AI AND AUTOMATION

PRODUCTIVITY, JOBS: GETTING READY FOR A RESET

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15th Anniversary High Value Manufacturing & 4th New Materials & Graphene Conference 2017

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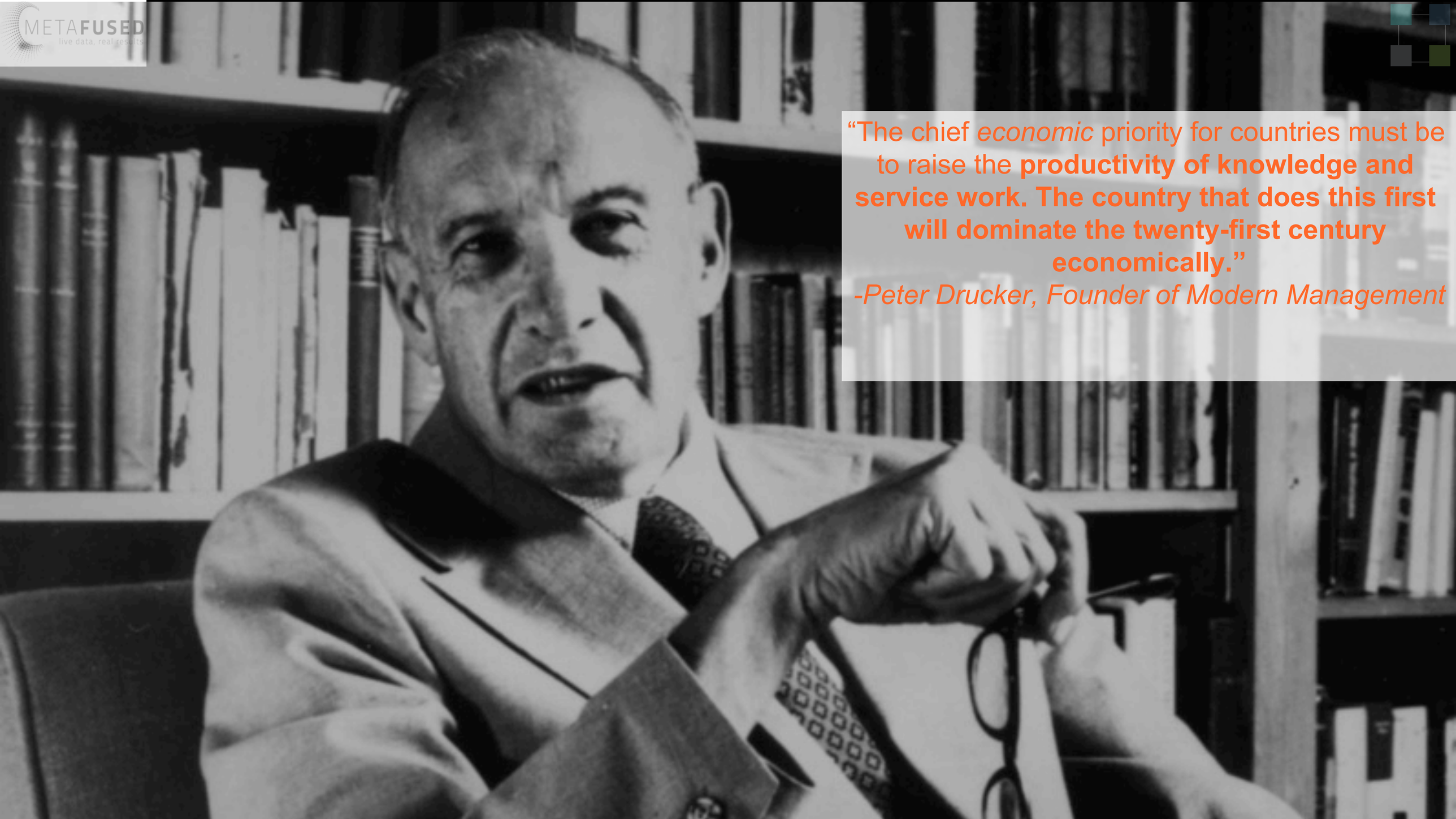
www.cir-strategy.com/events

