CPD Webinar series

DEEP DIVE INTO SYSTEMIC RISKS IN THE AUSTRALIAN ARCHITECTURE SECTOR

Disruptive change

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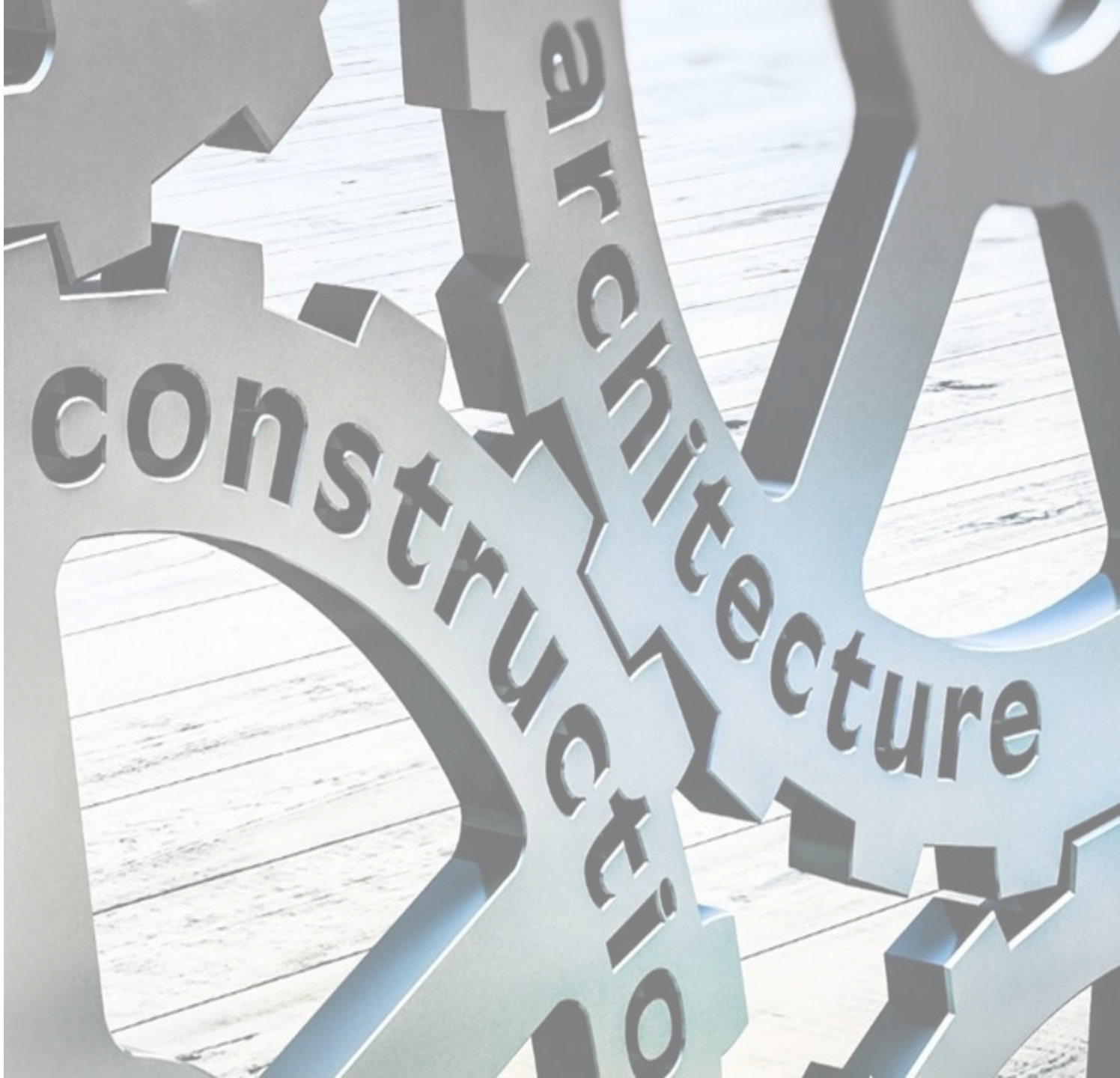
Architects
Registration Board
of Victoria



Acknowledgment of Traditional Owners

This presentation is being delivered on the lands of the Wurundjeri People and I wish to acknowledge them as Traditional Owners.

