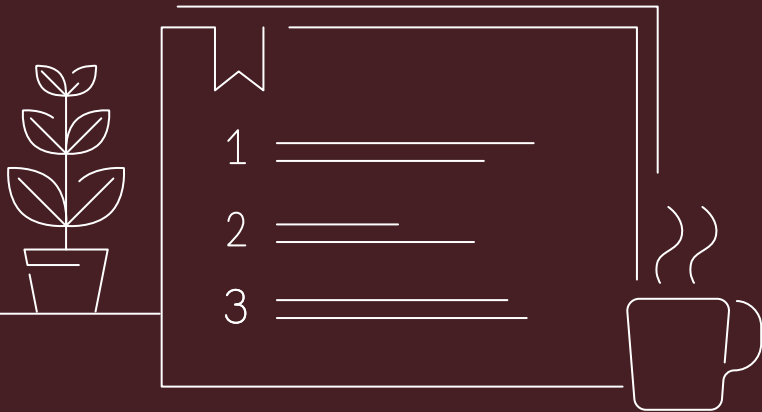
# Foreword

## **Making AI benefit society as a whole requires an adaptive, human-centric and trustworthy approach**

AI and the next wave of generative AI have the potential to be the most powerful technology in decades. Responsible AI can help solve global challenges like climate change and access to quality medical care.

AI can make countries more prosperous, productive, innovative, creative and secure. At the same time, there are plenty of pitfalls, paradoxes and tensions that decision-makers will need to navigate.

AI has evolved rapidly with the breakthrough of generative AI in 2022 and its fast adoption in 2023. This report estimates the economic potential of generative AI while recognising the significant economic potential of other types of AI.



# Contents

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3	Key sectors benefitting from AI	27
4	Job implications of AI	33
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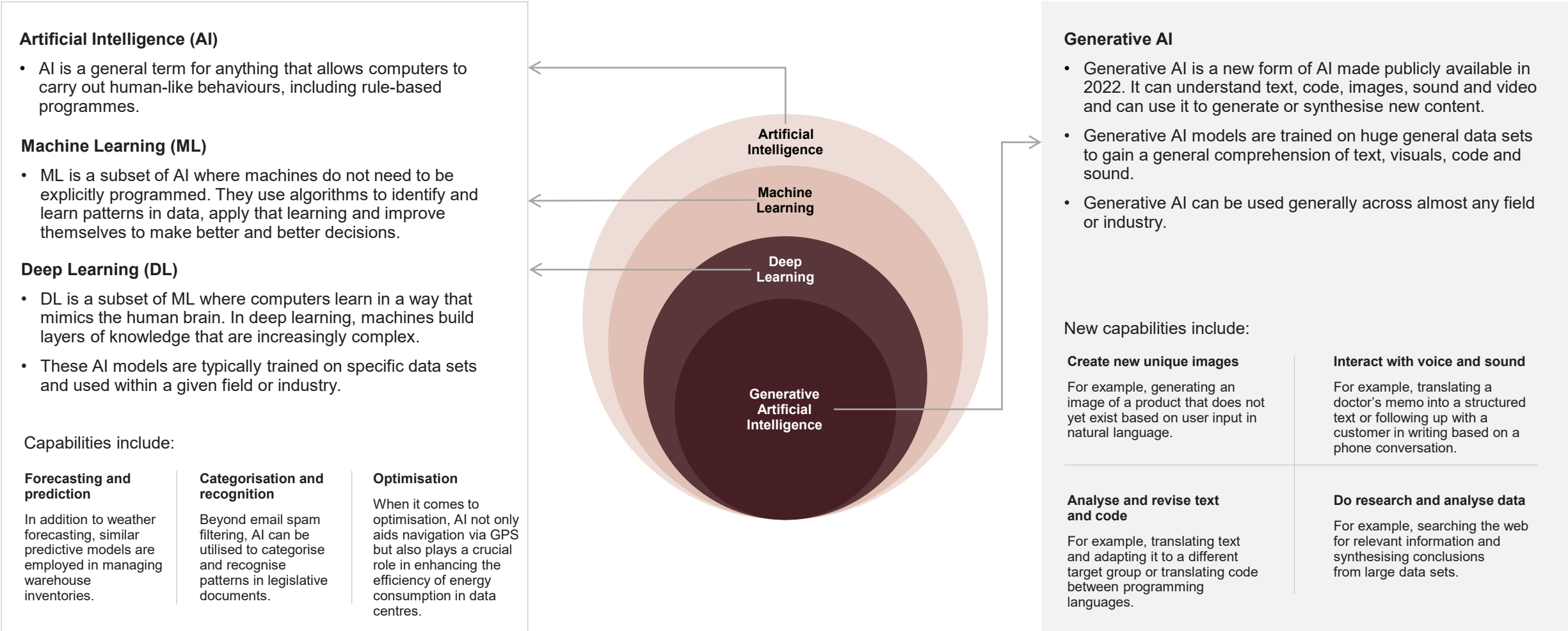
# 01

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# Introduction to AI

This report covers all types of AI with a particular focus on generative AI.

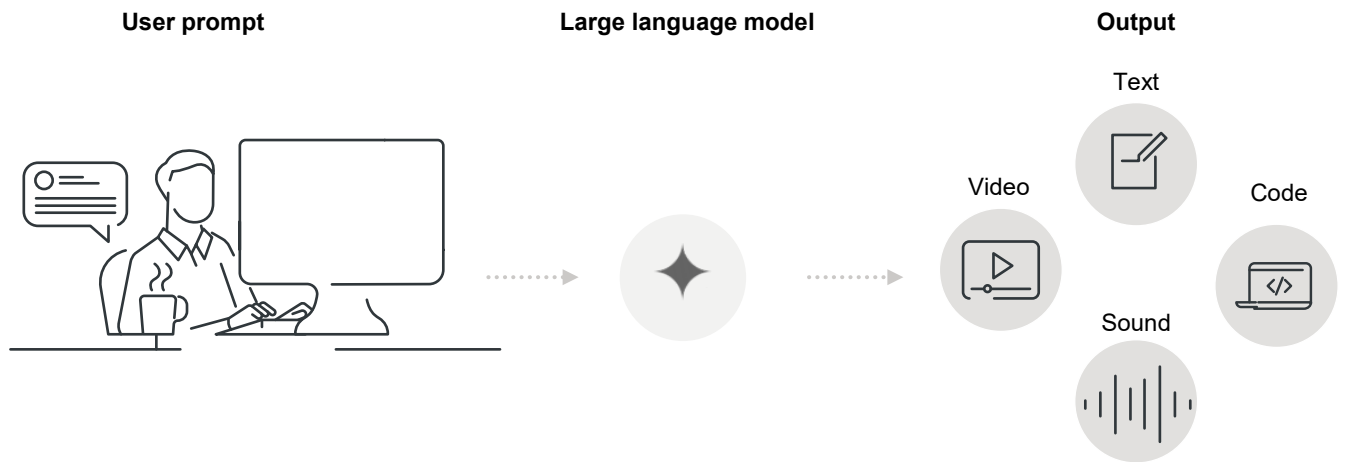
# AI can help humans solve tasks faster and better – and with generative AI, machines can now understand and interact in language, sound and images



Note: An algorithm is a detailed set of instructions that a computer follows to carry out a task or solve a problem.  
Source: Implement Economics based on expert interviews.

# Recent developments have increased the capabilities and availability of AI models and have accelerated uptake

Generative AI models have strong built-in capabilities and are easy to work with ...



## No or low data requirements

Generative AI models are already trained on huge data sets. This makes them readily available for many tasks without any further data needed.

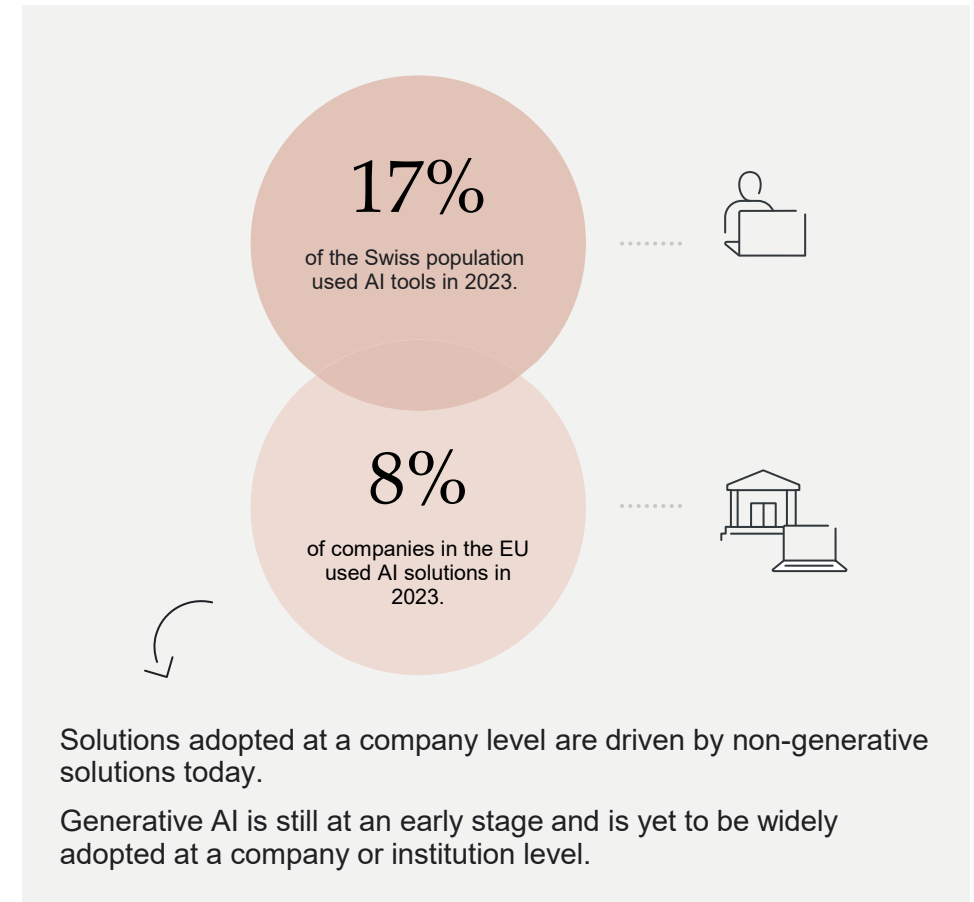
## Easy to use in plain language

Generative AI models can be operated using ordinary language and do not require any specific coding skills to use.

## Many models are online and free of charge

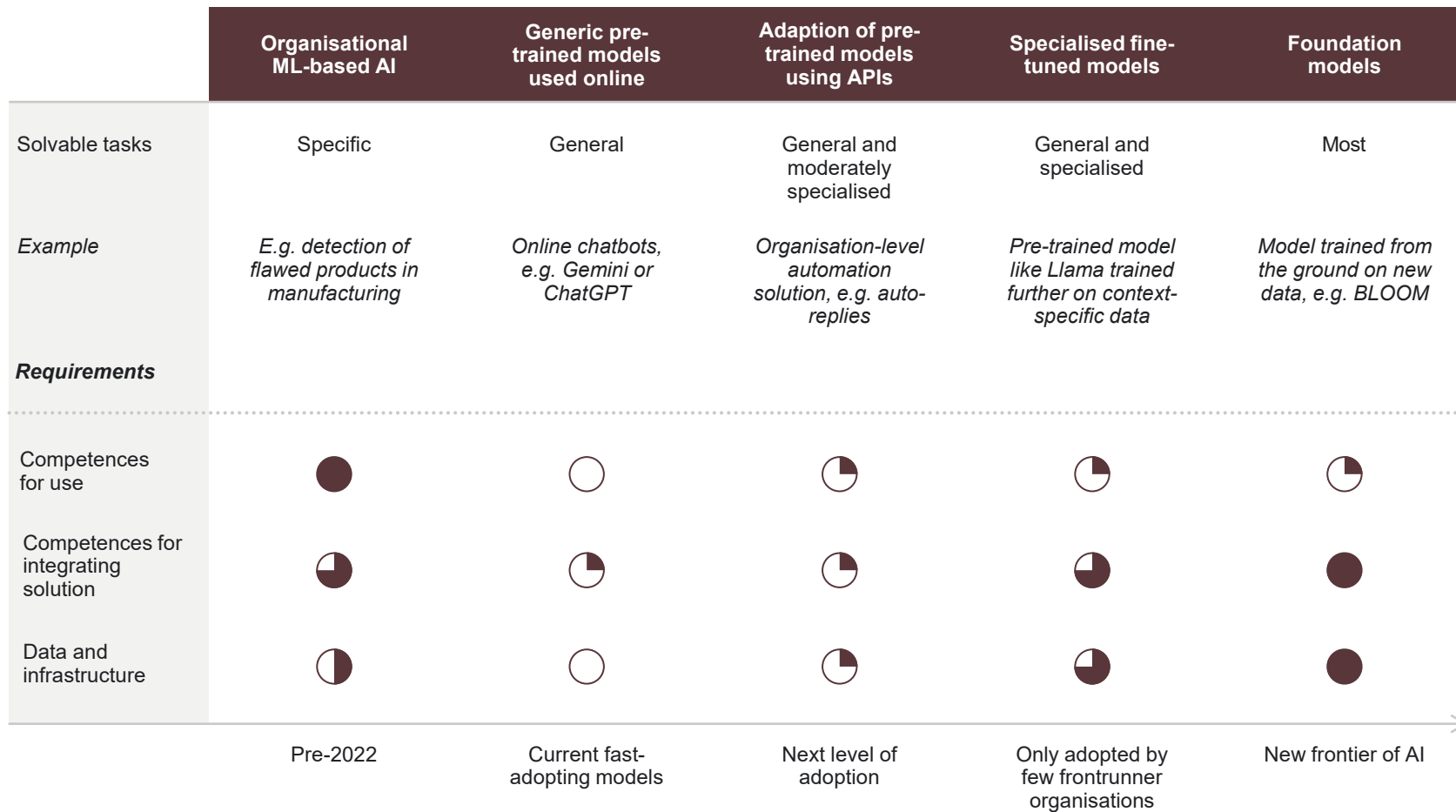
Several high-performing generative AI models are available online and do not require local ML setups or infrastructure to use.

... and many users have already adopted the technology



# Leveraging the full potential of AI will require further research, development and innovation

**AI capabilities and requirements by level of development**



- Generative AI is still in its early phase using generic pre-trained models.
- Future value creation from AI requires more advanced models than the pre-trained models that are available online today.
- Leveraging the full potential of AI technology requires more advanced and specialised models.
- This requires new organisational skills, more data, more computing power and better infrastructure.

**Figure explanation**

- No requirements
- Highest requirements

Note: Training or fine-tuning generative AI models generally requires significantly more computational resources compared to classic machine learning training.  
Source: Implement Economics based on OECD.

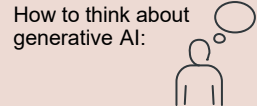
# 02

## Economic opportunities from AI

The main economic opportunity in Switzerland arises from humans working together with generative AI.



# AI has great economic potential which can be further boosted by generative AI



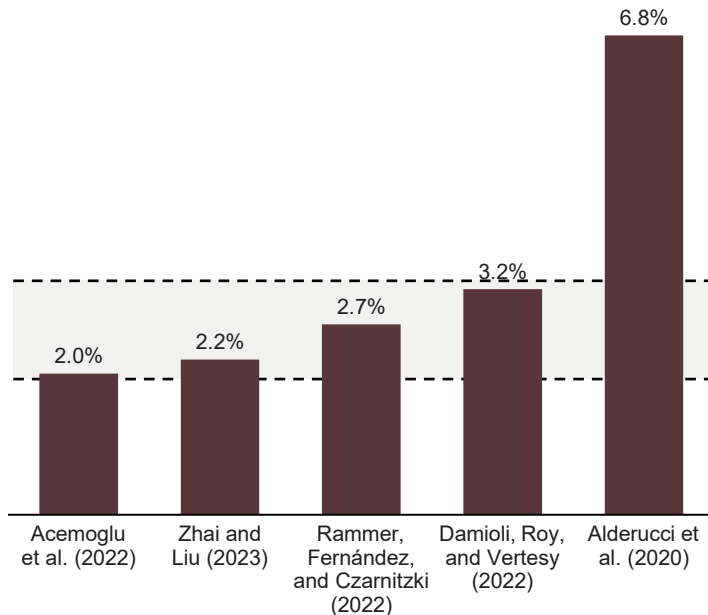
*“What would you do if you had 1,000 well-trained interns ready to work for you day and night?”*

## AI can increase productivity

Academic studies conclude that labour productivity typically increases by 2-3 percentage points per year after firm-level AI adoption. The studies have been carried out on early adopters of AI technology and, as such, cannot be extrapolated to the general effects of AI on productivity.