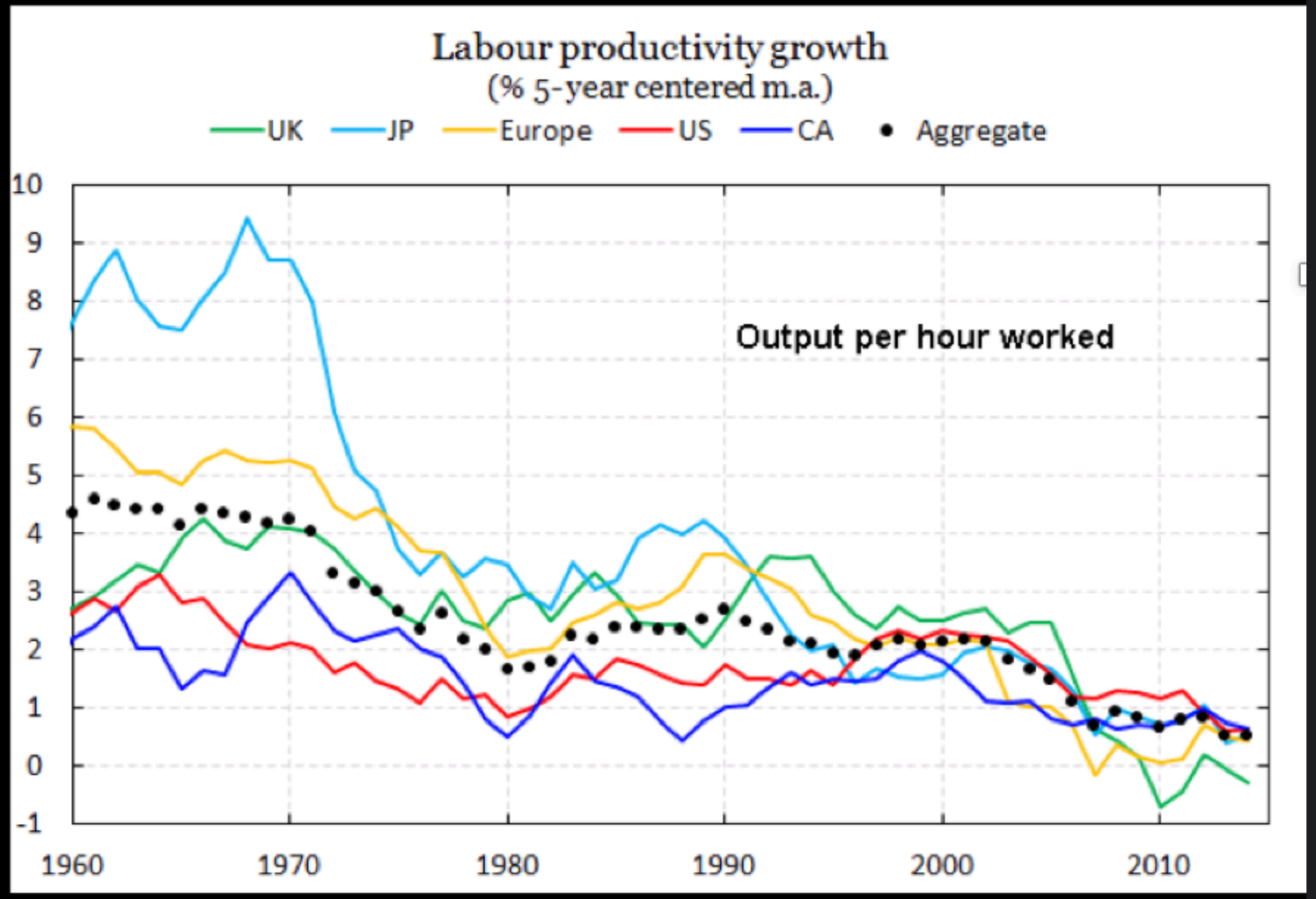


"The chief *economic* priority for countries must be to raise the **productivity of knowledge and service work. The country that does this first will dominate the twenty-first century economically.**"

-Peter Drucker, Founder of Modern Management

A productivity gap exists

Following a century of productivity gains of 3% or more, now the year-on-year growth rate is on a steady decline for the G7 economies. It is currently stands at 1.3%.



LABOR PRODUCTIVITY =

OUTPUT (units produced)
INPUT (hours worked)

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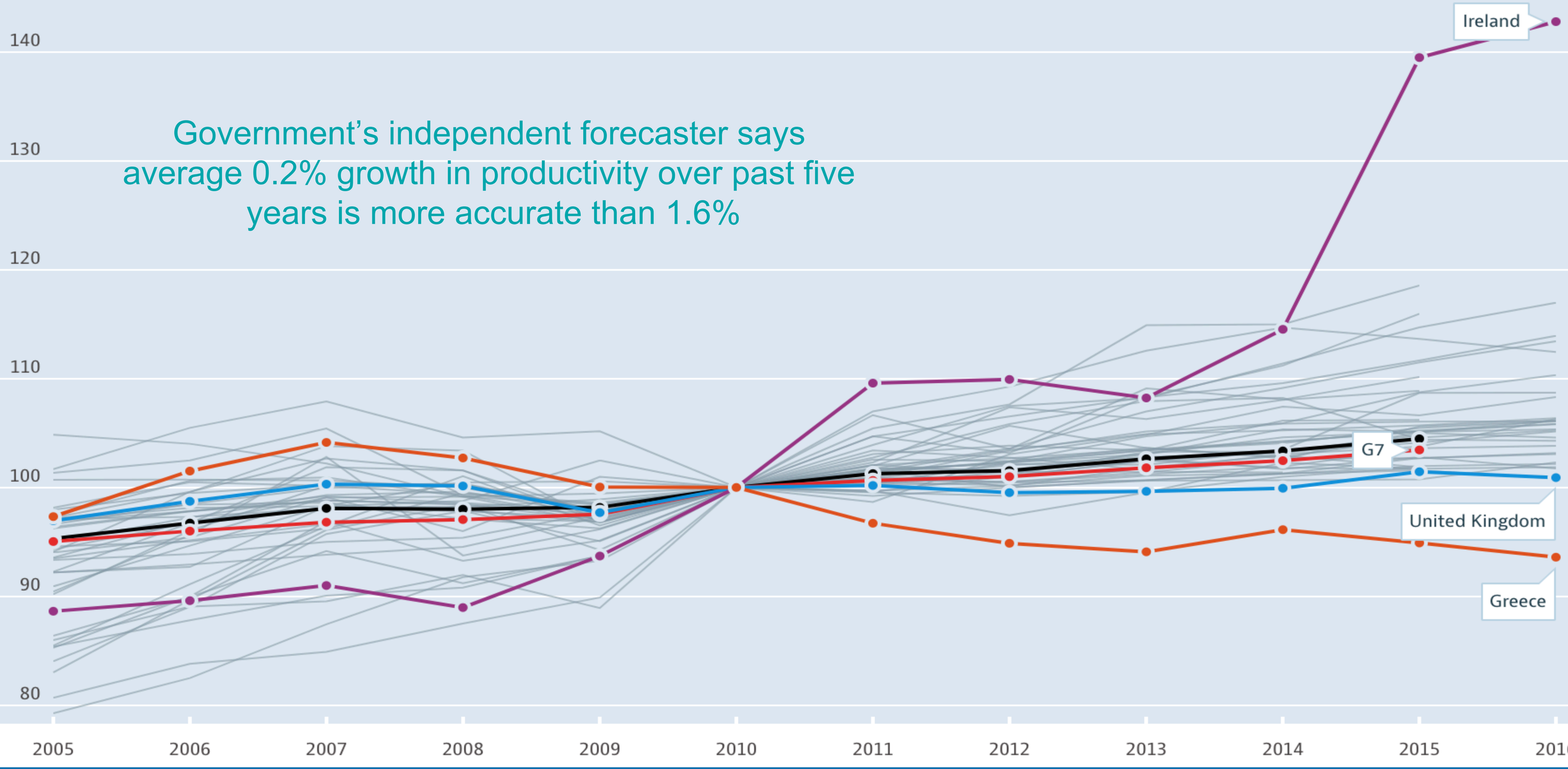
State of productivity today

Government's independent forecaster says average 0.2% growth in productivity over past five years is more accurate than 1.6%



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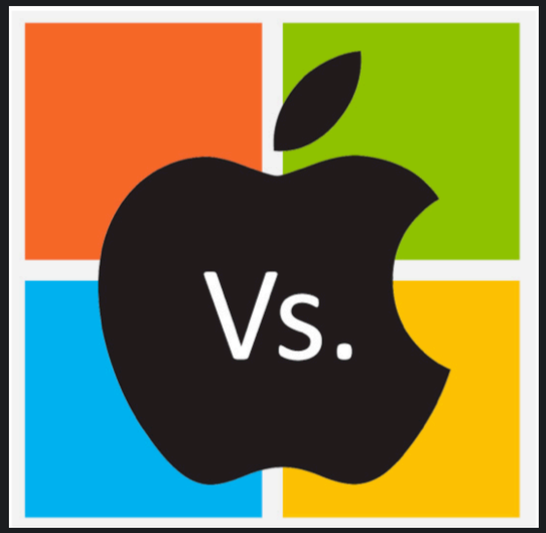
What's driving down productivity

The most common productivity pitfalls are:

- Decisions take too long to be made (42%)
- Employees work for individual or departmental results instead of working towards collective outcomes (38%)
- The way work was (mis)performed resulting in delays and do-overs (37%)
- Lack of alignment of KPIs with balance sheet drivers/metrics (32%)
- Unclear objectives (26%)

Who is more productive

It took 600 Apple engineers less than two years to develop, debug and deploy iOS10.