I would also like to pay my respects to their Elders, past and present, and Aboriginal Elders of other communities who may be here today.

CPD Questionnaire

- Attending this webinar live and submitting this form will qualify you for 1 hour formal CPD. Certificates will be sent to the email address used to complete this form, please ensure your name and contact details are correct. This quiz will close 24 hours after the webinar has commenced.
- Certificates will be issued within 1 week of the closure of the quiz.

https://forms.office.com/r/BBH9k2DvpM

ARBV Webinar: Deep Dive into disr uptive change

ABOUT THE RESEARCH

What are systemic risks and why is the ARBV concerned about them?

- Systemic risks are risks that:
  - Extend across the sector
  - Can compromise architects' ability to comply with their professional standards' obligations
  - Can cause widespread harm to clients, users, the public and architects themselves

- Systemic risks may be difficult to address:
  - May be latent
  - Difficult to identify in advance
  - Too widespread for the regulator to tackle at once or without assistance from other bodies

What is the purpose of the research?

- Joint research project undertaken by the ARBV and the NSW ARB:
  - To identify key current, emerging and future systemic risks facing the architectural profession in Australia
  - To assist the ARBV and NSW ARB to better target proactive regulatory activity
  - To support architects to navigate systemic risks while discharging their regulatory obligations

- Work undertaken by the ARBs:
  - **Systemic Risks in the Australian Architecture Sector (2022)** – largely based on a desktop review
  - **Deep Dive Report into Systemic Risks in the Australian Architecture Sector (2024)** – insights gained from focus groups with broad range of sectoral participants from Vic and NSW

Using a systemic lens

DISRUPTIVE CHANGE

What do we mean by disruptive change?

- Significant and often unexpected shifts that alter a fundamental way an industry or business operates
- Unlike incremental changes that allow for gradual adaptation, disruptive change may require substantial changes in strategy and operations to ensure continued success and viability
- Disruptive change can create new opportunities for those that are able to respond to the changing landscape, and significant risks for those that fail to adapt

What are the sources of disruptive change in the architecture sector?

- Main sources of disruptive change identified in the research
  - Climate change
  - Technological developments
  - Market instability and failure
  - Over-regulation
  - Geopolitical developments
  - Skills shortage
- Disruptive change may fundamentally affect the provision of architectural services

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Director
A/Prof M. Hank Haeusler, UNSW

Manager
Dr Ivana Kuzmanovska, UNSW

ITTC for Next-Gen Architectural Manufacturing ARC-funded Industrial Transformation Training Centre (A$16M).