### Growth in labour productivity from AI adoption

Percentage points

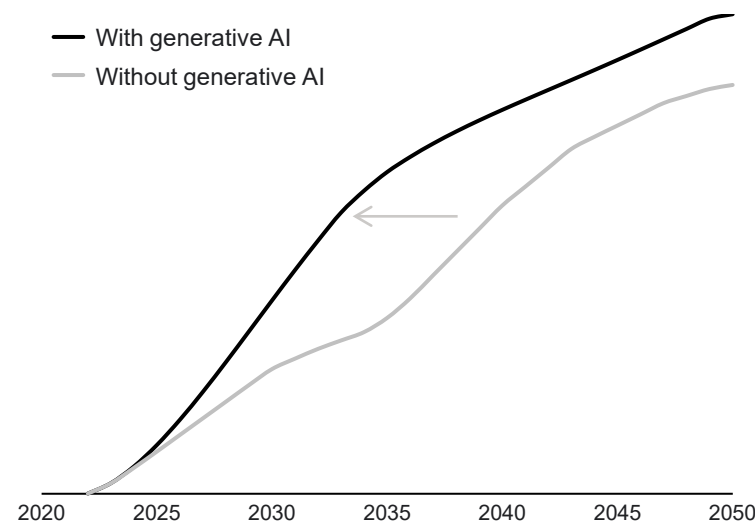


## Generative AI advances automation

Generative AI can advance automation by nearly a decade because it is easier to use for individuals and organisations. However, significant uncertainty about adoption rates and speed of realisation of its benefits remain.

### Automation potential

Adoption of AI technology



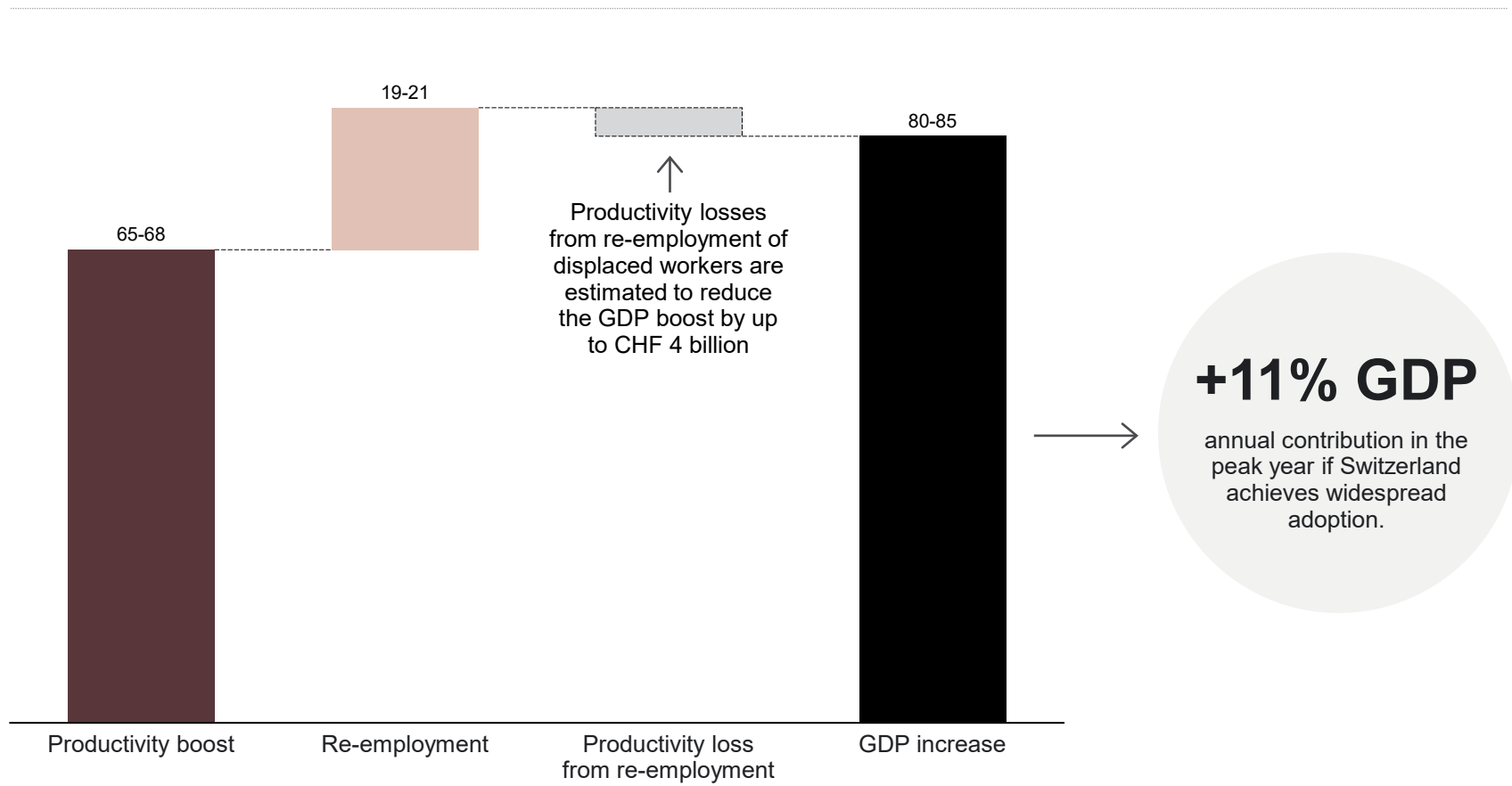
- AI has evolved rapidly with the recent breakthrough of generative AI. Due to its user-friendly nature, generative AI is expected to greatly accelerate the potential of AI to create economic impacts.
- Generative AI is only a part of AI's overall economic potential. Some studies estimate with some uncertainty that generative AI accounts for around one-third of the total effect of AI.
- This report estimates the macroeconomic potential of generative AI while recognising the significant economic potential of other types of AI.



# Generative AI could increase Switzerland's GDP by 11% in ten years – one of the largest potentials in Europe

## GDP potential of generative AI in Switzerland

CHF billion annual increase from baseline GDP after a ten-year adoption period



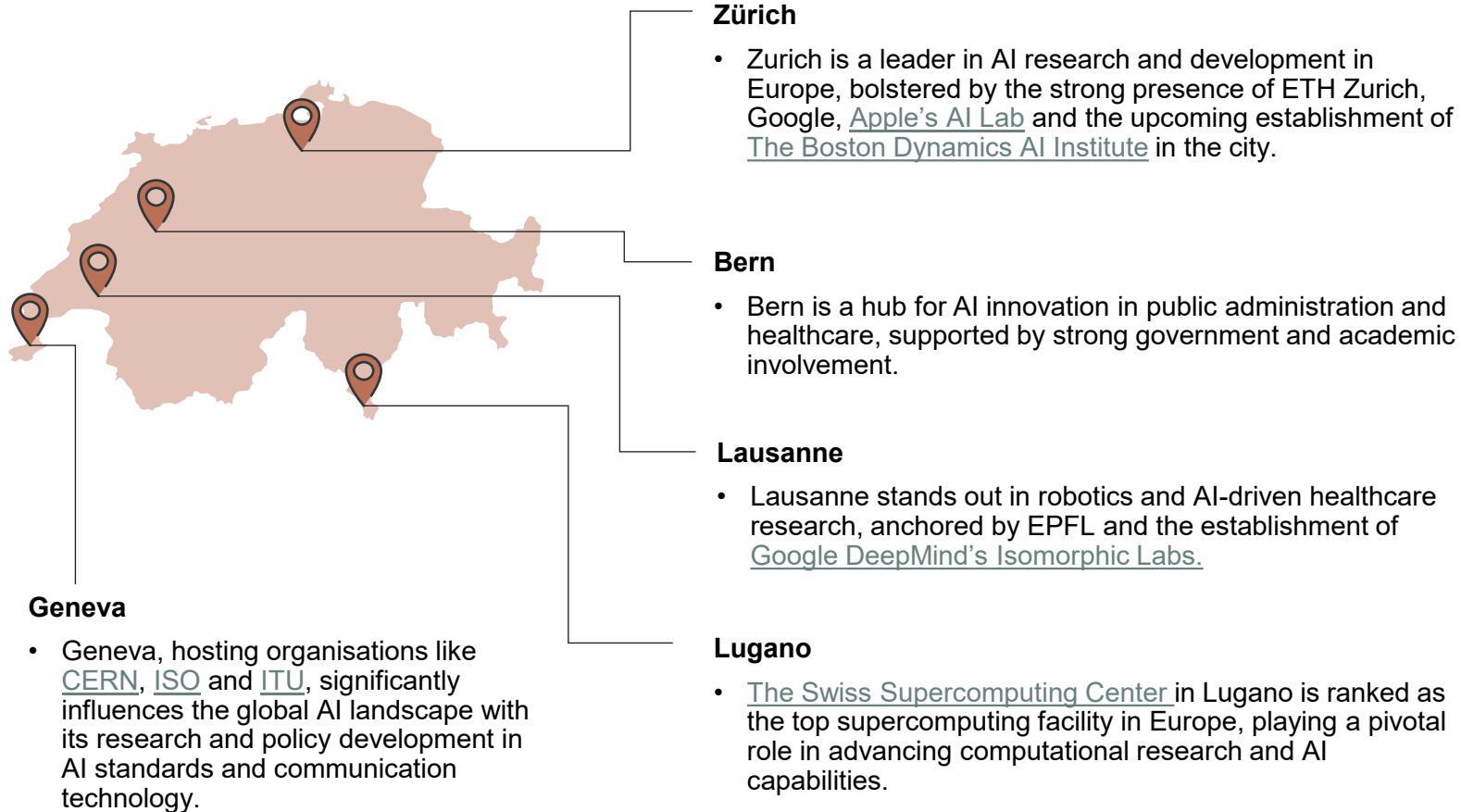
- Switzerland has large finance and pharmaceutical sectors with a strong presence of multinational companies. Switzerland also leads on AI-related R&D and innovation (see page 25 and 49). This points to a possibility of faster adoption and larger economic potential than in other developed European markets.
- If Switzerland achieves widespread adoption of generative AI, we estimate an annual GDP potential of CHF 80-85 billion in the peak year, which could be as early as ten years from now.
- The dominant impact of generative AI is a productivity boost to the majority of workers (66%) by augmenting their capabilities, quality and efficiency, which is estimated at CHF 65-68 billion for Switzerland.
- The estimate includes impacts of re-employment of a small share of workers (8%), where generative AI is freeing up a significant share of work for other tasks. This is estimated at CHF 19-21 billion in Switzerland.
- The estimate accounts for the possible productivity loss from re-employment, reducing the impact by CHF 4 billion.
- Generative AI is so powerful that Switzerland's future economic growth could exceed current long-term GDP forecasts, and leading banks are raising growth forecasts from as early as 2028.

Note: The estimate assumes widespread adoption of generative AI over a ten-year period. There is a lot of uncertainty around the capability and adoption timeline of generative AI. The size of the productivity boost depends on the difficulty level of tasks that generative AI will be able to complete and the number of jobs it can automate. GDP is in 2022 levels. The average number of work activities that can potentially be performed by generative AI across all types of tasks for both complemented and highly exposed workers corresponds to 20-30%. Our estimate is the isolated potential of generative AI around ten years from now when the impact is assumed to peak in the widespread adoption scenario (see next page). The estimated boost from generative AI may not be fully additive to GDP trends, as the GDP forecast already assumes a growth contribution from new technologies and generative AI may substitute some of that. Also, the boost from generative AI may be partially offset by an underlying growth slowdown.  
Source: Implement Economics based on Eurostat, O\*Net, Briggs and Kodhani (2023a), BNP Paribas (2023), and Dell'Acqua et al. (2023).



# The AI landscape in Switzerland is characterised by several prominent AI innovation hubs

Swiss innovation hubs are characterised by public, private and academic corporations and a strong sectoral focus.

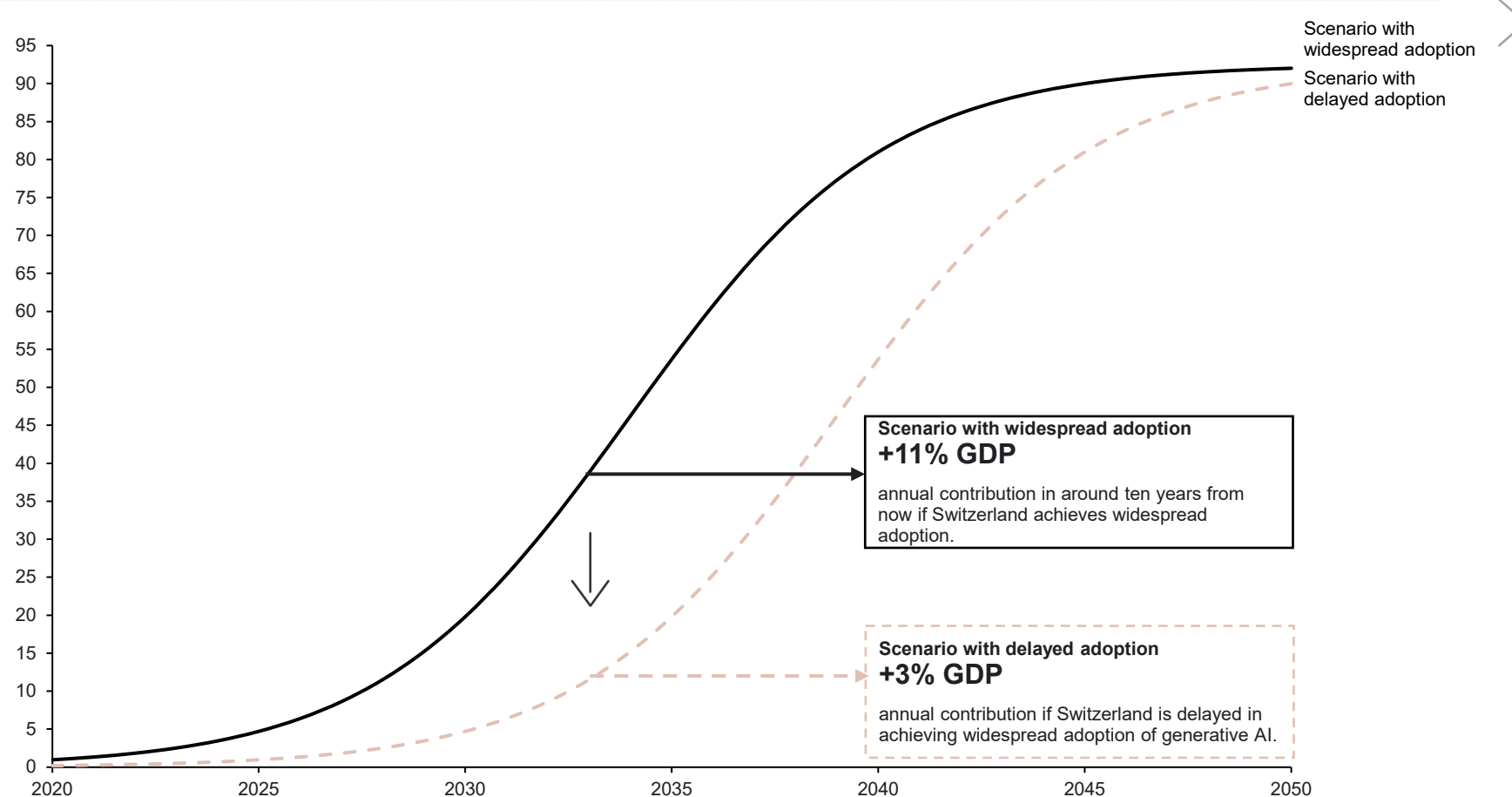


- Switzerland is benefitting from an innovation-friendly regulatory environment and has been ranked #1 in the [Global Innovation Index](#) for 13 consecutive years.
- Switzerland leads in AI research and development in Europe with the highest number of AI companies per capita. It also hosts two of the world's leading supercomputers at the Swiss National Supercomputing Center (CSCS), positioning it as a frontrunner in Europe for large language model research.
- Furthermore, Switzerland's finance and pharmaceutical sectors, known for their global competitiveness, are poised to adopt AI swiftly, accelerating the country's AI benefits relative to other European nations.
- To stay ahead in the global arena, Switzerland must continue its efforts in AI innovation, leveraging its robust infrastructure and innovation ecosystem to unlock the full potential of AI.