It took 10,000 Microsoft engineers more than five years to develop, deploy (and ultimately retract) Vista.

Activities driving down productivity

The top 10 unproductive activities are:

1. Checking social media – 47% of respondents (44 minutes, spent doing this during working day).
2. Reading news websites – 45% of respondents (one hour and five minutes).
3. Discussing out-of-work activities with colleagues – 38% of respondents (40 minutes).
4. Making hot drinks – 31% of respondents (17 minutes).
5. Smoking breaks – 28% (23 minutes).
6. Texting and instant messaging – 27% of respondents (14 minutes).
7. Eating snacks – 25% of respondents (eight minutes).
8. Making food in the office – 24% of respondents (seven minutes).
9. Making calls to partners and friends – 24% of respondents (18 minutes).
10. Searching for new jobs – 19% of respondents (26 minutes).

Knowledge workers are interrupted every 3 minutes on average, and it takes up to 8 uninterrupted minutes to re-establish focus

Productivity growth from the steam engine

0.3%

1850–1910

Productivity growth from IT

0.6%

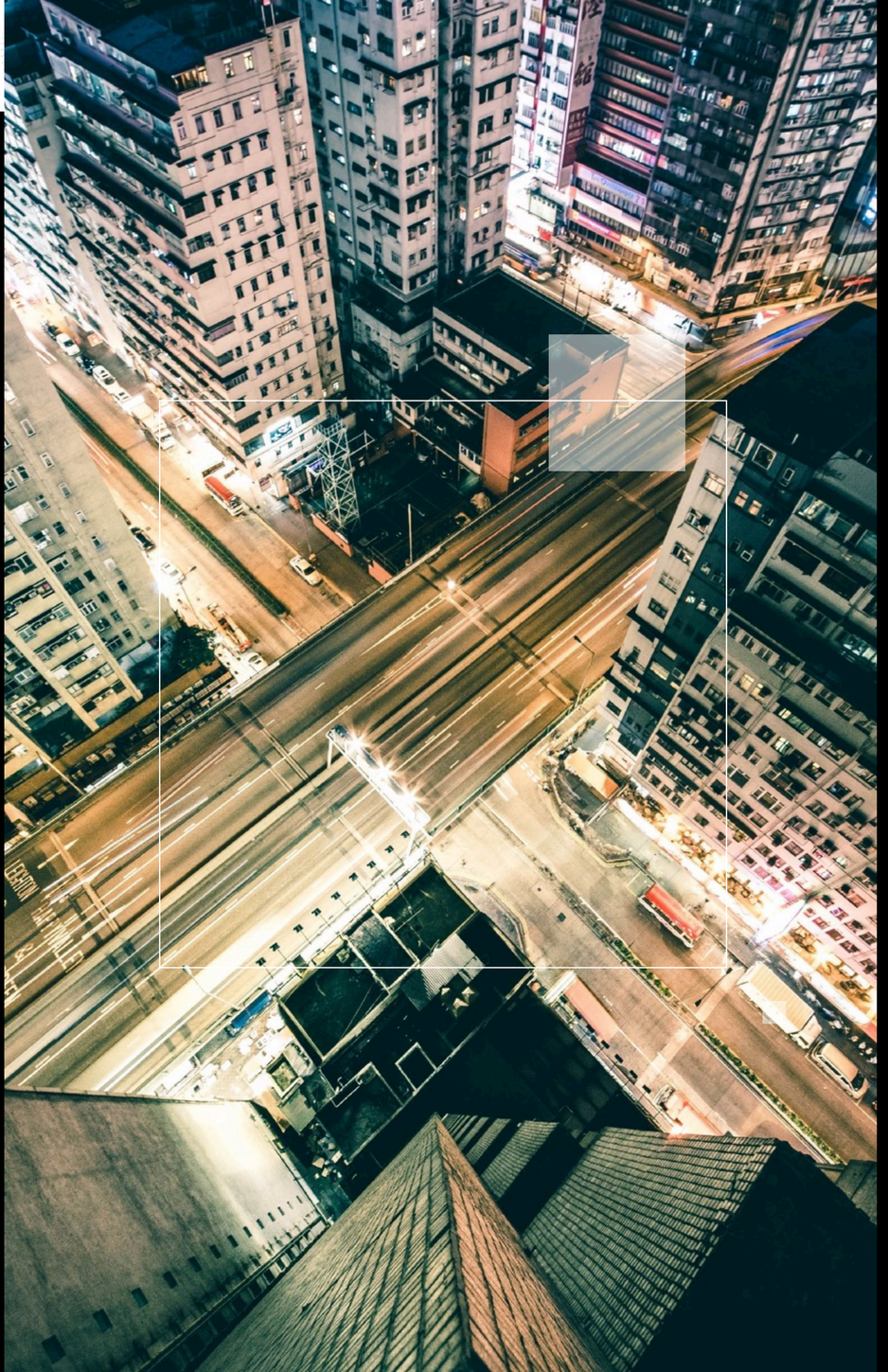
1995–2005

Productivity growth from automation

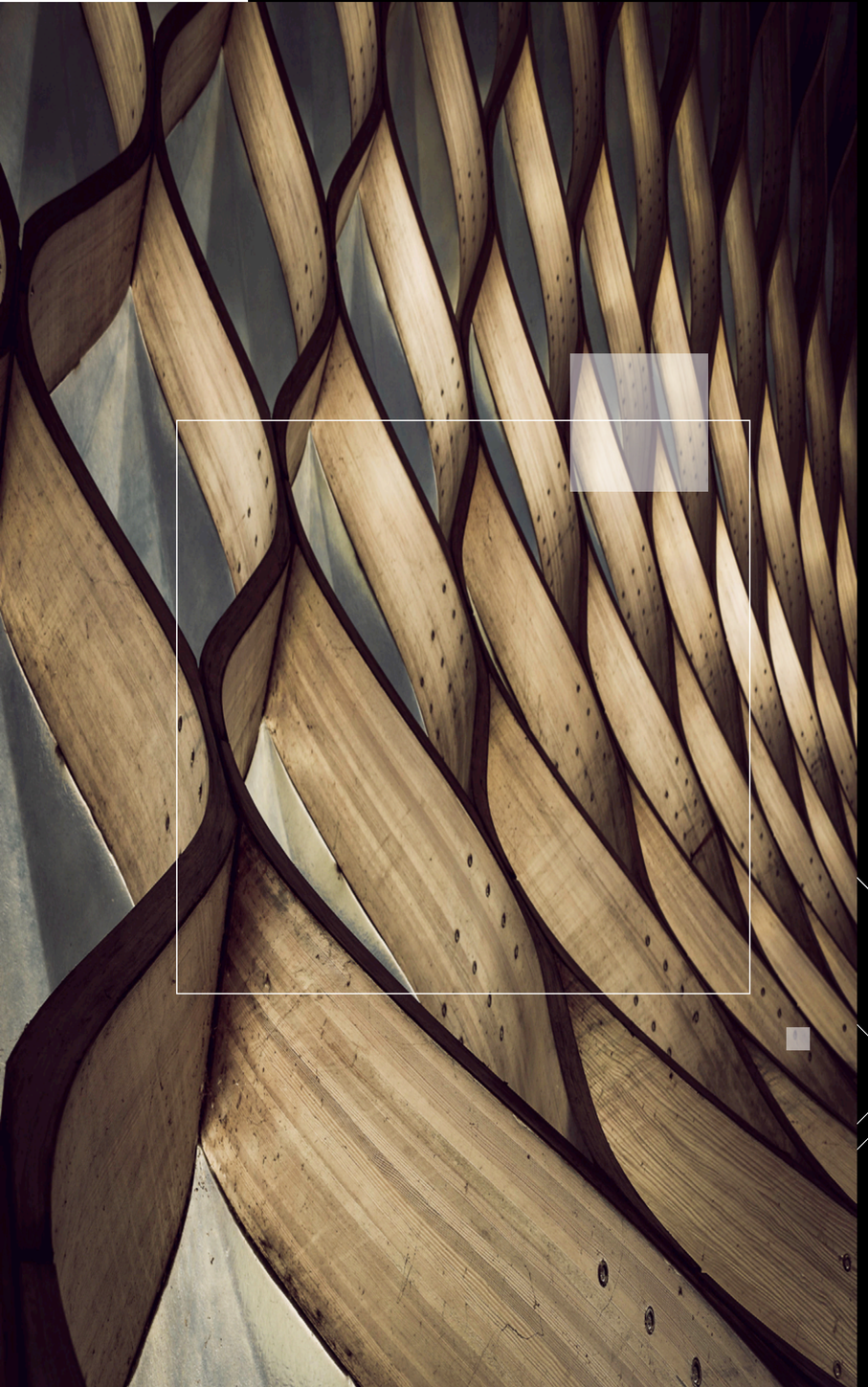