Australian Government
Australian Research Council

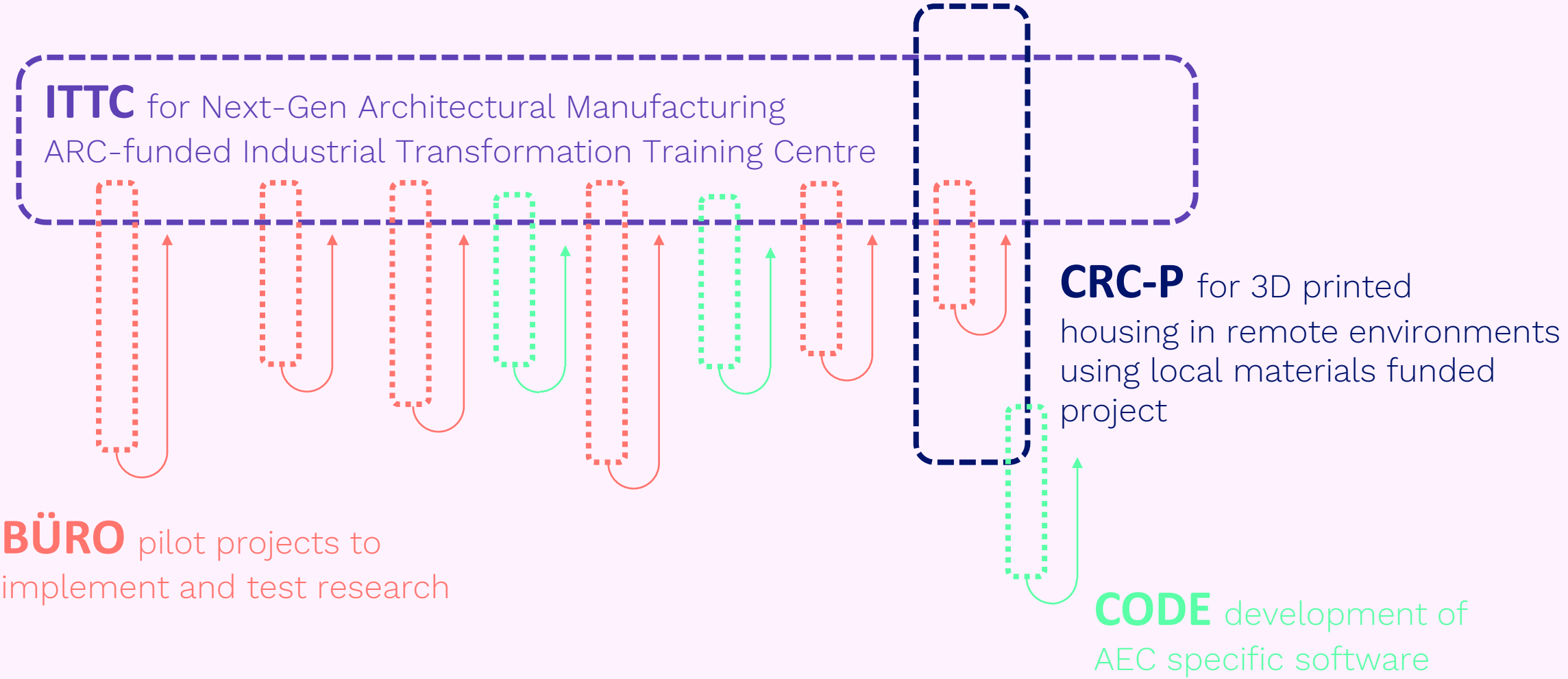
CRCP for 3D printed housing in remote environments using local materials (A$6M).

Australian Government | Business
business.gov.au

CODE a computational design / software development group to develop AEC sector specific tools.