# A five-year delay in the adoption of generative AI could reduce Switzerland's potential GDP gains from 11% to 3%

## Adoption of generative AI

%



- Generative AI is a new general-purpose technology and will take time to adopt.
- Our estimate of Switzerland's GDP potential from generative AI is reliant on the widespread adoption and development of the new AI technology within the next ten years.
- Based on research from Goldman Sachs, it is expected that advanced economies in Europe will reach widespread adoption around two years later than the US.
- The estimates in this report assume that Switzerland is able to adopt generative AI slightly faster than the other advanced economies in Europe, although not as fast as in the US.
- A five-year delay in capturing the benefits of generative AI is estimated to reduce the annual potential at peak from 11% (CHF 80-85 billion) to only 3% (CHF 20-25 billion) of GDP.
- Switzerland can increase the welfare and GDP contribution from generative AI by ensuring that policies are in place to capture the benefits as assumed in the widespread adoption scenario.

Note: GDP figures are expressed in 2022 levels. The figure shows generative AI adoption as a share of economywide companies exposed to AI automation. The estimate is made for a ten-year adoption period to align with the time horizon for widespread adoption by the most advanced countries apart from the US. The "widespread adoption" scenario assumes adoption slightly ahead of "other developed markets" in Briggs and Kodnani (2023b). This assumption is based on the fact that Switzerland's economy is largely made up of the finance and pharmaceutical industries, two internationalised and competitive industries, thus precipitating an even faster adoption period than other developed European markets. Source: Implement Economics based on Eurostat, O\*Net and Briggs and Kodnani (2023a&b).



# 03

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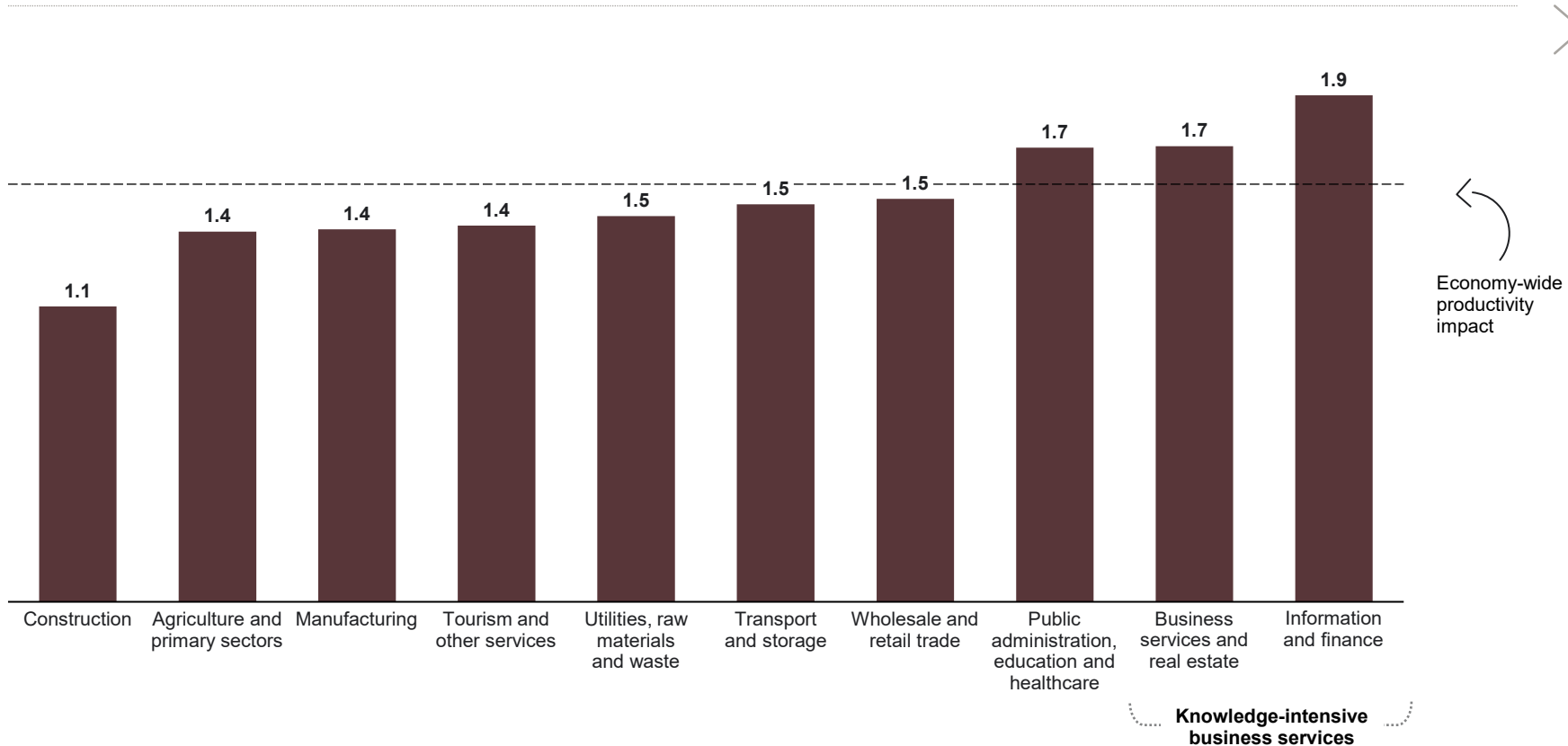
## Key sectors benefitting from AI

Some sectors are expected to gain more from generative AI, mostly owing to the types of tasks performed.

# AI can boost productivity across all sectors

## Productivity boost from generative AI

Percentage points productivity growth p.a. at peak



- The complementary role of generative AI is prevalent in most industries, meaning that most occupations are projected to work together with generative AI, using AI to augment human capabilities, thereby boosting productivity.
- In contrast to past automation, such as robots, generative AI can boost productivity in services.
- In the service sector, productivity increases can be achieved when humans are assisted by generative AI. This can help create content and is estimated to free up time for other valuable tasks. Lawyers can be assisted in reviewing and summarising long documents and in drafting basic documents. Some journalists even use AI to suggest headlines.
- The largest productivity boost occurs in information and finance, business services and the public sector. However, the overall potential also depends on the size of the sectors as shown on the next page.
- Displacement mainly occurs where administrative and repetitive knowledge-based tasks make up a large part of the work activities.
- The economy-wide peak productivity effect of generative AI in Switzerland is estimated to be equivalent to 1.6% annually, the highest in Europe according to Goldman Sachs estimates.

Note: Sectors are aggregated according to NACE categorisation. "Information and finance" is a combination of information, communication, financial and insurance activities. "Tourism and other services" comprises accommodation, food and other services. Labour productivity gains are mapped one to one to GDP if total employment (as here) is assumed constant and the capital stock increases to match productivity improvements. The estimates take into account that the growth impact of generative AI may not be fully additive to the current GDP trend. First, AI-related gains may substitute for growth that would otherwise occur in a non-AI baseline. Second, underlying productivity growth has slowed over the past decades. The estimated boost from generative AI may be partially offset by an underlying growth slowdown.

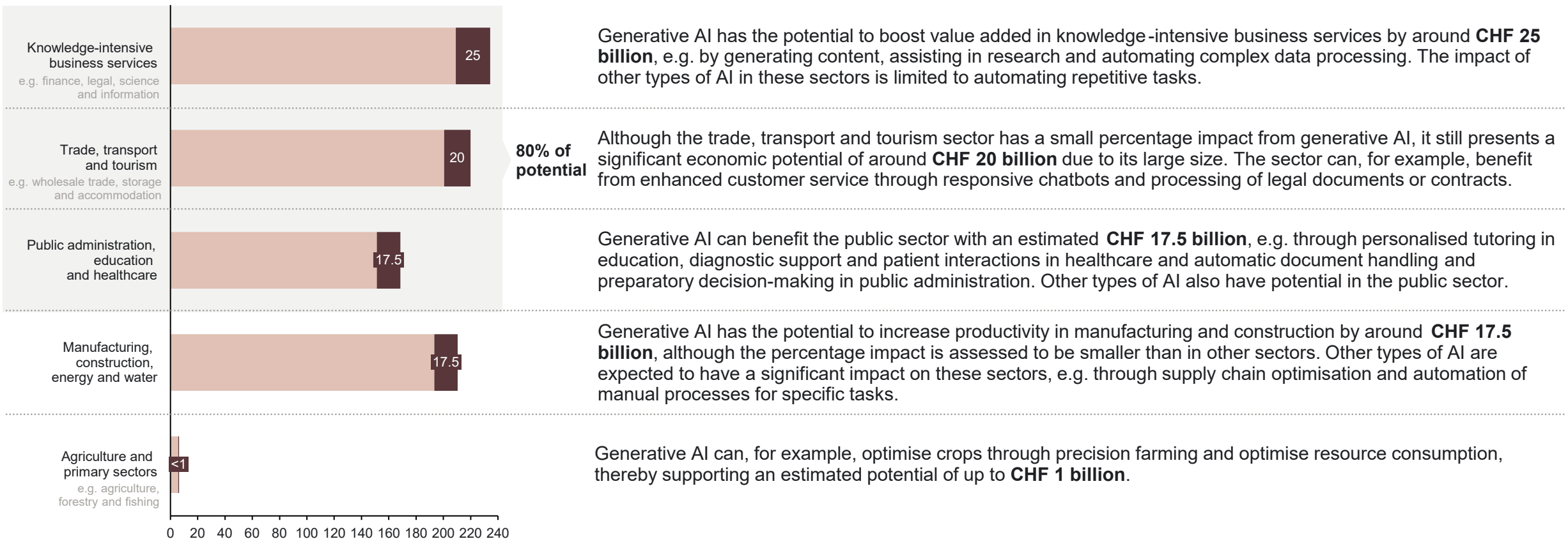
Source: Implement Economics based on Eurostat, O\*Net and Briggs and Kodnani (2023a).

# Around 80% of generative AI's economic potential lies in service sectors, while manufacturing and other sectors can also benefit from other types of AI

## Gross value added (GVA) by sector

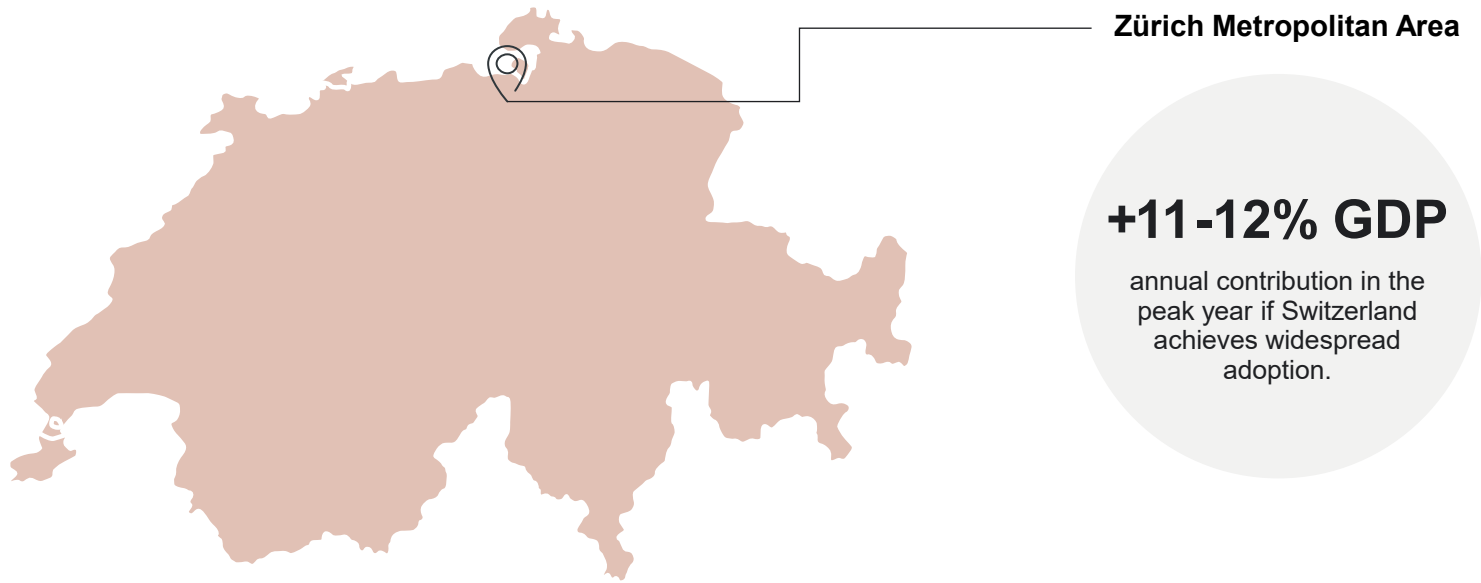
CHF billion

■ Gross value added in 2022 ■ GVA contribution from generative AI in ten years



Note: Sectors are aggregated as follows: "Knowledge-intensive business services": NACE sectors J-M. "Public administration, education and healthcare": NACE sectors O-R, U. "Trade, transport and tourism": NACE sectors G-I, N, S-T. "Manufacturing, construction, energy and water": NACE sectors C-F. "Agriculture and primary sectors": NACE sectors A-B. The contributions from generative AI shown are based on sectoral gross value added and are scaled to reflect the total GDP increase in 2022 levels from generative AI. Source: Implement Economics based on Eurostat, O\*Net and Briggs and Kodnani (2023a).

# Generative AI has the potential to boost value added in Zürich by 11-12%, driven in part by a large financial sector



- Generative AI holds large potential in knowledge-intensive services, including finance and information. These sectors are especially present in the Zürich Metropolitan Area (see also page 40).
- The economic potential of generative AI in Zürich, the financial hub of Switzerland, is thus expectedly higher than in the rest of Switzerland.
- Generative AI is estimated to boost value added in Zürich by 11-12%, equivalent to CHF 18-20 billion.
- The economic potential of generative AI in Zürich hence makes up 20-25% of the economy-wide potential.

## GDP potential of generative AI in Switzerland

CHF billion annual increase from baseline GDP after a ten-year adoption period



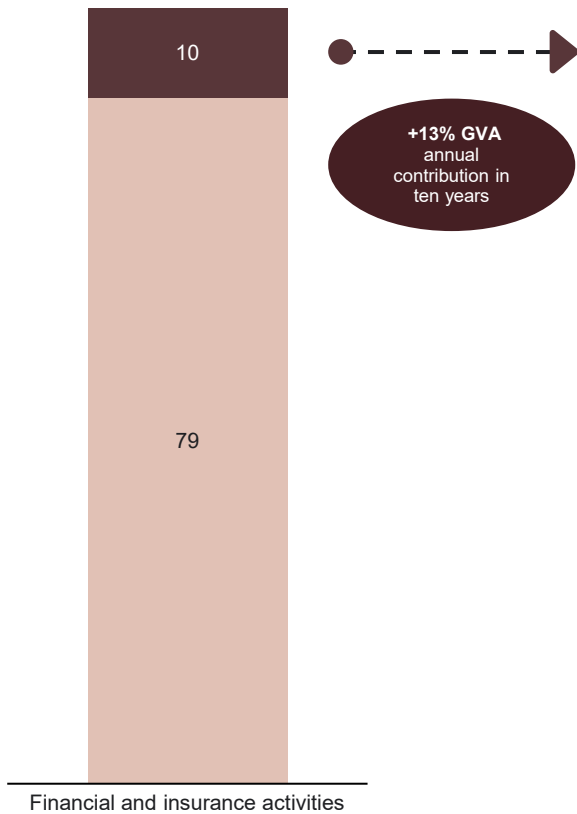
Note: The economic estimates for Zürich are made assuming constant withinsector absolute productivity between economy-wide and Zürich-based workers. Source: Implement Economics based on Eurostat, O\*Net and Briggs and Kodnani (2023a).