0.8 to 1.4%

2015–2065

Adoption of robotics, artificial intelligence, and machine learning could give a bounce to the global economy, at a time of lackluster productivity growth and aging in many countries



Global GDP will be up to 14% higher in 2030 as a result of the accelerating development and take-up of AI – the equivalent of an additional $15.7 trillion (source: PWC)



Productivity gains from businesses automating processes (including use of robots and autonomous vehicles)

For example : To reduce supply chain by 1 day using smart robots in warehouses could bring $50-100m in cash flows for Fortune 500 companies (source: Accenture)

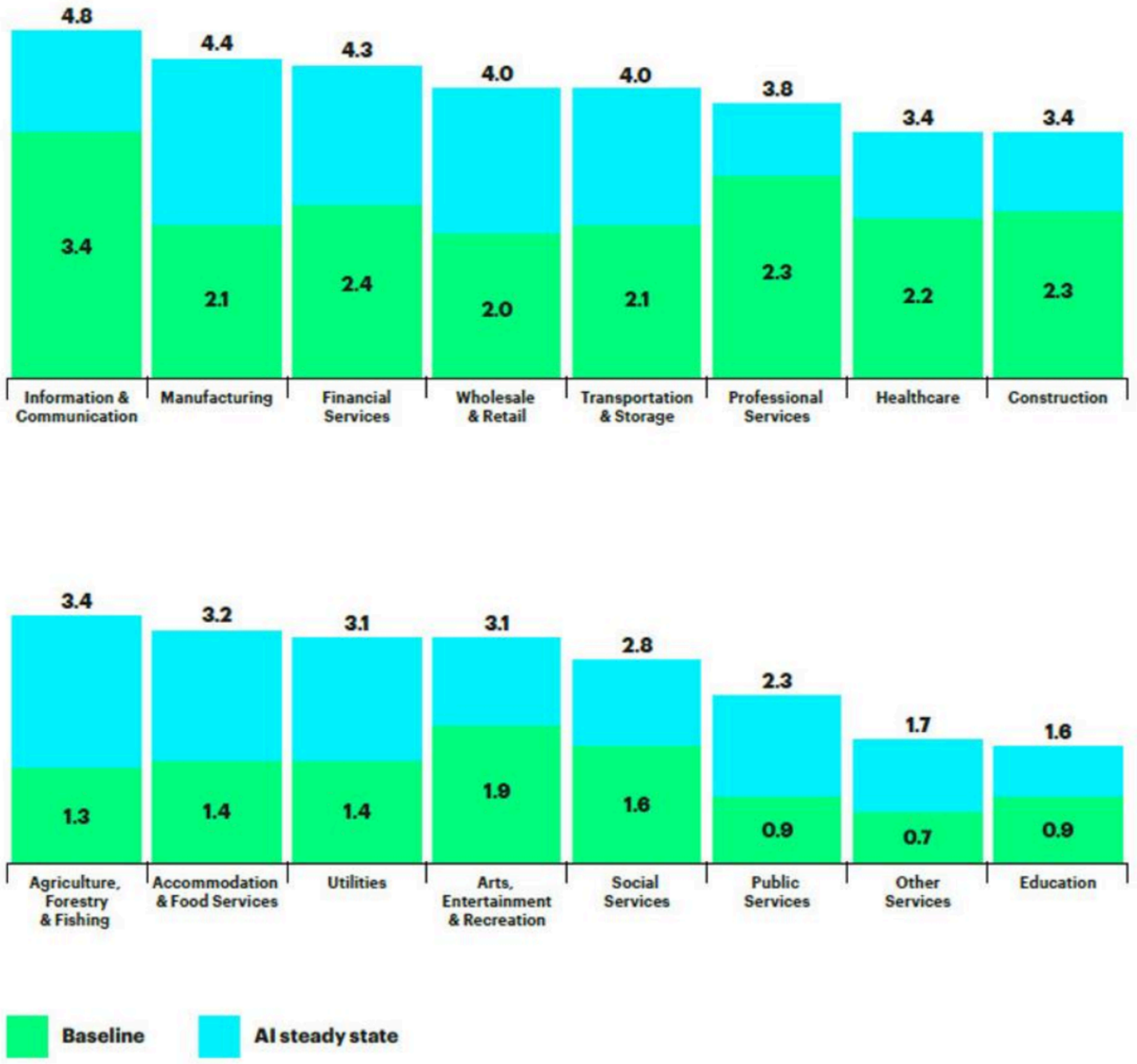
Productivity gains from businesses augmenting their existing labour force with AI technologies (assisted and augmented intelligence)

For example: Algorithm based on the human immune system, is targeting wind farm productivity by predicting and preventing failures

Increased consumer demand resulting from the availability of personalised and/or higher-quality AI-enhanced products and services

For example: Algorithms for facial recognition know who you are as you walk into retail today