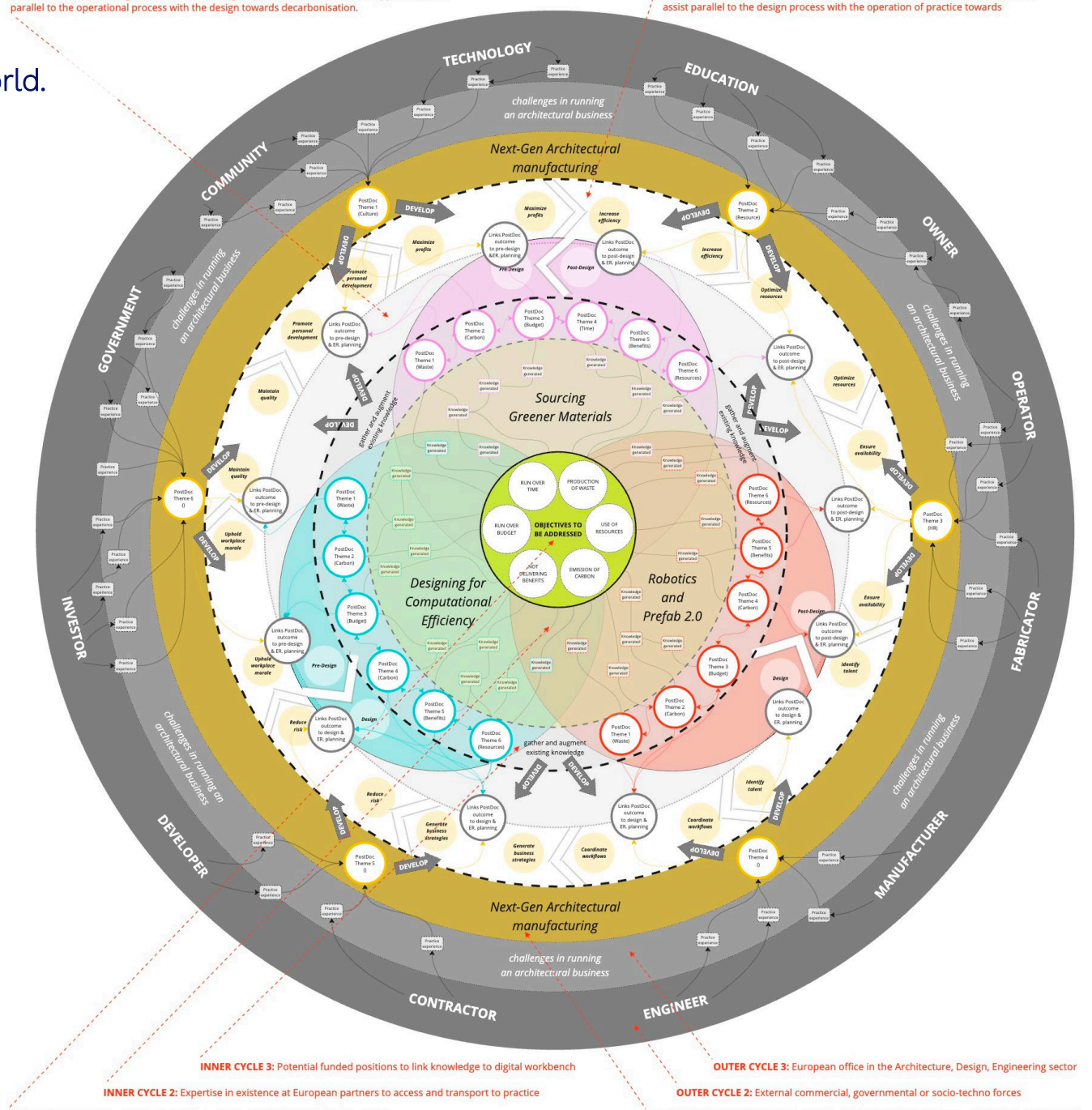
BÜRO a computational design / architectural computing consultancy firm established to test research findings in real projects.

→ **Research horizontal and practice verticals.** Relationship between research projects and practice projects



→ Global challenges.

→ Our map of the world.



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AWARENESS & PREPAREDNESS

Architect's awareness and preparedness for disruptive change

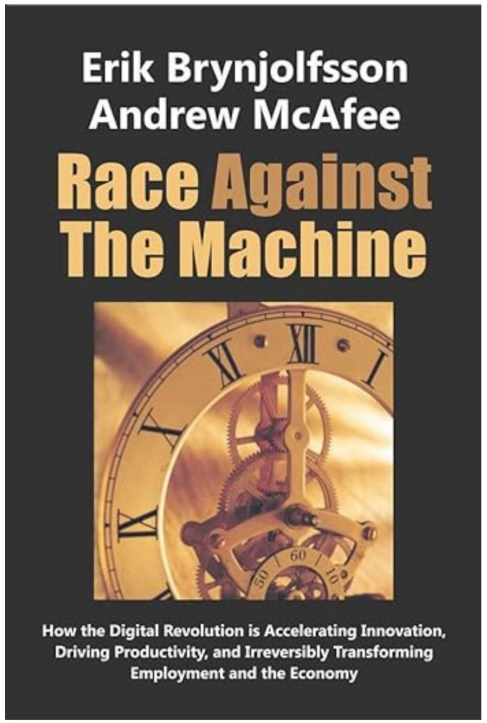
Findings: While there is a spectrum in the level of awareness and preparedness, there are likely to be many architects who are ill-equipped to respond to disruptive change

Insights: Architects' awareness and preparedness to respond to disruptive change is linked to society's preparedness, as well as the attitude of construction sector stakeholders