# Generative AI can increase value generation from the large financial and insurance sector in Switzerland

## Value added in finance and insurance

CHF billion

- Gross value added in 2022
- GVA contribution from generative AI in ten years



### How generative AI can help the **financial and insurance sector ...**

### ... and contribute to the economic impact

#### Enhanced risk assessment

- Predictive risk modelling
- Regulatory compliance
- Fraud detection and prevention

Reduced financial losses, improved capital efficiency, increased system stability and fewer regulatory penalties.

#### Automation and efficiency

- Process automation
- Enhanced decision-making
- Cost reductions

Higher efficiency and productivity, lower operational costs and improved profit margins.

#### Personalised customer services

- Personalised financial advice
- Customer interactions and support

Higher customer retention rates, reduced service costs and promotion of Switzerland as a financial innovation hub.

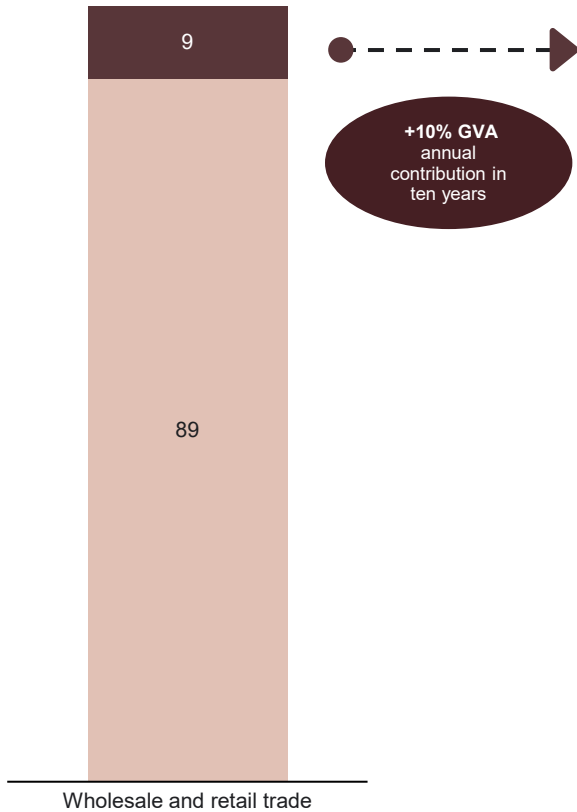
- Finance and insurance is one of the largest sectors in Switzerland, constituting 11% of gross value added in 2022.
- The economic potential of generative AI in the finance and insurance sector is estimated to be CHF 10 billion in ten years.
- With an estimated 2.0% productivity growth boost in the peak year, the sector is expected to benefit greatly from generative AI. This growth is higher than in other sectors due to the prevalence of knowledge-based work in finance and insurance, where generative AI is especially potent.
- By employing generative AI, the sector can reduce financial risks by enhancing predictive modelling and improving compliance with regulations, which contributes to better financial stability and efficiency.
- Automation driven by generative AI can also boost operational efficiency, leading to lower operational costs and higher productivity through streamlined processes and enhanced decision-making capabilities.
- Furthermore, personalised customer services via generative AI can improve customer satisfaction and retention, reducing service costs, and position Switzerland as a leader in financial innovation and customer care.

# The large wholesale and retail trade sector in Switzerland can leverage generative AI to improve customer engagement and operational efficiency

## Value added in wholesale and retail trade

CHF billion

- Gross value added in 2022
- GVA contribution from generative AI in ten years



### How generative AI can help the wholesale and retail trade sector ...

#### Personalised product discovery

- Predictive product recommendations
- Behavioural analysis and purchase history
- Personalised product descriptions

### ... and contribute to the economic impact

Higher customer satisfaction through improved personalisation and relevance, increased conversion rates and e-commerce sales.

#### Enhanced operational efficiency

- Supply chain optimisation
- Demand forecasting
- Process and warehouse management automation

Reduced operational costs and improved supply chain stability, leading to higher profit margins and optimised inventory levels.

#### Innovative customer engagement

- Virtual shopping assistants
- AI-generated content marketing

Lower support costs, more effective campaigns and higher brand awareness.

- Wholesale and retail trade is one of the largest sectors in Switzerland, constituting 12% of gross value added in 2022.
- The economic potential of generative AI in the wholesale and retail trade sector is estimated to be CHF 9 billion in ten years.
- At its peak, the productivity effect of generative AI in the wholesale and retail sector is estimated to be 1.5% annually.
- Utilising generative AI can enhance customer satisfaction and loyalty through personalised recommendations and product descriptions, leading to increased conversion rates and e-commerce sales.
- Generative AI can also help the sector to streamline supply chain processes and warehouse management, reducing operational costs and improving profit margins.
- Additionally, innovative customer engagement tools, such as virtual shopping assistants and AI-generated marketing, can help lower support costs while boosting brand awareness through targeted, effective campaigns.



# 04

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## Job implications of AI

Generative AI will introduce job changes in Switzerland – the nature and degree of which depend on economic and demographic factors.



# Generative AI augments most jobs

## Share of jobs exposed to automation by generative AI

% of total employment in Switzerland

5.3 million jobs

No automation

26%

~ **1.4 million jobs** are unlikely to be exposed to automation

An estimated 26% of jobs in Switzerland are likely to remain largely unaffected by generative AI. These jobs include manual labour, outdoor tasks, such as construction and cleaning, and human-to-human tasks, such as personal care and food services.

~ **3.5 million jobs** are likely to be augmented by generative AI

Most jobs (66%) are expected to be assisted by generative AI by automating a limited share of their tasks and helping to create content (text, code and images), collaborating with workers on complex problems and contributing to product design. These jobs include professional services, such as legal and consulting, but also teachers and healthcare workers.

Unlike previous waves of automation that mainly impacted manual workers, generative AI is expected to primarily affect office-based professionals.

~ **0.4 million jobs** are likely to be fully or partially displaced

A small share of jobs (8%) are expected to have over half of their work activities exposed to automation by generative AI, e. g. in occupations such as clerical support workers, contact centre salespersons and translators. These workers are likely to see their jobs fundamentally change and may need to be re-employed in new occupations.

AI as a complement

66%

Partial or full displacement

8%

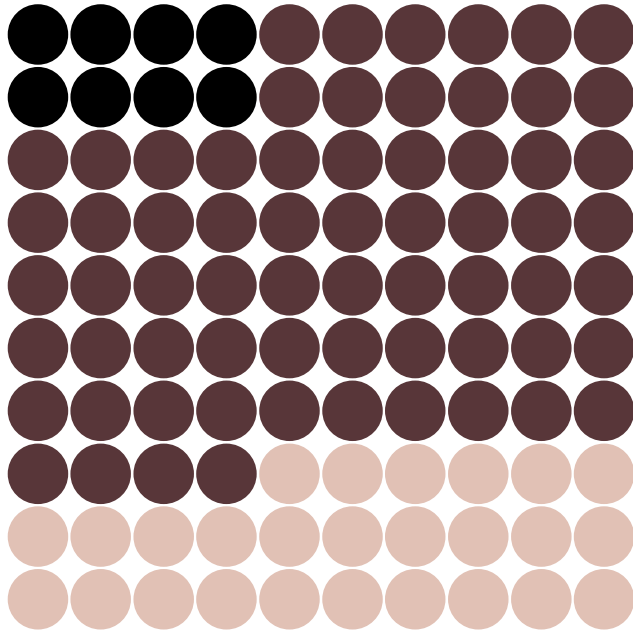
# The AI-powered economy is expected to create new jobs and ensure full re-employment of potentially displaced workers

## Share of jobs exposed to automation by generative AI

% of total employment in Switzerland

● Partial or full displacement ● AI as a complement ● No automation

**8% of Swiss jobs are estimated to be highly exposed to generative AI, leading to some job closures.**



**At the same time, 66% of jobs will see a boost in productivity. This will create new jobs due to:**

- I Increase in general demand for goods and services  
With higher GDP growth, the AI-powered economy will demand more labour across a wide range of occupations and skill levels.
- II Creation of new AI-related tasks  
Widespread use of AI will also create new jobs such as AI prompt engineers, AI content creators and data trainers – and create jobs we cannot preconceive.
- III Demand within occupation  
Generative AI will also make highly exposed occupations, such as translators, more efficient, and hence cheaper, which in turn can increase the demand for those occupations.

**Even with accelerated and broad adoption of generative AI over a ten-year period, only around 25,000-40,000 people in highly exposed jobs are estimated to need re-employment per year, which is low compared to historical levels of job changes (see page 38).**



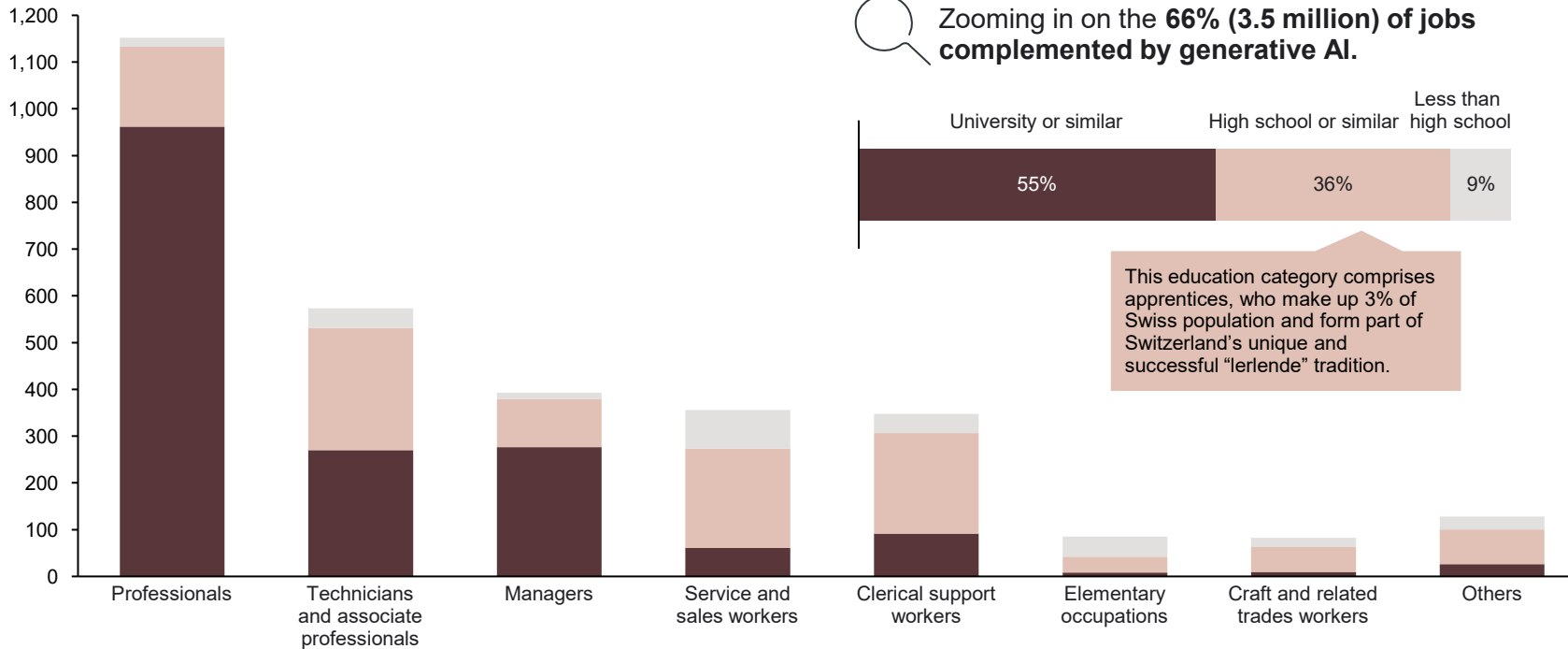
- The job development in Switzerland over the next decades will depend on a range of factors.
- The isolated impact of generative AI depends on the speed of adoption and the size of the productivity boost relative to the size of the displacement effect for those jobs that are highly exposed to generative AI.
- This report assumes full re-employment of displaced workers over a ten-year period. This means no net change in total employment or unemployment.
- This assumption builds on the large size of the productivity boost compared to the relatively small share of displaced jobs. This suggests that the demand for new jobs will be sufficiently strong to create jobs for those exposed.
- Furthermore, economic theory suggests that long-term employment is determined by the labour supply and skill mix of the workforce.
- The short-term job impacts will depend, among other things, on the flexibility of the labour market as well as re-training and skilling opportunities for workers.

# 3.5 million jobs are expected to be complemented by AI – mainly highly educated professionals and technicians

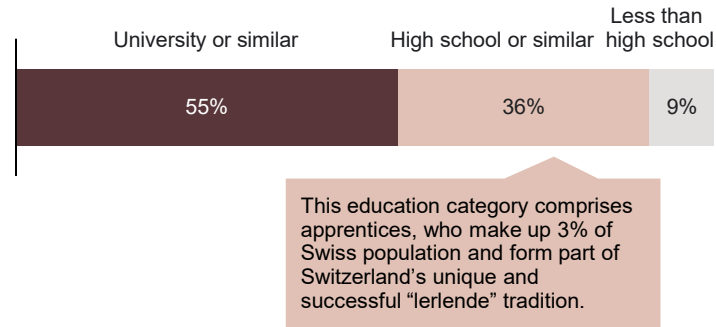
## Jobs complemented by generative AI

Thousand jobs

■ University or similar
 ■ High school or similar
 ■ Less than high school



Zooming in on the **66% (3.5 million) of jobs complemented by generative AI.**



This education category comprises apprentices, who make up 3% of Swiss population and form part of Switzerland's unique and successful "Ierlende" tradition.

Examples of jobs include:	Professionals	Technicians and associate professionals	Managers	Service and sales workers	Clerical support workers	Elementary occupations	Craft and related trades workers	Others
	Research, analysis and advising services (including legal)	Engineering technicians, robot controllers and air traffic safety technicians	Executives and supply and general managers	Caterers, housekeepers and travel agents	Secretaries, record keepers and information suppliers	Cleaners, washers and delivery	Train drivers and machinery operators	Police services and farmers

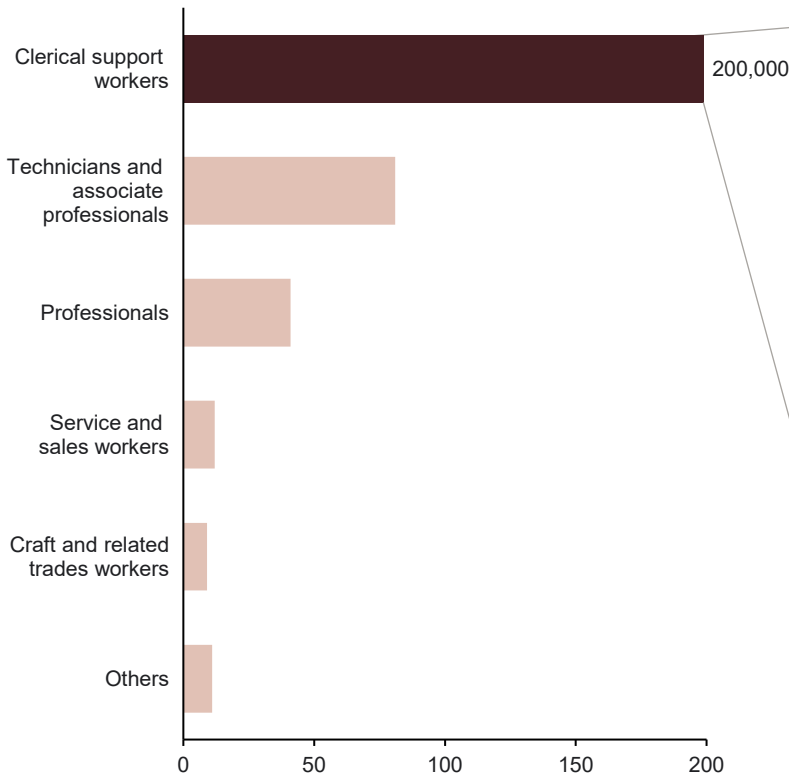
- Generative AI is estimated to augment the capabilities of around 3.5 million jobs in Switzerland at full adoption and around half of these over a ten-year period.
- Of the complemented workers, 55% are estimated to hold higher educational attainment, such as lawyers, scientists and engineers.
- Generative AI can perform complex cognitive tasks and complement human abilities, creating opportunities for individuals to work with generative AI to create new content and free up time for other tasks.
- Unlike previous waves of automation, generative AI is less relevant in jobs carried out by those with lower levels of educational attainment.