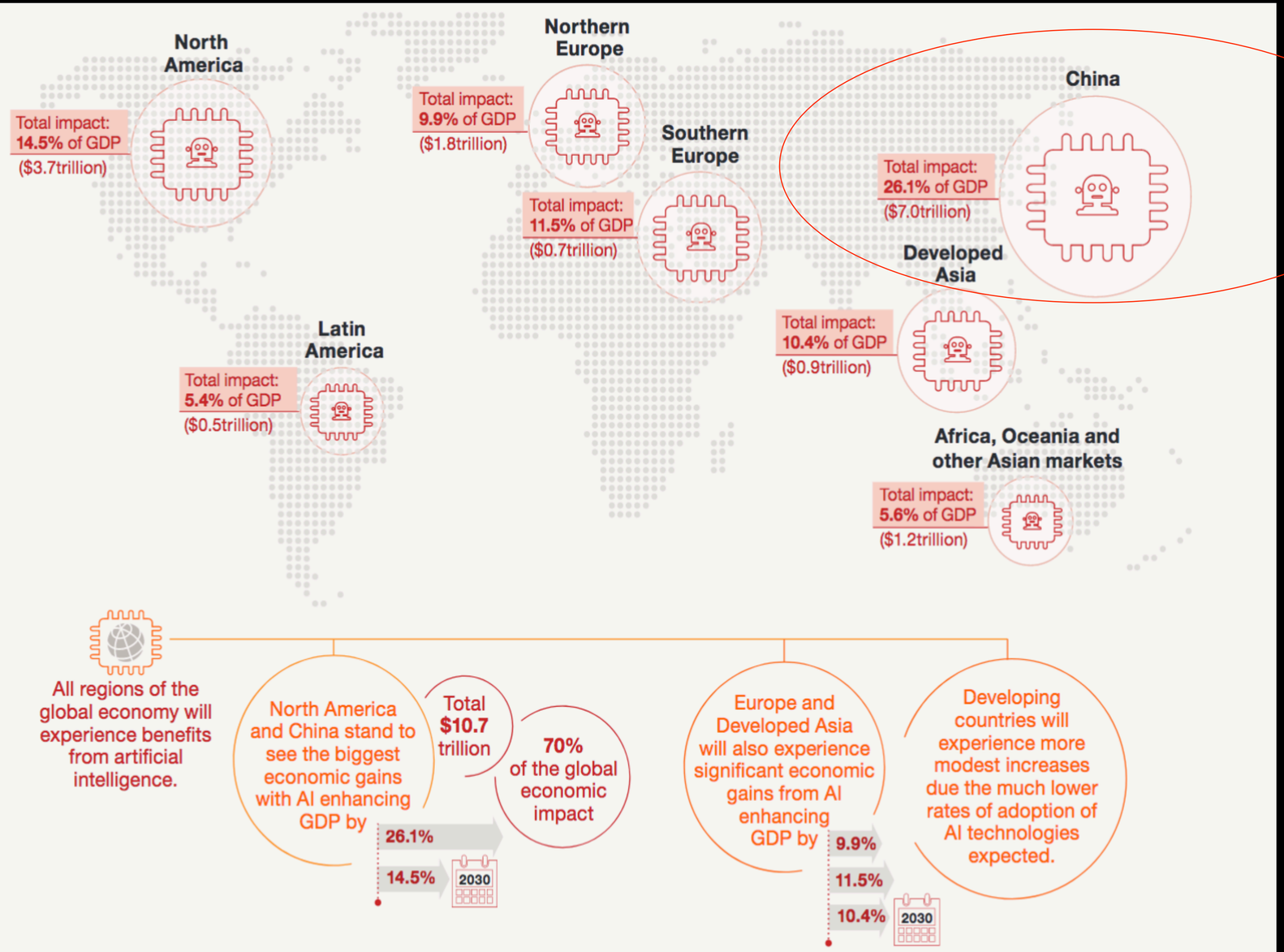
Growth from steady state to AI embraced state



AI's highest impacts will be in

- Information and communication
- Manufacturing
- Financial services

Where will the value gains come from in AI?



China published 4,724 AI papers, while the EU published 3,932 (source: FT)