Implications: Education and training should focus on building architects' awareness of sources and implications of disruptive change

→ Working in different world. One can not win the ‘Race against the Machine’

Books › Business & Economics › Economics › Economic Conditions



Read sample

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Erik Brynjolfsson — Follow

Andrew McAfee — Follow

Race Against the Machine: How the Digital Revolution is Accelerating Innovation, Driving Productivity, and Irreversibly Transforming Employment and the Economy

Paperback – 23 January 2012

by Andrew McAfee (Author), Erik Brynjolfsson (Author)

4.2 ★★★★☆ 570 ratings — See all formats and editions

Why has median income stopped rising in the US? Why is the share of population that is working falling so rapidly? Why are our economy and society are becoming more unequal? A popular explanation right now is that the root cause underlying these symptoms is technological stagnation-- a slowdown in the kinds of ideas and inventions that bring progress and prosperity. In Race Against the Machine, MIT's Erik Brynjolfsson and Andrew McAfee present a very different explanation. Drawing on research by their team at the Center for Digital Business, they show that there's been no stagnation in technology -- in fact, the digital revolution is accelerating. Recent advances are the stuff of science fiction: computers now drive cars in traffic, translate between human languages effectively, and beat the best human Jeopardy! players. As these examples show, digital technologies are rapidly encroaching on skills that used to belong to humans alone. This phenomenon is both broad and deep, and has profound economic implications. Many of these implications are positive; digital innovation increases productivity, reduces prices (sometimes to zero), and grows the overall economic pie. But digital innovation has also changed how the economic pie is distributed, and here the news is not good for the median worker. As technology races ahead, it can leave many people behind. Workers whose skills have been mastered by computers have less to offer the job market, and see their wages and prospects shrink. Entrepreneurial business models, new organizational structures and different institutions are needed to ensure that the average worker is not left behind by cutting-edge machines. In Race Against the Machine Brynjolfsson and McAfee bring together a range of statistics, examples, and arguments to show that technological progress is accelerating, and that this trend has deep consequences for skills, wages, and jobs. The book makes the case that employment prospects are grim for many today not because there's been technology has stagnated, but instead because we humans and our organizations aren't keeping up.

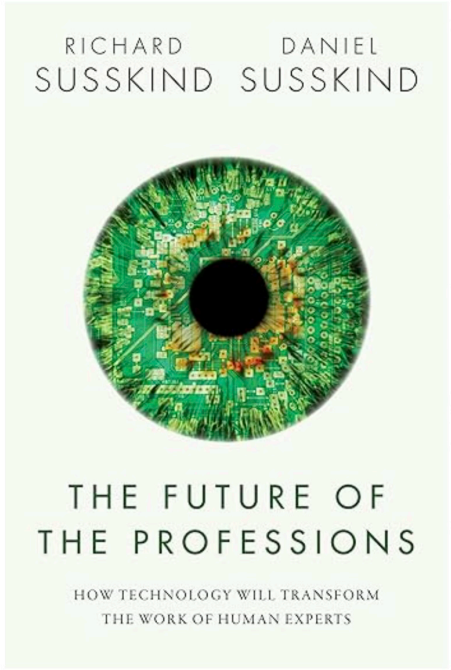
Read less

Report an issue with this product

Print length	Language	Publication date	Dimensions	ISBN-10
100 pages	English	23 January 2012	15.24 x 0.58 x 22.86 cm	0984725113

→ Working in a different world. But your and all the professions will change (or have changed already)

Books › Computers & Internet › Computer Science › AI & Machine Learning › Expert Systems



Audible sample

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Daniel Susskind — Follow


Richard E. Susskind — Follow

The Future of the Professions: How Technology Will Transform the Work of Human Experts

Hardcover – 5 November 2015

by Susskind (Author)