Note: Based on Q3 2023 employment data. Data shown in the graph reflects data from the Swiss Labour Force Survey, which does not comprise cross-border workers. Source: Implement Economics based on Eurostat, Federal Statistical Office, O\*Net and Briggs and Kodhani (2023).

# Around 0.4 million Swiss jobs are highly exposed to generative AI, but the AI-powered economy will help create new jobs

## Jobs highly exposed to generative AI

Thousand jobs



Highly exposed jobs in total ~ 400,000

### Example: Swiss clerical support workers and job transition

Of the 200,000 highly exposed clerical support workers, only around half are assumed to be affected by generative AI over ten years, and all of these are assumed to be employed either outside or within the occupation.

Most are expected to be re-employed in other occupations due to:

- I Increase in general demand for goods and services** due to increased income in the AI-powered economy leading to job opportunities in other sectors.
- II New types of AI-related tasks created** arising from the introduction of generative AI such as AI prompt engineers, AI-assisted creative professionals and AI application specialists,

A smaller share is expected to be employed *within* occupation because:

- III Not all highly exposed workers will be displaced**. Some will continue to hold employment with new tasks replacing the exposed tasks.
- Increased demand within occupation** due to the increase in productivity and lower costs.

The proportion of employment within occupations and in new occupations is uncertain.



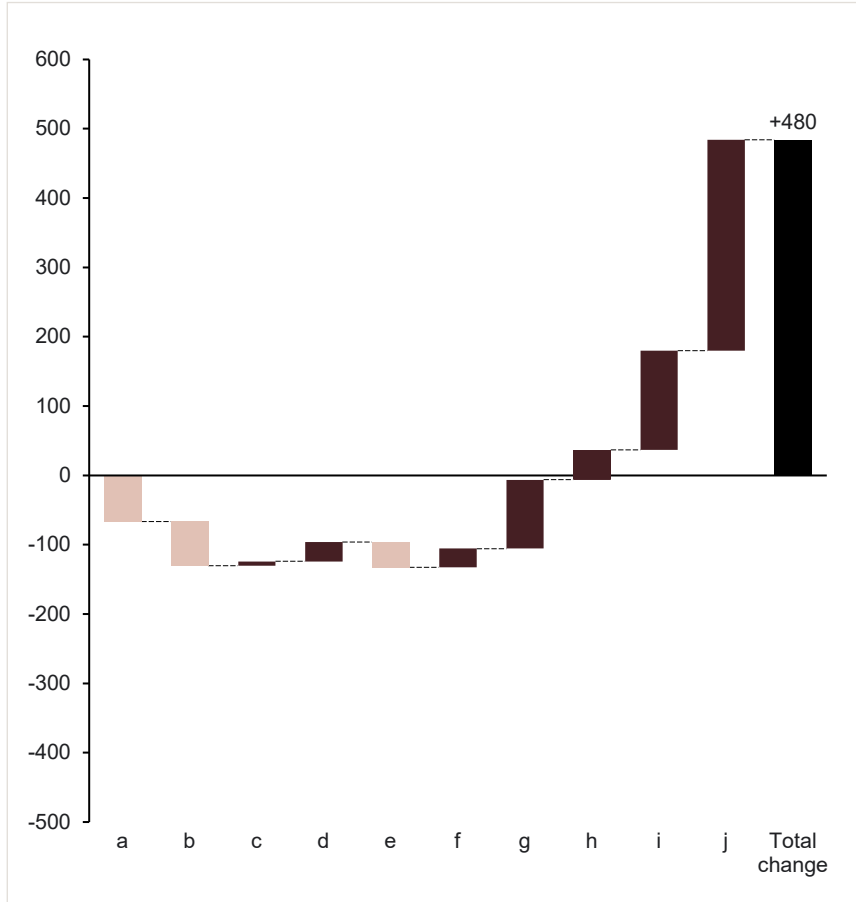
- Around 400,000 jobs in Switzerland are estimated to be highly exposed to generative AI at full adoption and around half of these are expected to be affected over a ten-year period.
- This report assumes full re-employment of displaced workers. This means no net change in total employment or unemployment.
- The Swiss economy is thus assumed to be able to sustain at least the current level of employment in the coming 10-15 years.
- Clerical support workers, technicians and service and sales workers are highly exposed to generative AI and their jobs are expected to see significant change.
- The transition is likely to be gradual, allowing workers time to adapt to new tasks and skills.
- Through three channels, the AI-powered economy will gradually lead to new jobs and support employment within the occupation or re-employment in other sectors.
- Historically, worker displacement from automation has been offset by the creation of new jobs, and the emergence of new occupations following technological innovations accounts for the vast majority of long-run employment growth.

Note: Based on Q3 2023 employment data. High exposure to AI does not automatically imply full displacement of all workers in that occupation. In the GDP estimates, we conservatively assume low automation to avoid overestimating GDP impacts. In the job exposure and potential displacement assessment, we show the full size of the potential displacement to avoid underestimating the job implications. The size of each re-employment channel is uncertain and depends on how the technology is adopted and the interplay between increased efficiency and how unmet demand translates into increased or decreased employment in various occupations. Data shown in the graph reflects data from the Swiss Labour Force Survey, which does not comprise cross-border workers. Source: Implement Economics based on Eurostat, Federal Statistical Office, O\*Net and Briggs and Kodhani (2023a).

# Job changes from generative AI are small compared to historical levels

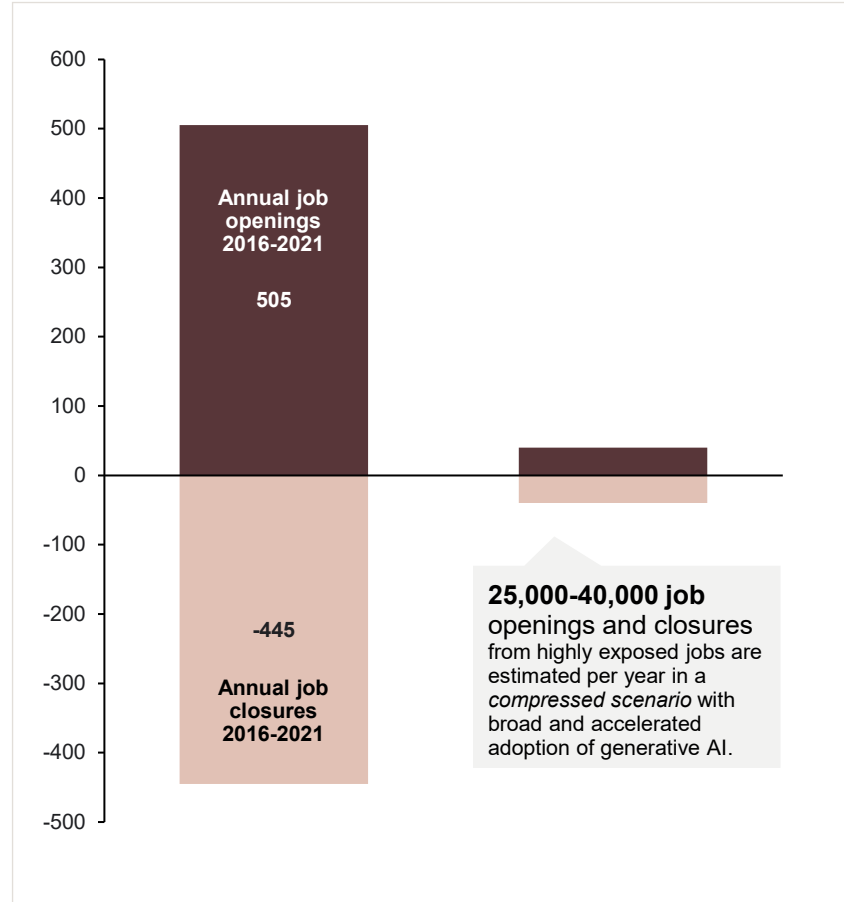
**Change in employment across Swiss sectors, 2008-2022**

Thousand jobs



**Job openings and closures in Switzerland**

Thousand jobs



- The Swiss economy has added around 480,000 jobs over the last 15 years. A few sectors, such as agriculture and manufacturing, have contracted, while most other sectors have added significant amounts of new jobs, e.g. tourism, business services and the public sector.
- In addition, numerous new jobs are being created and closed each year *within* each sector to adapt to changing needs and demands.
- Historically, the Swiss economy has created around 505,000 new jobs and closed 445,000 jobs on average each year.
- We estimate that the jobs that are highly exposed to generative AI can lead to 25,000-40,000 annual job openings and closures over the coming ten years. This corresponds to only 5-8% of the historical average number of job changes in Switzerland.
- The labour market effects stemming from generative AI's impact on highly exposed jobs are thus small compared to historical levels of job changes.
- To avoid underestimating the possible job impacts of generative AI, these estimates are in a *compressed scenario* with broader and more accelerated adoption of generative AI than in our estimates of the GDP impacts.

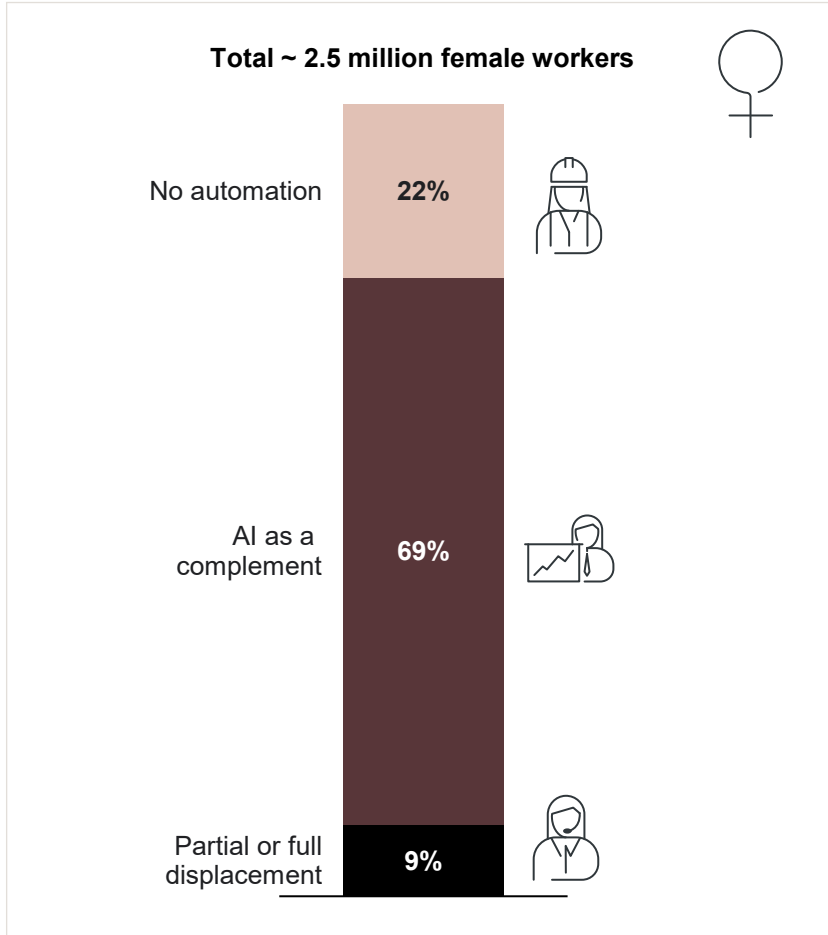
Note: a. Agriculture and primary sectors; b. Manufacturing; c. Utilities, raw materials and waste; d. Construction; e. Wholesale and retail trade; f. Transport and storage; g. Tourism and other services; h. Information and finance; i. Business services and real estate; j. Public administration, education and healthcare. Our GDP estimate makes conservative assumptions around the scope of tasks for generative AI and the speed of adoption as in the base scenario in Briggs-Kodnani (2023a). The *compressed scenario* used to gauge the potential job market implications assumes faster adoption (full adoption over ten years) and/or more broad application of generative AI (as in the Briggs-Kodnani scenario with "more labour displacement"). The historical average number of job openings and closures in Switzerland is based on data from 2016-2021.

Source: Implement Economics based on Eurostat and Swiss Federal Statistics Office.

# Women in Switzerland hold jobs that are more exposed to augmentation and automation by generative AI than those held by men

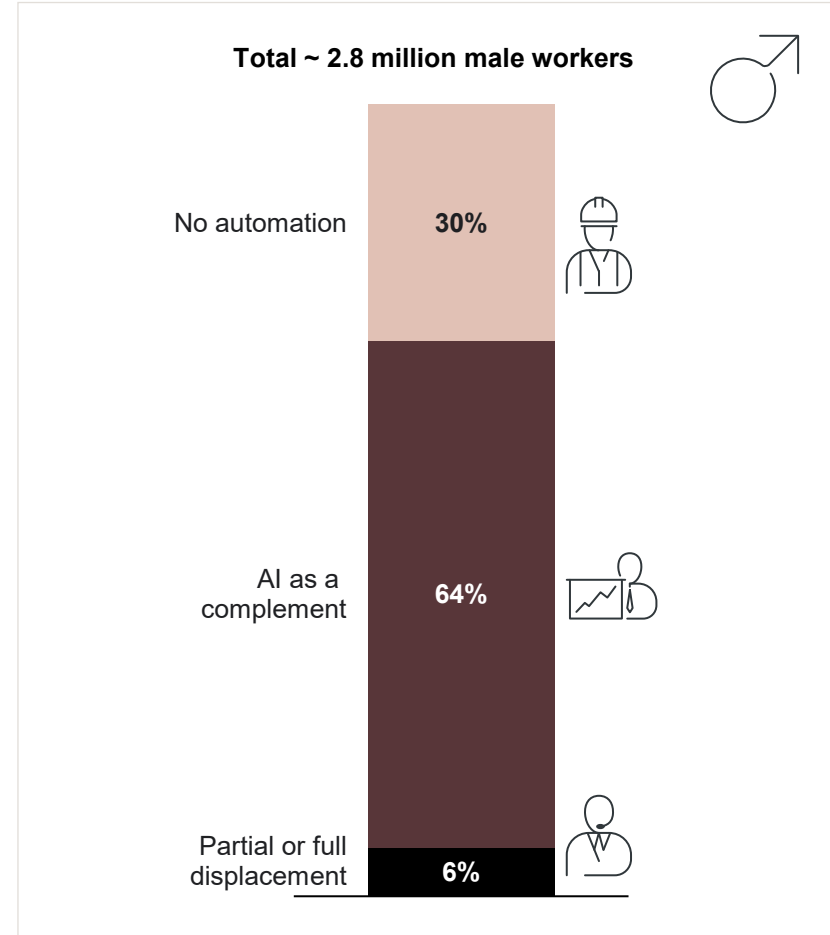
## Share of jobs held by women exposed to automation by generative AI

% of total employment among female workers



## Share of jobs held by men exposed to automation by generative AI

% of total employment among male workers



### No automation

- 22% of female workers and 30% of male Swiss workers are in jobs with limited exposure to generative AI. These are, for example, manual, outdoor and human-to-human jobs.

### Complemented jobs

- 69% of female workers are expected to see generative AI complement their current job, whereas the share is 64% for male workers. Female workers are, to a higher degree than men, employed in jobs such as teachers and lawyers, where generative AI is expected to augment human capabilities and make workers more productive.