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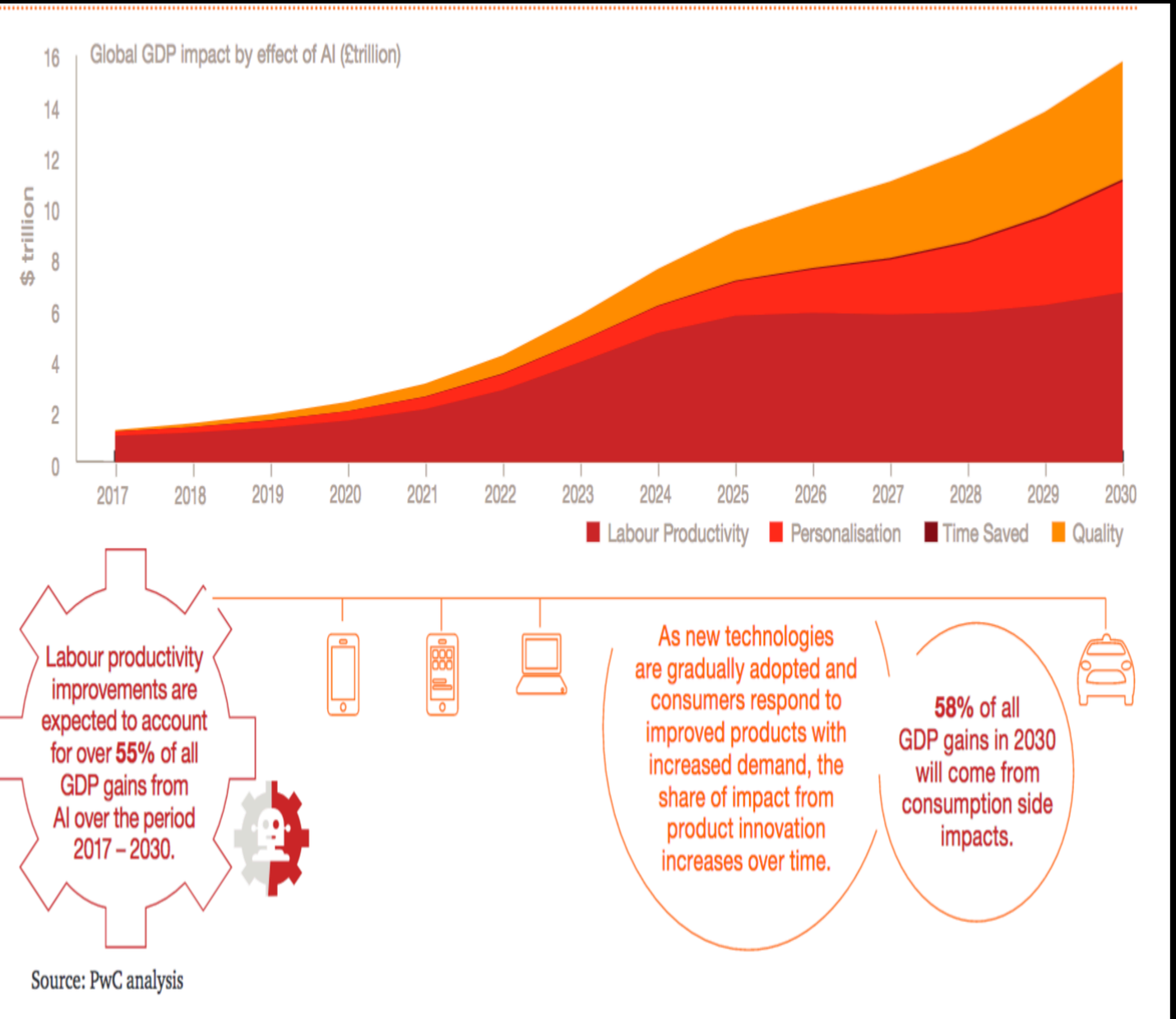
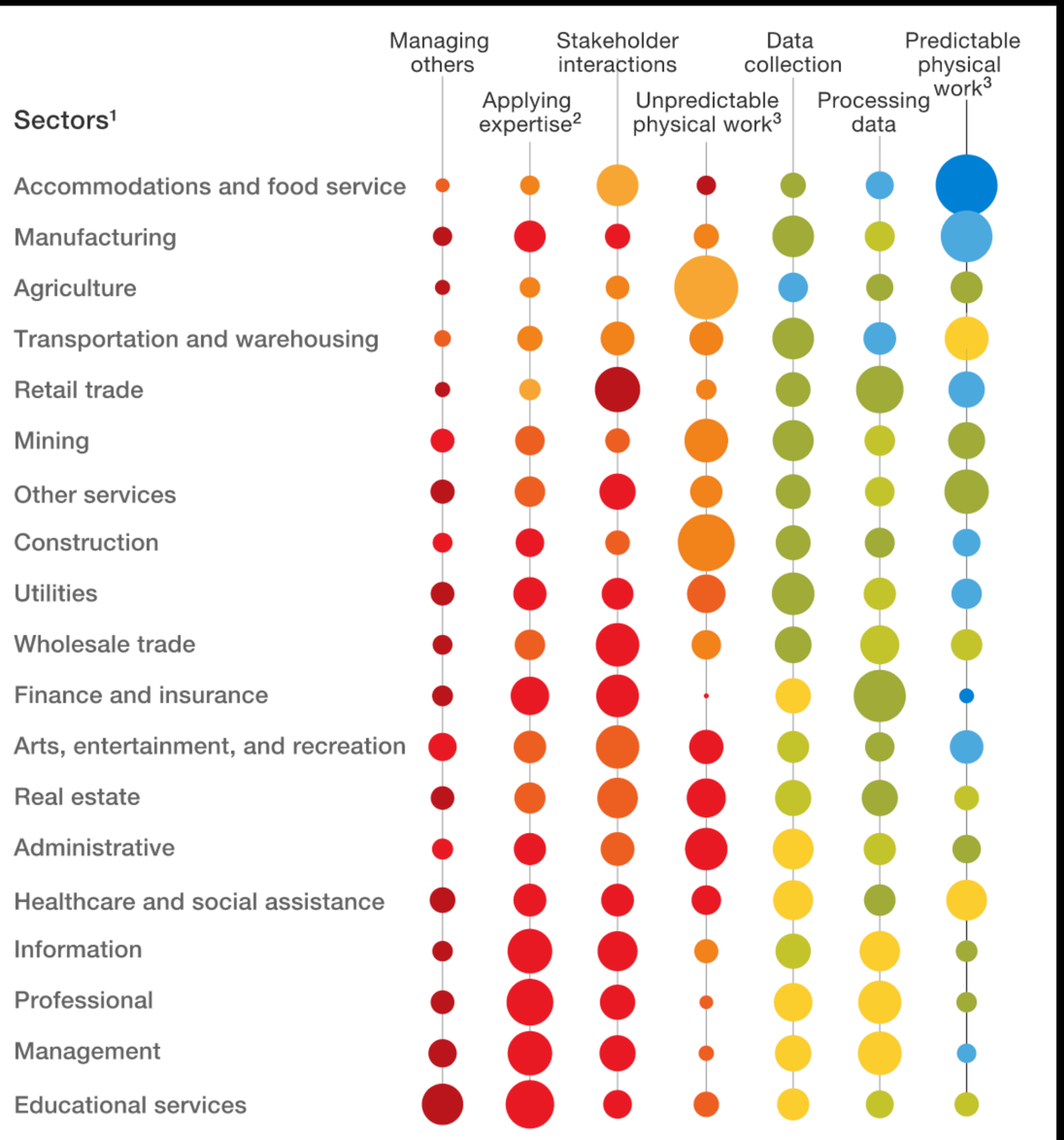


AI is expected to unlock labour productivity, save time, personalise and enhance quality

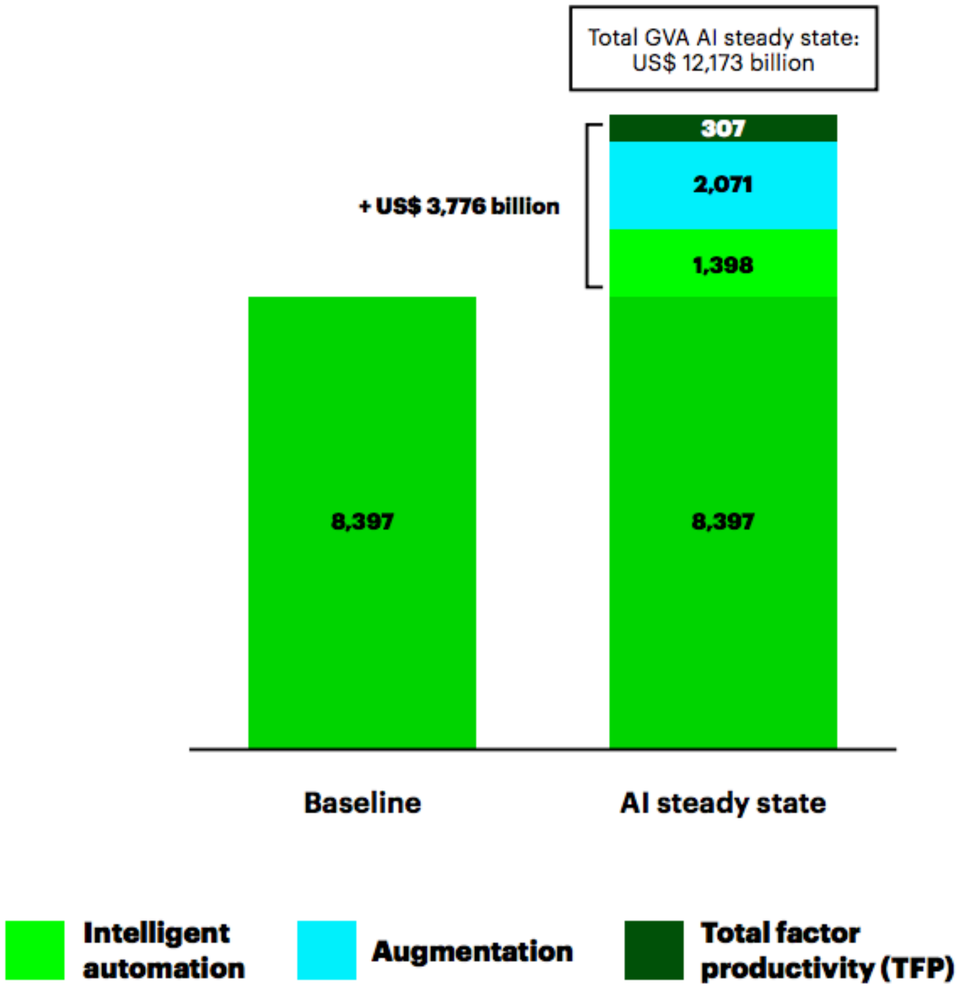
Level of automation depends on predictability of tasks