4.3 ★★★★½ 486 ratings

See all formats and editions

This book predicts the decline of today's professions and describes the people and systems that will replace them. In an Internet society, according to Richard Susskind and Daniel Susskind, we will neither need nor want doctors, teachers, accountants, architects, the clergy, consultants, lawyers, and many others, to work as they did in the 20th century. The Future of the Professions explains how 'increasingly capable systems' - from telepresence to artificial intelligence - will bring fundamental change in the way that the 'practical expertise' of specialists is made available in society. The authors challenge the 'grand bargain' - the arrangement that grants various monopolies to today's professionals. They argue that our current professions are antiquated, opaque and no longer affordable, and that the expertise of the best is enjoyed only by a few. In their place, they propose six new models for producing and distributing expertise in society. The book raises important practical and moral questions. In an era when machines can out-perform human beings at most tasks, what are the prospects for employment, who should own and control online expertise, and what tasks should be reserved exclusively for people?Based on the authors' in-depth research of more than ten professions, and illustrated by numerous examples from each, this is the first book to assess and question the relevance of the professions in the 21st century.

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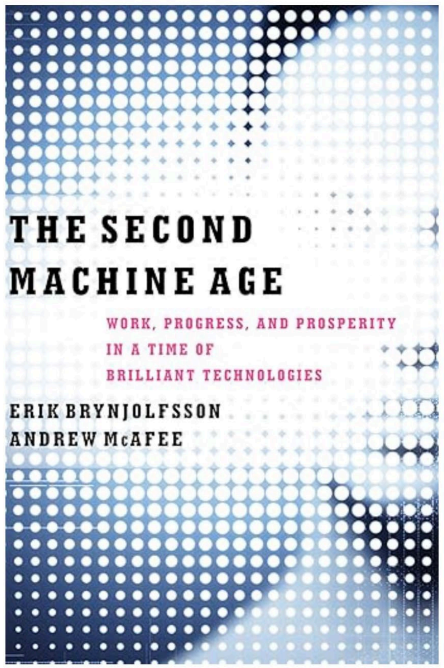
ISBN-10	ISBN-13	Publisher	Publication date
0198713398	978-0198713395	Oxford University Press UK	5 November 2015

→ **Working in a different world.** As we work and live now for many decades in a different world.



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The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies

Reprint Edition, Kindle Edition

by Erik Brynjolfsson (Author), Andrew McAfee (Author) | Format: Kindle Edition

4.3 ★★★★½ 3,075 ratings — See all formats and editions

A *New York Times* Bestseller. A "fascinating" (Thomas L. Friedman, *New York Times*) look at how digital technology is transforming our work and our lives.

In recent years, Google's autonomous cars have logged thousands of miles on American highways and IBM's Watson trounced the best human *Jeopardy!* players. Digital technologies—with hardware, software, and networks at their core—will in the near future diagnose diseases more accurately than doctors can, apply enormous data sets to transform retailing, and accomplish many tasks once considered uniquely human.
In *The Second Machine Age* MIT's Erik Brynjolfsson and Andrew McAfee—two thinkers at the forefront of their field—reveal the forces driving the reinvention of our lives and our economy. As the full impact of digital technologies is felt, we will realize immense bounty in the form of dazzling personal technology, advanced infrastructure, and near-boundless access to the cultural items that enrich our lives.

Amid this bounty will also be wrenching change. Professions of all kinds—from lawyers to truck drivers—will be forever upended. Companies will be forced to transform or die. Recent economic indicators reflect this shift: fewer people are working, and wages are falling even as productivity and profits soar.

Drawing on years of research and up-to-the-minute trends, Brynjolfsson and McAfee identify the best strategies for survival and offer a new path to prosperity. These include revamping education so that it prepares people for the next economy instead of the last one, designing new collaborations that pair brute processing power with human ingenuity, and embracing policies that make sense in a radically transformed landscape.

A fundamentally optimistic book, *The Second Machine Age* alters how we think about issues of technological, societal, and economic progress.
Read less

Question 1: Can an architect's lack of awareness and preparedness for disruptive change affect compliance with professional standards obligations?

(a) No, not at all

(b) Possibly

(c) Definitely

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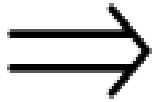
CHALLENGES

What challenges do architects face in responding to disruptive change?