### Potentially displaced jobs

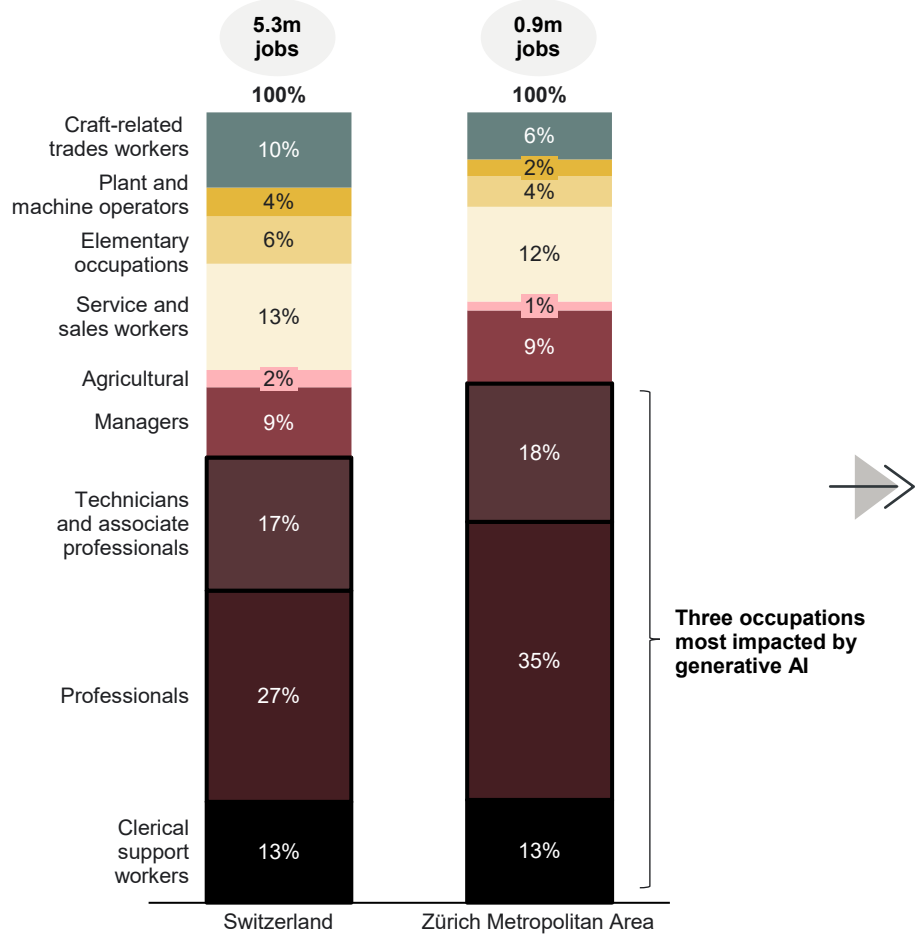
- 9% of female workers and 6% of male workers in Switzerland are currently in jobs such as clerical work, call centre workers and technicians that are likely to be highly exposed to automation by generative AI and hence more at risk of seeing their current job being fully or partially displaced by the new technology.

Note: Based on Q3 2023 employment data. In accordance with Briggs and Kodnani (2023), "No automation" are occupations with less than 10% exposure, "AI as a complement" are occupations with 10-49% exposure, "Partial or full displacement" are occupations with exposure of or above 50%. Note that percentages and absolute numbers are rounded.  
 Source: Implement Economics based on Eurostat, O\*Net and Briggs and Kodnani (2023).

# As the financial hub of Switzerland, Zürich has a large share of jobs in AI-exposed occupations

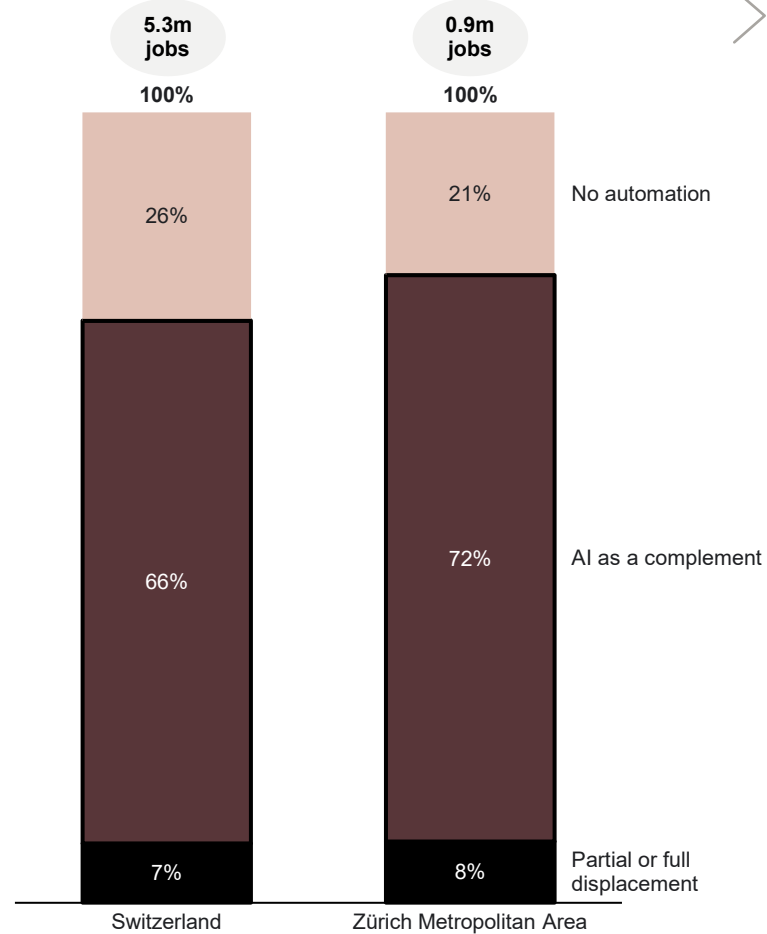
**Profession composition of the workforce**

% of total employment



**Share of jobs exposed to automation by generative AI**

% of total employment



- The automation potential of generative AI is particularly high in three professions: clerical support workers (e.g. secretaries), professionals (e.g. analysts and advisors) and technicians (e.g. engineer technicians).
- The labour force in Zürich has a higher share of jobs within these professions due to the prevalence of financial and professional services.
- Zürich has historically been a financial hub and is home to major Swiss banks and large insurance companies.
- Consequently, jobs in Zürich, including a large share of professionals (35% of employment compared to 27% in Switzerland), are more likely to be exposed to automation and augmentation by generative AI.
- A larger share of jobs in Zürich are estimated to be complemented by generative AI (72% relative to 66% in Switzerland), as well as partially or fully displaced (8% relative to 7%).

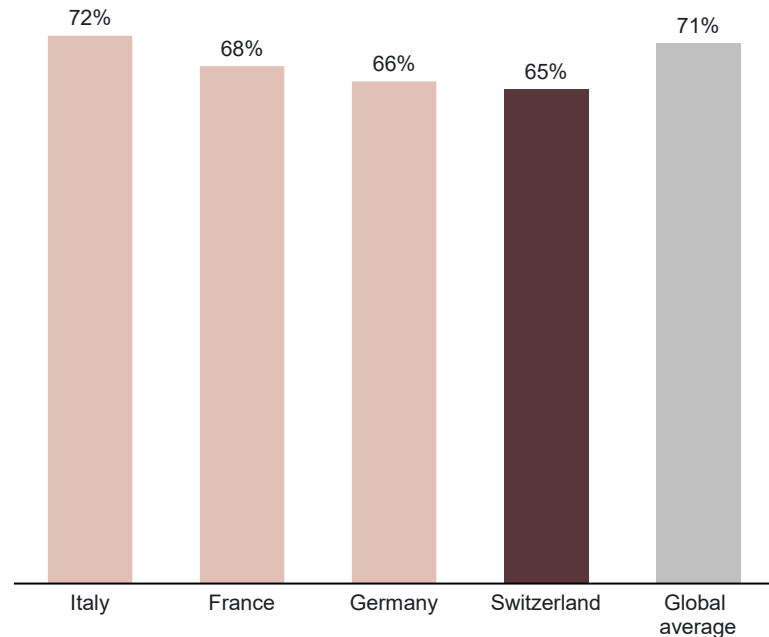


# Two-thirds of Swiss workers see productivity-enhancing effects of generative AI, and 44% feel more engaged at work

Swiss workers think that generative AI makes them more productive at work

### Generative AI makes me more productive at work

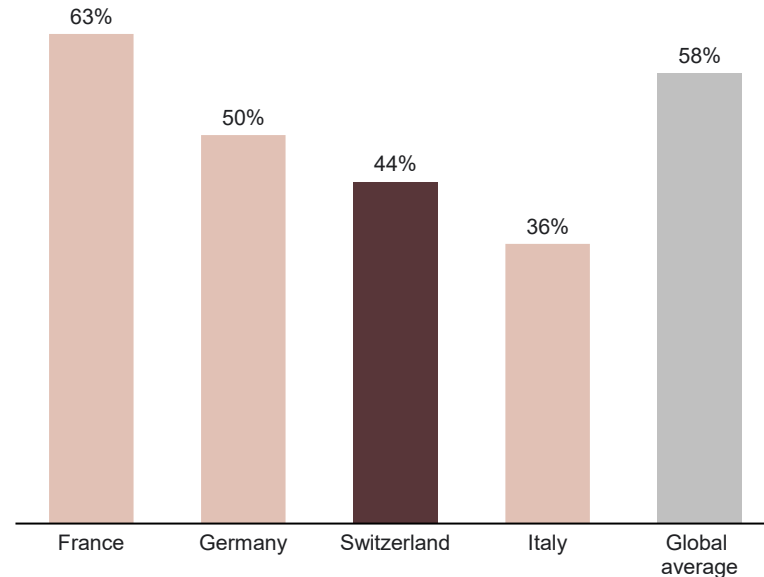
Workers who agree, %



Swiss workers become more engaged at work by using generative AI

### Generative AI makes me more engaged at work

Workers who agree, %



- A recent Salesforce [survey](#) reveals that 65% of Swiss workers believe that generative AI boosts their work productivity, for instance, by streamlining workflows, automating tasks and enhancing their skills.
- Swiss workers are generally slightly less positive about the productivity impacts of generative AI relative to other comparable European countries.
- The survey also shows that 44% of Swiss workers become more engaged at work by using generative AI. This engagement could potentially be attributed to the reduction in monotonous tasks, freeing employees to focus on more creative and complex aspects of their work.

Note: The Salesforce survey was conducted in Q3 2023 and included 14,000 FTEs representing companies of a variety of sizes and sectors in 14 countries, including the United States, the United Kingdom, Canada, France, Germany, Italy, the Netherlands, Switzerland, the Nordics, India, Japan, Brazil, Mexico and the United Arab Emirates.  
Source: Implement Economics based on Salesforce.

# Workers need a broad set of skills to effectively use generative AI, and there is a widespread need for reskilling

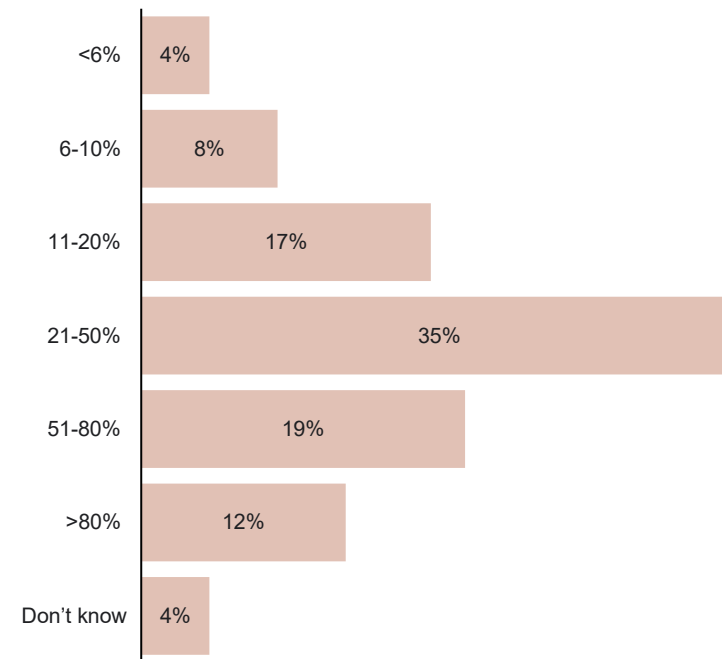
Multiple skills are needed to leverage generative AI ...

### Skill needs in the age of AI (incl. both generative and traditional) OECD

Skills ...	Type of skills	Examples
... for developing and maintaining AI systems.	Specialised AI skills	Machine learning capabilities and knowledge
	Data science skills	Data analysis and visualisation, cloud computing and programming
	Other cognitive skills	Create problem-solving
	Transversal skills	Social skills and management skills
... for adopting, using and interacting with AI applications.	Elementary AI knowledge	Principles of machine learning
	Digital skills	Ability to use computer/smartphone
	Other cognitive skills	Analytical skills, critical thinking and problem-solving
	Transversal skills	Creativity, communication, teamwork and multitasking

... and recent surveys indicate a need for reskilling of workers in Switzerland

What proportion of employees in your organisation will need to be reskilled as a result of AI adoption in the next three years?  
% of respondents



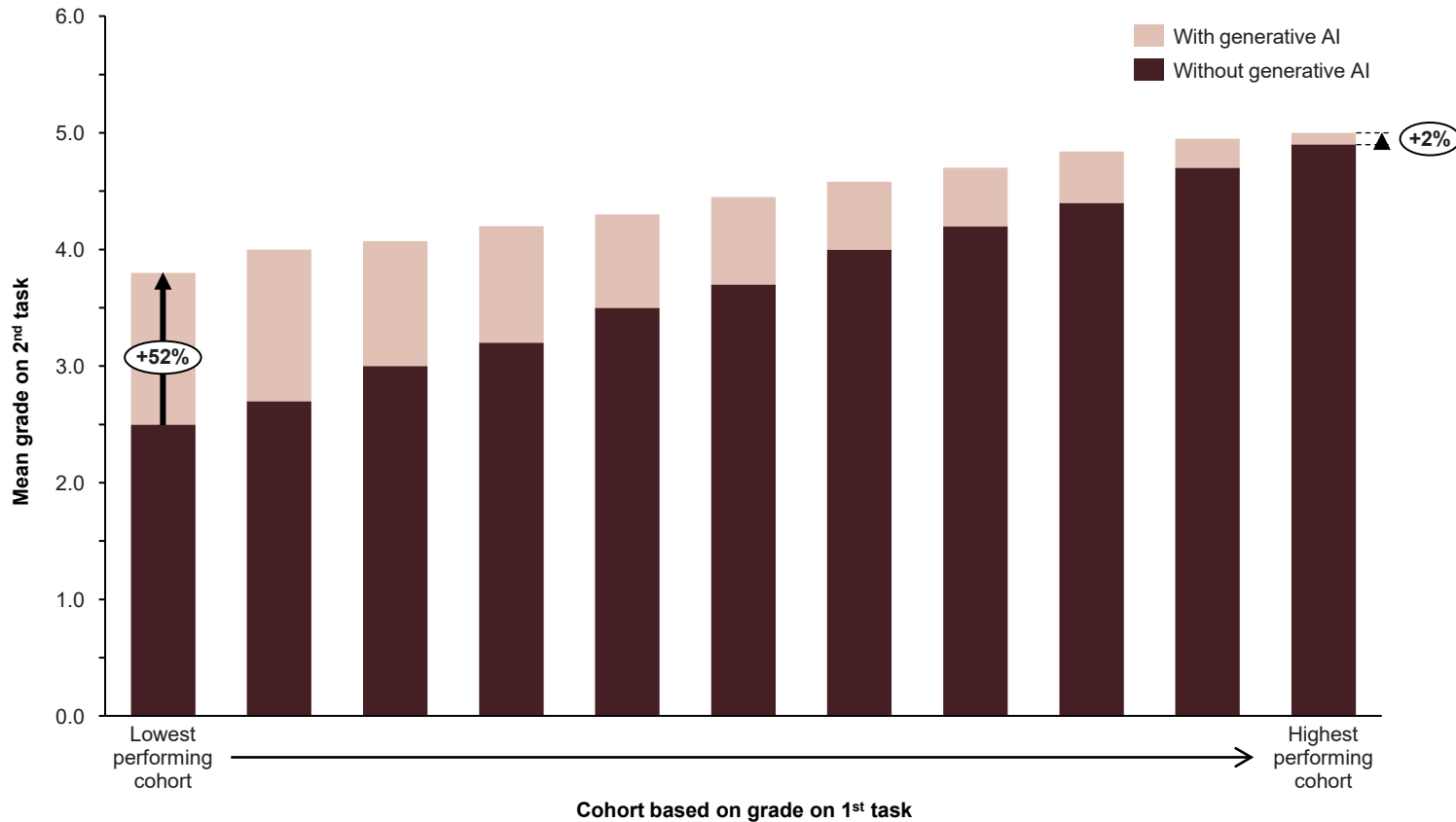
- Generative AI adoption and usage requires limited digital skills relative to earlier advancements in information and communication technology (ICT) due to its ease of use via normal language prompts.
- However, fully leveraging generative AI requires skills beyond basic digital skills, i.e. creative, managerial and analytical skills.
- According to a 2023 [survey](#) by IMD of Swiss organisations and employees, there is a widespread need for reskilling of workers in Switzerland. Around one-third of respondents believe that more than 50% of employees in their organisations will need to be reskilled as a result of AI adoption in the next three years.
- Another [survey](#) by Microsoft also finds that 79% of Swiss business leaders say that their employees will need new skills to be prepared for the growth of AI.
- OECD studies suggest that companies that provide ICT training for their employees on average have 3-5% higher growth in their annual labour productivity.
- The literature highlights that companies that combine technology/ICT adoption with employee training have higher implementation and financial success.