Technical feasibility, % of time spent on activities that can be automated by adapting currently demonstrated technology

0 50 100

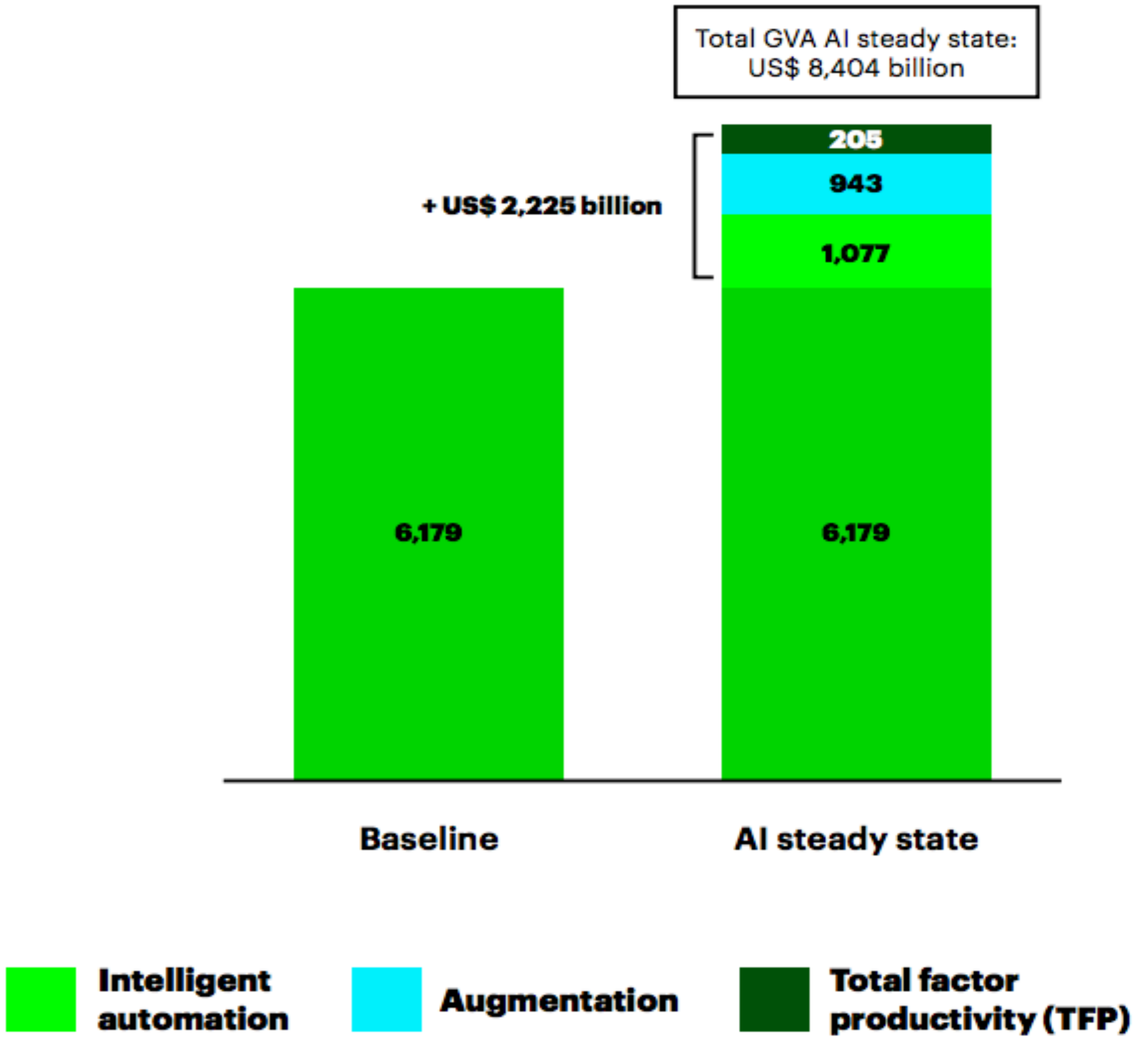
AI Gross Value Add in Manufacturing



Source: Accenture and Frontier Economics

AI, Manufacturing can generate an additional US$3.8 trillion in GVA by 2035, driven by augmentation and making labour more productive

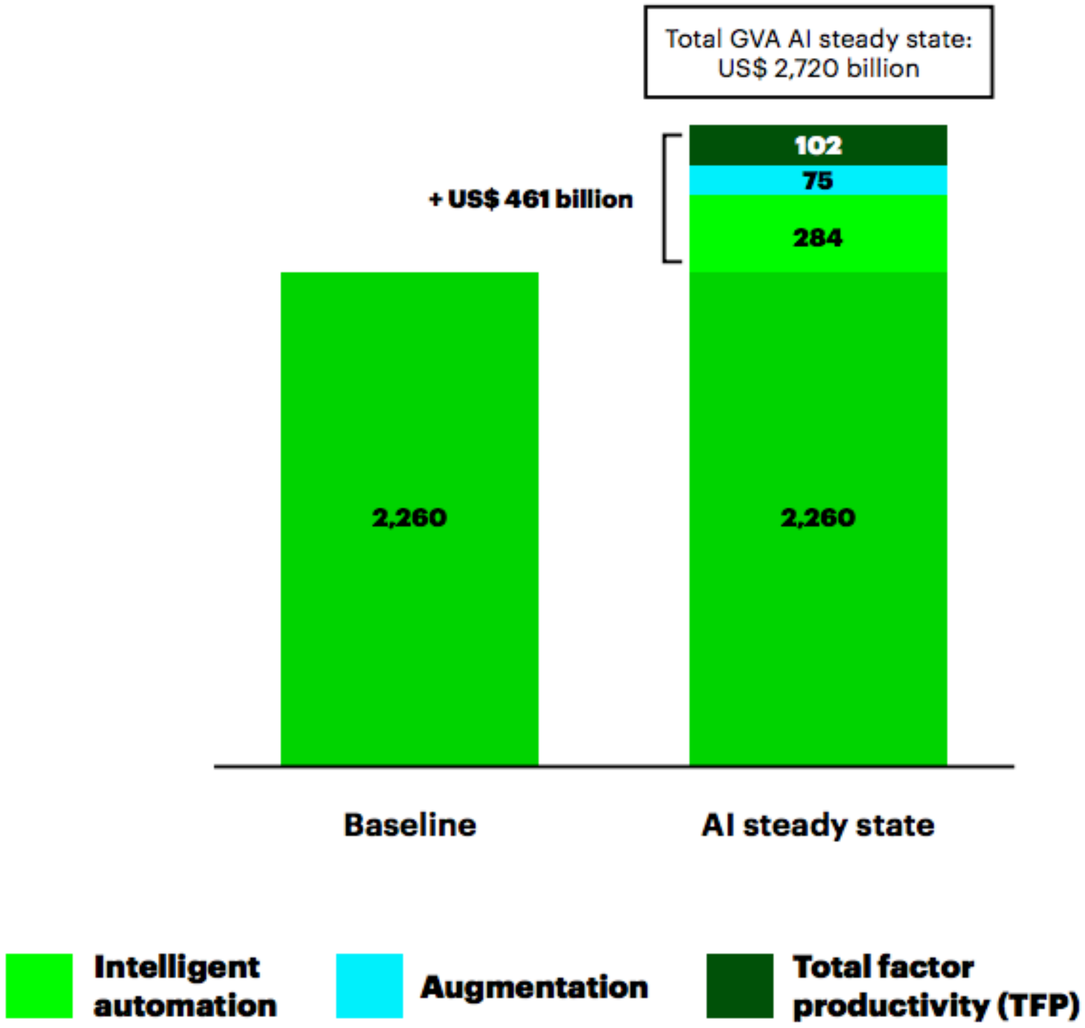
AI Gross Value Add in Wholesale and Retail