Findings: There are significant financial and practical imperatives within the construction sector that do not support a responsive approach to disruptive change

Insights: Architects may be complacent about disruptive change because the sector as a whole is not responsive to change



Implications: Architects will need to build advocacy skills so that they can demonstrate the value of responding to disruptive change to key stakeholders in the context of the provision of design services

→ **Systemic risks.** Challenges in the ADE industry to respond to systemic risks with systemic innovations

→ **Observation 1.** The ADE (Architecture, Design, Engineering) industry is vital for achieving net-zero targets while tackling housing shortages.

→ **Observation 2.** The ADE industry is a key employment sector yet fragmented and vulnerable to rising tensions.

→ **Observation 3.** Despite its socio-economic importance, the ADE industry has been slow to adapt to digital advances.

→ **Observation 4.** The ADE industry can benefit from academic foresights if findings can be better implemented.

→ **Systemic risks.** Challenges in the ADE industry to respond to systemic risks with systemic innovations

→ **Observation 5.** One can argue as a fragmented and SME industry, research and innovation mechanisms are non-existent.

→ **Observation 6.** The ADE needs an approach that drives fundamental change, fosters resilience, and positions ADE SMEs for long-term success.

→ **Observation 7.** One can propose that universities systemic innovation model in combination with Design Technology can enable net-zero targets.

→ **Observation 8.** New government funding is crucial to address these obstacles and ignite transformative innovation, for novel interdisciplinary cross academic / industry research models.

Question 2: Which project parameters can affect architect's ability to respond to disruptive change?

(a) Tight project timeframe

(b) Limited scope of work for design services

(c) Limited fees for design services

(d) Limited communication between architect, client and/or contractor

(e) None of the above

(f) All of the above

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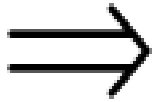
RESPONDING TO CLIMATE CHANGE

How can architects respond to climate change?

Findings: Climate change creates risks and opportunities for architects

Insights: Architects face various challenges in deciding whether and how to respond to climate change



Implications: Architects will need to build expertise in a range of areas in order to capitalise on opportunities presented by climate change

Question 3: Which approach to designing a building could breach an architect's professional standards obligations?

(a) Ignore climate risks because the available information is confusing and contradictory

(b) Rely upon other consultants to address climate risks because this is not an architectural design issue

(c) Use a design that has been proven to be successful in another context

(d) None of the above

(e) All of the above

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RESPONDING TO TECHNOLOGICAL CHANGE

How can architects respond to technological change?

Findings: There is a lack of sectoral awareness and understanding of how technological developments will change the provision of architectural services, particularly emerging digital tools and AI

Insights: It is unclear how architectural practices need to change in order to keep pace with technological developments

Implications: More information is needed about the likely impact of AI and digital tools on the market for architectural services so that architects are better equipped to respond

Question 4: Which approach exposes the architect to the greatest risk of liability when preparing a design?