Note: The IMD survey was conducted in November 2023, and 72% of respondents were senior executives.  
Source: Implement Economics based on OECD, IMD, Microsoft, Mosiashvili and Pareliussen (2020), Borowiecki et al. (2021), Gal et al. (2019), Andrews et al. (2016), Jiang et al. (2020) and Ouyang et al. (2022).

# Early studies suggest that generative AI can help close the skills gap for those with the lowest skill levels

## Grades with and without generative AI

Estimated mean grade on 2<sup>nd</sup> task



- AI requires a broad skill set to reap the benefits. However, AI as a tool can itself augment the performance of human skills.
- Furthermore, generative AI can help close the skills gap by increasing the performance of those with the lowest skill levels.
- An experimental study by Noy and Zhang (2023) tested candidates' writing skills with and without access to generative AI.
- The results showed that, on average, all candidates were able to boost their grades on a written task with the use of generative AI – in this case, a large language model.
- The AI augmentation effect was highest among those with the lowest performance on the first task.
- The lowest-performing group increased their average grade by more than 50% when allowed to interact with a large language model, whereas the best-performing group increased performance by 2%.
- This study is an early indication that generative AI has the potential to boost skills for everyone *and* reduce skill inequalities in the labour market.

Note: The graph shows mean estimates for cohorts.  
 Source: Implement Economics based on Noy and Zhang (2023), Brynjolfsson et al. (2023) and Dell'Acqua et al. (2023).

05

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# AI's impact on societal challenges

AI can help with some of Switzerland's most pressing societal challenges.

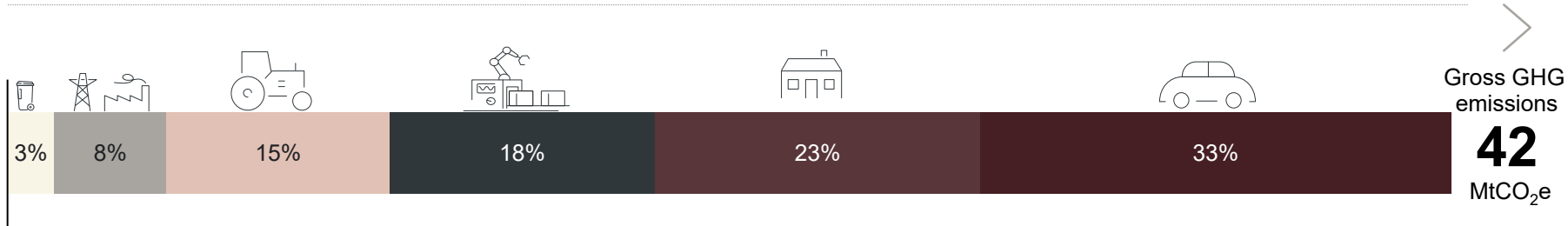


# AI can play a key role in addressing climate change



**46%** of Swiss citizens believe that AI will be key in addressing societal challenges such as climate change.  
**42%** of Swiss businesses are currently using AI and machine learning in order to achieve their sustainability goals.

**Switzerland's gross greenhouse gas emissions, 2022**  
 MtCO<sub>2</sub>e



Gross GHG emissions  
**42**  
 MtCO<sub>2</sub>e

## Decarbonisation initiatives enabled by AI and other digital technologies (non-exhaustive)

### Agriculture

- Efficiency improvements from precision farming
- Reduced food waste
- Changes in land use

### Manufacturing

- Smart factory with AI systems
- Efficiency improvements
- Electrification of lighter processes

### Buildings

- Smart buildings
- Transition to heat pumps
- Improved energy efficiency
- Sustainable building materials

### Domestic transport

- Electric cars, vans, buses and small trucks
- Efficient and eco-friendly driving
- Reduced travel by use of digital tools (working from home and video conferences)

- Artificial intelligence and other digital solutions are expected to play a key enabling role in reaching Switzerland's climate goals of net carbon neutrality by 2050.
- AI and other digital technologies can play a significant role in decarbonising the energy sector by supporting the transition to flexible energy utilisation and smart grids.
- Large gains also arise from facilitating the electrification of vehicles, where AI and other digital solutions are crucial to optimising the charging of electric vehicles, providing a cleaner and cheaper solution for consumers.
- In manufacturing, AI and other digital solutions can help optimise energy efficiencies as well as reduce overproduction by more accurately forecasting demand.
- Agricultural emissions can also be reduced by AI and other digital solutions, where machine learning algorithms allow precision farming practices that are more eco-friendly and reduce consumption of, for example, fertilisers.

Note: Data on net greenhouse gas emissions and removals sent by countries to UNFCCC and the EU Greenhouse Gas Monitoring Mechanism (EU Member States). This data set reflects the GHG inventory data for 2022 as reported under the United Nations Framework Convention for Climate Change. CRF inventory categories: Energy supply: CRF 1A1 (energy industries) + 1B (fugitives); Industry and manufacturing: CRF 1A2 (manufacturing industries and construction) + CRF 2 (industrial processes and product use); Domestic transport: CRF 1.A.3; Residential and commercial: CRF 1A4a (commercial) + CRF 1A4b (residential); Agriculture: CRF 1A4c (agriculture, forestry and fishing) + CRF 3 (agriculture); Waste: CRF 5 (waste); LULUCF: CRF 4 (LULUCF); Other combustion (CRF 1A5a + CRF 1A5b + CRF indirect CO<sub>2</sub>). \*Buildings\* include both commercial and residential buildings. Increased digitalisation via smart thermostats in individual homes and advanced AI-powered building management systems play an active role in saving energy and providing demand flexibility.  
 Source: Implement Economics based on EEA and AWS survey.

# AI can help optimise delivery of healthcare services and improve the treatment and prevention of diseases in Switzerland

Switzerland is among the European countries with the highest life expectancy and a low level of unmet medical needs. However, a growing elderly population, escalating healthcare costs and staff shortages pose challenges to the sustainability of the healthcare system.



## More hands are needed

- Although Switzerland is among the European countries with the highest number of nurses and doctors per 1,000 inhabitants, there are significant staff shortages in some regions, affecting access to healthcare.
- A scarcity of healthcare professionals leads to financial pressure on healthcare institutions and longer waiting times for patients.



## Better treatment and care is required

- An ageing population requires more healthcare services and specialised care.
- Growing living standards drive up societal expectations for healthcare services.
- Chronic diseases are becoming more challenging and rare diseases more common.

Switzerland ranks 6<sup>th</sup> globally when it comes to AI healthcare patents and is already utilising the technology.



### Robot-Assisted Surgery Systems from EPFL

- EPFL (École Polytechnique Fédérale de Lausanne) has contributed to advancements in robot-assisted surgery, where AI algorithms help surgeons perform precise and minimally invasive procedures.
- These robotic systems are designed to assist in complex surgeries, improving outcomes by enhancing the surgeon's accuracy and reducing recovery times for patients.

The [Digital Switzerland Strategy 2024](#) aims to promote the use of AI in healthcare by developing regulations that ensure AI technologies enhance patient care while upholding ethical standards, privacy and innovation.

Furthermore, the [aiHealthLab](#) in Muttenz and the [Center for Artificial Intelligence in Medicine \(CAIM\)](#) in Bern both aim to develop AI-based clinical decision support systems that enhance healthcare delivery across Swiss and European healthcare systems.



## AI can help free up and optimise critical resources by ...

- Automating tasks in healthcare administration, e.g. appointment scheduling.
- Recording and summarising appointment notes, referral information and care plans.
- Faster and more accurate screening and decisions by physicians.
- Enabling physicians to undertake remote consultations.



## AI can help improve how we treat patients by ...

- Analysing and enhancing medical images.
- Improving detection of complex and rare diseases with training data sets and smarter diagnostic tools.
- Predicting individual treatment responses by analysing different patient data.
- Enabling the development of targeted therapies.
- Tracking health issues and accidents through wearable devices and sensors.

AWS  
poll



58%

of Swiss citizens believe that AI will positively transform the healthcare industry in the next five years.



# 06

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## AI readiness in Switzerland

Switzerland's capacity to leverage the potential of AI can be evaluated based on several factors and compared to European and global frontrunners.

# In assessing Switzerland's AI readiness, we compare with neighbouring countries

- In assessing Switzerland's AI readiness, we can compare Switzerland to its neighbours – a comparable group of European countries.
- Big economies, such as the United States, have an advantage when it comes to scale, i.e. absolute AI capacity, including the amount of commercial activity, availability of funding and volume of R&D.
- Common indicators, such as the Tortoise Global AI Index, compound both **scale** and **intensity** (AI capacity relative to population or GDP).
- Switzerland should focus on a combination of expanding its own strengths and cooperating with its European neighbors in R&D while also ensuring that the new technology can be sourced globally and adopted in Switzerland.



## Switzerland and its neighbours



**Austria**

#10 in DESI in 2022



**France**

#12 in DESI in 2022



**Germany**

#13 in DESI in 2022



**Italy**

#18 in DESI in 2022



**Switzerland**

Not in DESI

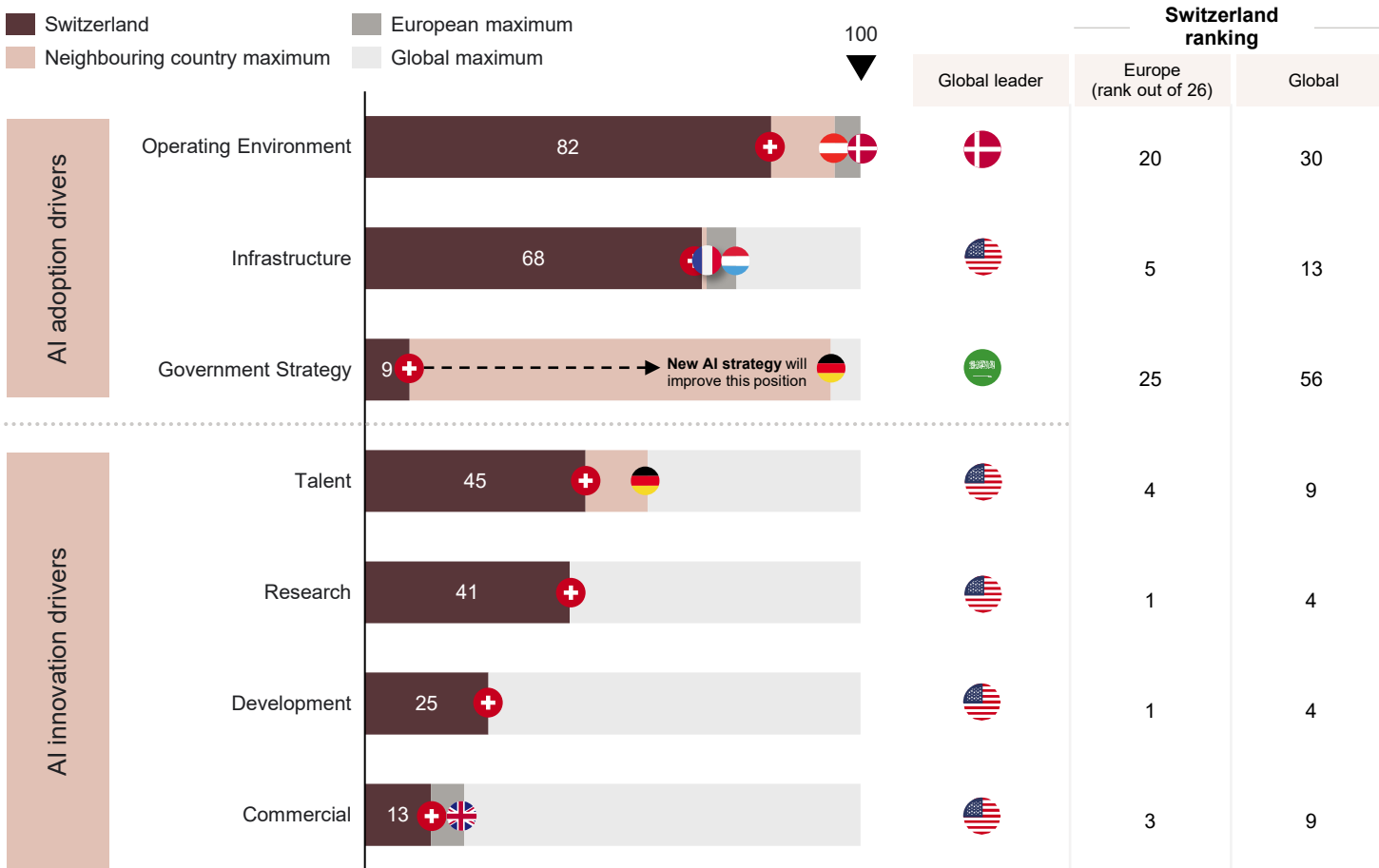




# Switzerland performs well on adoption drivers and could leverage its strong innovation ecosystem to enhance the benefits of AI

## Switzerland's AI capacity according to the Tortoise Global AI Index

Global AI Index, score out of 100 (global leader)



Switzerland scores relatively high on AI operating environment and infrastructure. New government strategies, adopted in 2024, are not captured in the index.

Switzerland does well in terms of innovation drivers in Europe but needs to catch up to lead innovation on a global scale.

- Switzerland performs well on some of the early foundational drivers of AI adoption that ensure a safe and reliable AI-ready environment – namely, operating environment, e.g. level of trust and cybersecurity, and infrastructure. The latest government strategy is not reflected in the index.
- Switzerland is ahead of its neighbouring countries on most innovation indicators apart from AI-related talent, where Germany takes the lead. This is largely due to a larger talent pool in general. However, when looking at per capita measures, Switzerland has more data scientists and AI engineers per capita than Germany. When comparing to the rest of Europe, the United Kingdom takes the lead on commercialisation of AI.
- Switzerland hosts several large global competitive companies in industries such as finance and pharmaceuticals, driving the national AI adoption and forming the pillars of a world-class AI ecosystem.
- Nonetheless, on a global level, Switzerland falls behind on innovation drivers. Here, the United States claims the lead across indicators. Levering the full potential of AI will require more specialised AI applications, and Switzerland should leverage its strong foundation to drive further innovation going forward.

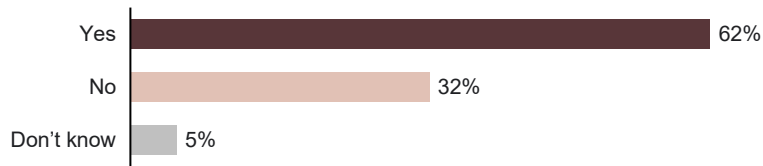
Note: The Global AI Index looks at seven sub-pillars of AI capacity: talent (availability of skilled practitioners in AI solutions, including IT and STEM graduates, data scientists, AI professionals etc.), infrastructure (download speed, supercomputing capabilities etc.), operating environment (regulation, cybersecurity etc.), research (AI publications and citations etc.), development (fundamental platforms and algorithms etc.), government strategy (national funding commitments to AI etc.) and commercial ventures (AI start-up activity, investments etc.). Source: Implement Economics based on Tortoise Media.