Source: Accenture and Frontier Economics

AI can yield more than US$2 trillion in additional GVA in 2035 for the Wholesale and Retail sector—an increase of 36 percent compared with the baseline case, driven by Automation

AI Gross Value Add in Healthcare



Source: Accenture and Frontier Economics

AI will accelerate growth in the Healthcare industry from 2.2 percent to 3.4 percent by 2035, generating US$461 billion of additional GVA, driven by Automation

AI will boost profitability for all industry, some more than others

AI has the potential to boost rates of profitability by an average of 38 percent by 2035 across 16 industries.

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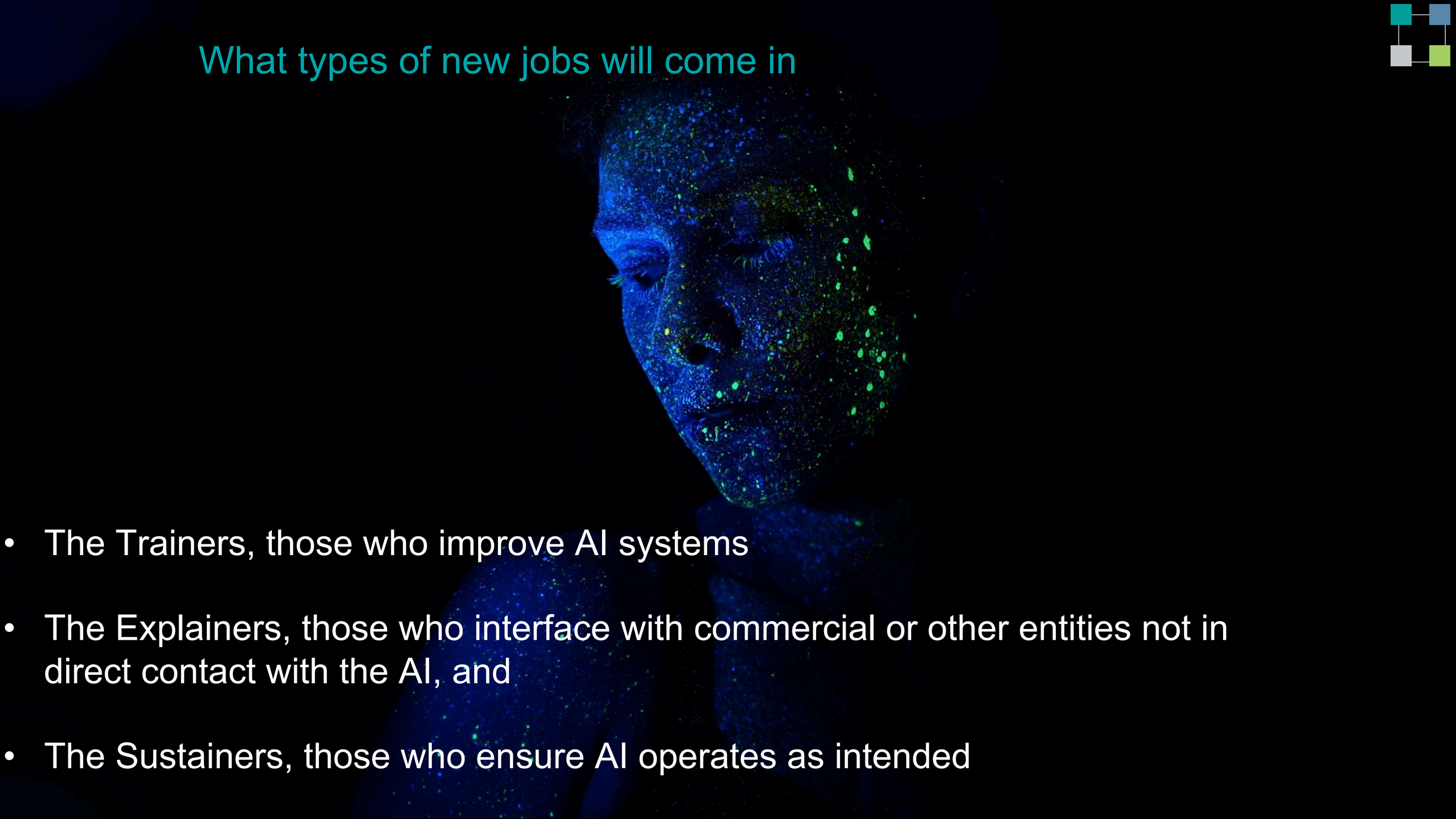
A case for Universal Basic Income

Meet Järvinen was selected by the state as one of 2,000 unemployed people for a trial of universal basic income.
He receives £500 pm

What types of new jobs will come in



- The Trainers, those who improve AI systems
- The Explainers, those who interface with commercial or other entities not in direct contact with the AI, and
- The Sustainers, those who ensure AI operates as intended

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POLICY TO ENSURE PROFITS ARE PLOUGHED BACK INTO TRAINING

1

2

CHANGE IN AUDIT AND ACCOUNTING PRACTICES FOR CHARNGES AT SOURCE

SET UP ETHICS TEAMS TO MANAGE ROBOTS & DISCRIMINATO RY PRACTICES

3

DAWN
OF A NEW ERA

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