# 62% of Swiss companies have adopted AI in at least one business function, and 84% believe that AI can make positive changes in the world

Most Swiss companies have already adopted AI into its business functions

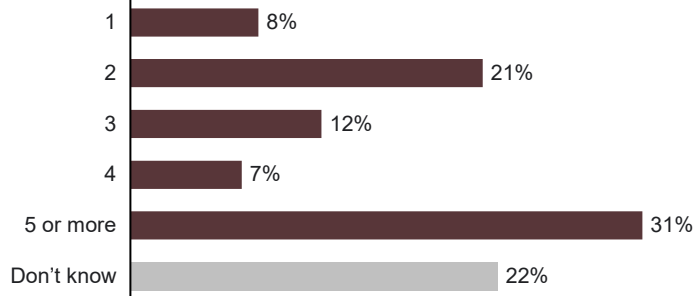
**Has your organisation adopted AI in any of its business functions?**

% of respondents, 2023



**How many business functions in your organisation have adopted AI?**

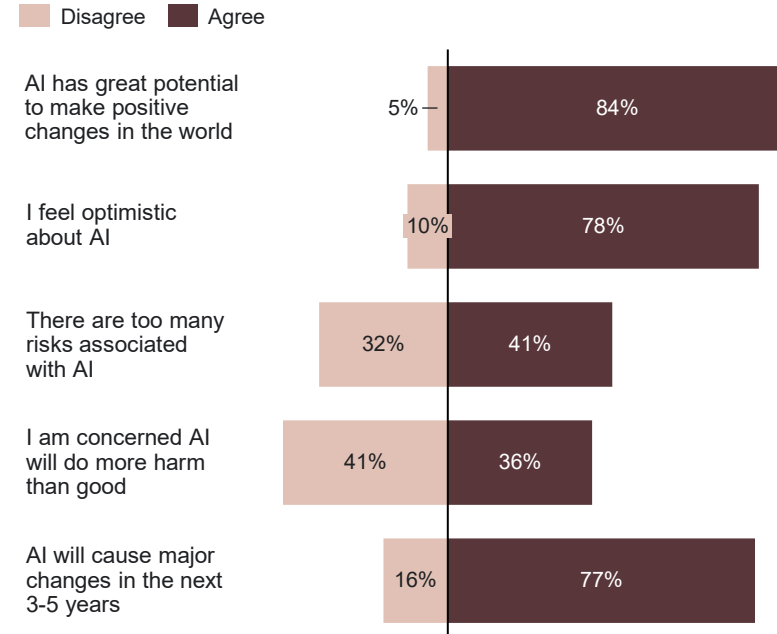
% of respondents, 2023



Swiss companies are optimistic about AI and believe that it can make positive changes in the world

**To what extent do you agree with the following statements?**

% of respondents, 2023



- According to a 2023 [survey](#) by IMD of Swiss organisations and employees, 62% of respondents say that AI has been adopted in their organisation. Of these, more than half say that AI has been adopted in three or more business functions, while 31% say AI is used in five or more functions.
- Another [survey](#) by Strand Partners also indicates that Swiss companies are increasing their adoption of AI technologies. According to their research, 30% of Swiss companies reported adopting AI in 2023 compared to 22% in 2022.
- While these surveys suggest a fast pace of adoption, AI adoption is still in an early phase, and more complementary innovations, investments and AI-related skills are needed to capture the full economic potential.
- The IMD survey also reveals that attitudes towards AI are generally positive in Switzerland. 84% of respondents believe that AI has the potential to drive a positive impact in the world, while 78% feel optimistic about AI.
- At the same time, 41% of the respondents are concerned about risks associated with AI and 36% believe that it will do more harm than good.

Note: The IMD survey was conducted in November 2023, and 72% of respondents were senior executives. Numbers may not add up to 100% due to rounding. Source: Implement Economics based on IMD.

# 07

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## The way forward to capture the benefits of AI

Switzerland can consider several choices to capture the benefits and navigate the dilemmas of AI.



# Potentials, pitfalls and paradoxes

## Artificial intelligence (AI) has the potential to be the most powerful technology in decades

- AI enables us to do things better and work more efficiently. It also enables us to do better things. With AI, we can focus on the best parts of our jobs and leave the rest to AI. Yet, AI is still in its infancy and how it is applied is highly uncertain.
- To make AI benefit humans and society as a whole will require pursuing the potentials, avoiding the pitfalls and navigating the paradoxes.
- The future of AI should *not* be reduced to a simple one-dimensional question: Should we have more AI or less AI – or even ban AI?
- AI is not a fixed thing with a predetermined future that can come quickly or slowly. AI is new, **uncertain** and malleable and will require wise choices by all stakeholders across business, governments and civil society.

### Potentials

- The estimated economic potential assumes **widespread adoption** of generative AI within ten years.
- The estimate includes both narrow **labour-saving** impacts and broader **value-creating** impacts that enable workers to do something novel or powerful.
- It assumes that AI lives up to its promise of being the most radical **technological breakthrough** in decades.
- Moreover, we estimate that AI will **complement the majority of workers** and free up time to spend on non-routine, creative and inventive tasks.
- The result is an economy not simply at a higher level of productivity, but at a **permanently higher growth rate**.

### Pitfalls

- Displaced workers might end up in **less productive jobs** (than already assumed).
- AI may end up being **less promising** or less ready to bring to market than initially hoped.
- Time to market may be **challenged by a legal regime** not designed for AI.
- Companies may **miss out on the benefits** of AI due to a lack of competences or failure to change organisations and habits.
- National regulators, driven by any number of concerns, may **impose strict regulations** that slow the speed of AI development.
- **Regulatory uncertainty** and lack of clarity on future rules may delay the uptake.

### Paradoxes

- How can policies encourage the types of AI that complement human labour and best prepare those at risk of losing a job to AI?
- What choices will encourage the development of AI that companies of all sizes can access instead of just the largest ones?
- What kind of investment in AI research and development might unleash the most interesting new ideas, innovations and applications in support of overall societal value?
- What kind of high-performance computer infrastructure is needed to power the new technology, and how is that best provided?

# Unlocking the AI opportunity by creating trust *and* preserving the incentive to invest

The benefits of new waves of technology do not come automatically. As with past waves of technology, it takes time for people to trust the technology. Regulators across the world are set to ensure the safety of the technology while achieving its benefits. In the urgent efforts to achieve broad-based trust, regulators may create fragmentation, misalignment and uncertainty about future rules, which can hamper investment and adoption.

Developers and early technology adopters will need clarity on future rules. Clarity is needed regarding, for example, the requirements for transparency in the functioning of the generative AI models, the data used to train them, issues of bias and fairness, potential intellectual property issues, possible privacy violations as well as security concerns.















To navigate these choices, this report offers five perspectives:

Enable innovation and invest in AI research and development	Create a conducive and aligned AI regulation	Promote widespread adoption and universal accessibility	Build human capital and an AI-empowered workforce	Invest in AI infrastructure and compute power
<ul style="list-style-type: none"> <li>Invest in long-term public AI research and encourage private investment in basic and applied research.</li> <li>Foster industry, government and university innovation partnerships to undertake pre-commercial AI research projects.</li> <li>Support innovation on top of already developed foundational models and findings.</li> <li>Make AI tools available to entrepreneurs and scientists so they can use AI in support of other discoveries and innovations.</li> <li>Support international research collaboration, technology transfer and international movement of researchers.</li> </ul>	<ul style="list-style-type: none"> <li>Avoid siloed approaches to AI regulation to minimise the risk of misalignment and fragmentation by increased international co-operation.</li> <li>Ensure copyright rules that support innovation and creativity and preserve the incentive to generate new content.</li> <li>Adopt a risk-based approach to AI regulation to provide clarity to developers, adopters and users about which uses are disallowed.</li> <li>Encourage privacy and security principles so that individuals' personal data is safeguarded.</li> </ul>	<ul style="list-style-type: none"> <li>Promote widespread adoption and universal accessibility by helping governments, small businesses and all sectors of the economy adopt and use AI.</li> <li>Lead with the public sector adoption of AI solutions, which may require overcoming procurement roadblocks that often appear when public entities aim to adopt new technologies.</li> <li>Create a national strategy to spur AI adoption across all industries and all sizes of businesses.</li> <li>Give small businesses an "AI jumpstart" through technical assistance, training and guidance to help them understand and leverage AI for their businesses.</li> </ul>	<ul style="list-style-type: none"> <li>Build an AI-empowered workforce by investing in human capital, education and training systems. This means treating AI as a core component of the education system.</li> <li>Focus training and upskilling on areas where AI enhances and augments the capabilities of workers so that workers are trained to work together with the new technology. The aim should be to improve the marginal productivity of workers rather than replace them.</li> <li>In those selected types of jobs where AI risks displacing workers, efforts should be devoted to reskilling workers for other jobs.</li> <li>Ensure a flexible labour market and continuous lifelong training enabling new opportunities in the labour market.</li> </ul>	<ul style="list-style-type: none"> <li>Ensure the right incentive and regulation for public and private entities to invest in AI infrastructure and compute capacity such as graphics processing and supercomputers needed to drive the powerful AI models.</li> <li>Support the building of cross-border AI infrastructure and subsea cables through initiatives such as the <a href="#">G7 partnership for global infrastructure and investment</a>.</li> <li>Reduce electricity emissions from data centres by promoting ambitious decarbonisation strategies such as <a href="#">24/7 Carbon-Free Energy</a>.</li> </ul>

# Switzerland can draw on policy choices of neighbouring AI frontrunners

Switzerland leads on AI research, development and commercialisation ...

... and can draw on best practice initiatives from neighbouring frontrunners

Indicator	<b>Research</b> 	<b>Development</b> 	<b>Commercial</b> 	<b>Operating environment</b> 	<b>Infrastructure</b> 	<b>Talent</b> 
Neighbouring frontrunners						
Best practice	<p>Switzerland has demonstrated strong capabilities in AI research, particularly in areas like large language models (LLMs). Swiss institutions, such as the ETH Zurich and EPFL, are at the forefront with initiatives that not only promote research but also collaborate closely with government and industry.</p> <p><b>Example: <a href="#">Swiss AI Initiative</a></b></p> <ul style="list-style-type: none"> <li>This initiative aims to position Switzerland as a leading hub for AI by enhancing transparent and reliable LLM development, leveraging the ALPS supercomputer and supported by collaborative networks.</li> </ul>	<p>Switzerland is strategically advancing AI through notable initiatives such as the Digital Switzerland Strategy, which emphasises comprehensive digital innovation across various sectors.</p> <p><b>Example: <a href="#">Digital Switzerland Strategy (2024)</a></b></p> <ul style="list-style-type: none"> <li>Strategically targets AI integration across public administration, healthcare and education to drive nationwide digital transformation.</li> <li>Collaborates with federal agencies, private sector partners and educational institutions to ensure a cohesive approach to AI development and deployment.</li> </ul>	<p>Switzerland has been active in the development and commercialisation of AI technologies through several strategic initiatives, highlighting the country's focus on becoming a global leader in this field.</p> <p><b>Example: <a href="#">Digital Switzerland</a></b></p> <ul style="list-style-type: none"> <li>A cross-industry association that includes businesses, public sector entities and academia, aimed at driving digital innovation in Switzerland, including AI.</li> <li>This collaborative effort reflects Switzerland's commitment to establishing a comprehensive digital ecosystem and advancing AI technologies.</li> </ul>	<p>Austria's AI regulation and ethical framework is focused on economic enhancement, social transformation and ethical AI utilisation, underpinned by comprehensive stakeholder engagement and alignment with European values.</p> <p><b>Example: <a href="#">Artificial Intelligence Mission Austria 2030</a></b></p> <ul style="list-style-type: none"> <li>Promotes AI to enhance competitiveness and societal benefits.</li> <li>Engages a wide range of experts to ensure an inclusive and comprehensive strategy approach.</li> </ul>	<p>France is advancing its AI capabilities through significant investments in high-performance computing, improved data access and enhanced internet infrastructure.</p> <p><b>Example: <a href="#">Jean Zay supercomputer</a></b></p> <ul style="list-style-type: none"> <li>The Jean Zay supercomputer, located in Paris, offers substantial HPC resources to drive AI research and computational studies.</li> <li>The Jean Zay has been leveraged to train Hugging Face's open-source BLOOM model; an LLM able to generate text in 46 languages, including French. The compute grant from French research institutes amount to ~€3 million.</li> </ul>	<p>Germany enhances its AI capabilities through strategic education, reskilling of the workforce and continuous upskilling to keep pace with technological advancements.</p> <p><b>Example: <a href="#">AI Competence Centers</a></b></p> <ul style="list-style-type: none"> <li>Develops AI-specific skills by fostering research and educational collaboration between universities and industries.</li> <li>Enhances practical AI applications through targeted training programmes at the regional level.</li> </ul>

# Enhancing the competitive edge in technology and digitalisation requires a balanced set of choices



## Grow R&D by local innovators

Enable **innovation** and invest in AI **research and development**

Ensuring performance of AI technology in a Swiss context  
*and*  
Driving the application of leading global AI technology

- Switzerland already holds a leading position in AI research and development. This is further underlined by the [Swiss AI Initiative](#), aiming to make Switzerland a leading global hub for transparent and reliable AI, while leveraging the Alps supercomputer to develop industry-specific AI applications for i.e. climate, finance and medicine.
- As many Swiss companies struggle with aging IT infrastructure, public, private and academic partnerships could aim to provide the necessary integrations, roadmaps and support mechanisms to help industries transition to AI-ready systems.



## Accelerate commercial uptake

Promote widespread **adoption** and universal accessibility

Encouraging AI-based business models in tech-focused startups  
*and*  
Facilitating AI adoption in traditional, established companies

- Despite Switzerland's strong innovation landscape, Swiss SMEs face challenges in adopting AI, hindered by complex regulatory frameworks and a scarcity of accessible expertise. Streamlining existing regulations and providing a targeted AI strategy could facilitate wider AI adoption.
- To enhance AI adoption, Swiss policymakers could expand initiatives like [Digital Switzerland](#) and the [Swiss AI Initiative](#) to include targeted efforts such as support centres that provide legal and technical assistance to SMEs. Inspiration could be drawn from the Austrian [Wirtschaftsservice](#).



## Retrain and upskill workforce

Build **human capital** and an AI-empowered workforce

General AI upskilling across the population  
*and*  
Targeted reskilling of groups affected by AI

- Switzerland's AI and talent development efforts, notably through the [Swiss AI Initiative](#) and [ZHAW Centre for AI](#), are pivotal for its research and innovation. However, the AI transition across broader society requires widespread AI competencies in the population as well as specialised STEM talent.
- Switzerland could expand and integrate existing frameworks like the [Swiss AI Initiative](#) and [Digital Switzerland Strategy \(2024\)](#) to foster broad AI literacy in the population.

Dilemma

Recommendation



08

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# Annex

Modelling the impacts of generative AI in Switzerland.



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# Modelling the economic opportunity for Switzerland

## Overview of the methodological approach to calculating economic growth and productivity impact from generative AI

The economic effects are calculated in the following steps

1

**Automation potential of work activities:** First, the exposure to generative AI is calculated by breaking down the automation potential of 39 different work activities/tasks in the occupational task database O\*NET. The database includes an estimate of the share of each activity (e.g. getting information, performing administrative activities etc.) that can be automated by generative AI (if the activity is above level 4 on an O\*NET-defined scale of difficulty 1-7, no automation potential is assumed).

2

**Mapping automation potential of work activities to occupations:** The automation potential of the work activities is mapped in ten European industry aggregates in two sub-steps. First, the 39 work activities for 900 US occupations are mapped using importance-average activities for each occupation, providing an estimate of the share of each occupation's total workload that AI has the potential to automate. Secondly, this number is projected from US to European occupations through the European Commission's crosswalk between ESCO and O\*NET and finally compiled into aggregated occupations (using the sub-occupation employment). This leaves us with the three shares that describe how big a share of the work activates for each occupation is expected to see: No automation, AI complement and Likely replacement.

3

**Quantifying productivity gains in each sector:** Generative AI is assumed to affect the productivity of the work activities for each occupation as follows (see section 3 for further details). The "No automation" share of work activities is assumed to be unaffected by generative AI. "AI complement" work activities experience a productivity boost from automation. "Likely replacement" is the share of work activities in a sector that is expected to be entirely automated/replaced. These workers are expected to be re-employed in slightly less productive jobs. The three effects are calculated across sectors and scaled by each sector's value added to determine the full productivity potential/generation of new jobs from generative AI across the economy, once the technology adoption peaks.

4

**Aggregate GDP impact:** Based on the estimated increase in labour productivity resulting from AI adoption, the result is aggregated to an overall GDP. Only part of the total long-run productivity increases from generative AI is expected to materialise in the economy during the initial ten-year period of technology adoption following an S-curve adoption trajectory.

- The method used to calculate productivity and GDP effects of generative AI in this paper is in line with the methodology developed by Briggs and Kodnani (2023) in "The Potentially Large Effects of Artificial Intelligence on Economic Growth".

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