(a) Only use AI tool for simple design tasks

(b) Use AI tool for all tasks, no need to check prior to finalisation

(c) Use AI tool for all tasks, but check the design before finalisation

(d) Only use AI tool to check design after it has been prepared

(e) Avoid using AI tools in all circumstances

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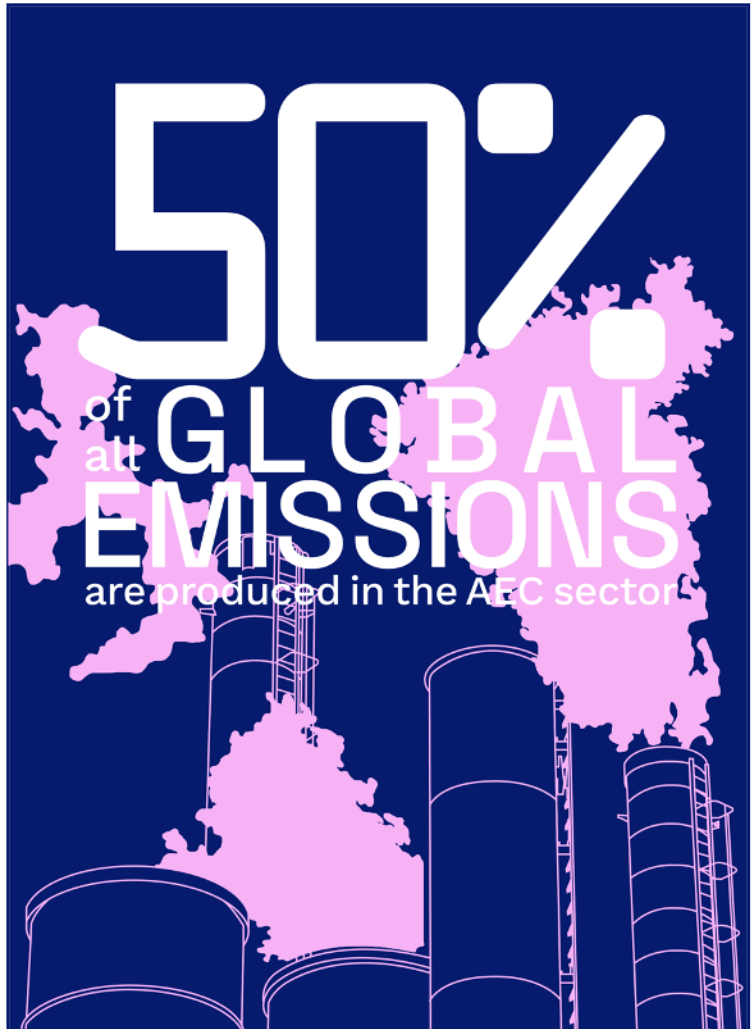
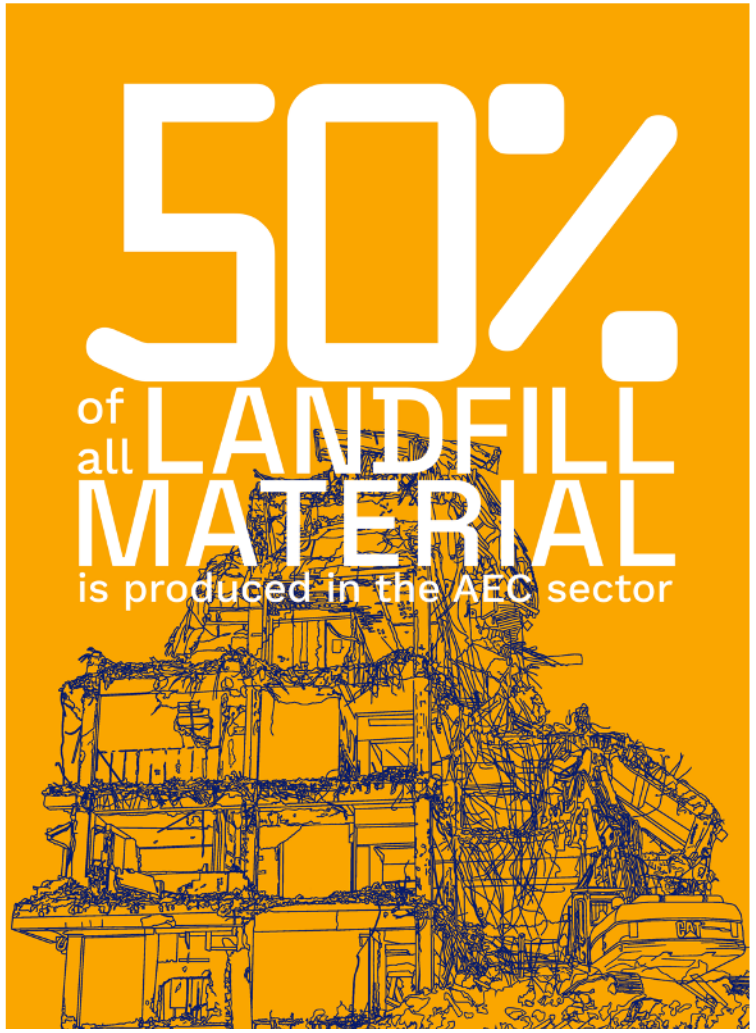
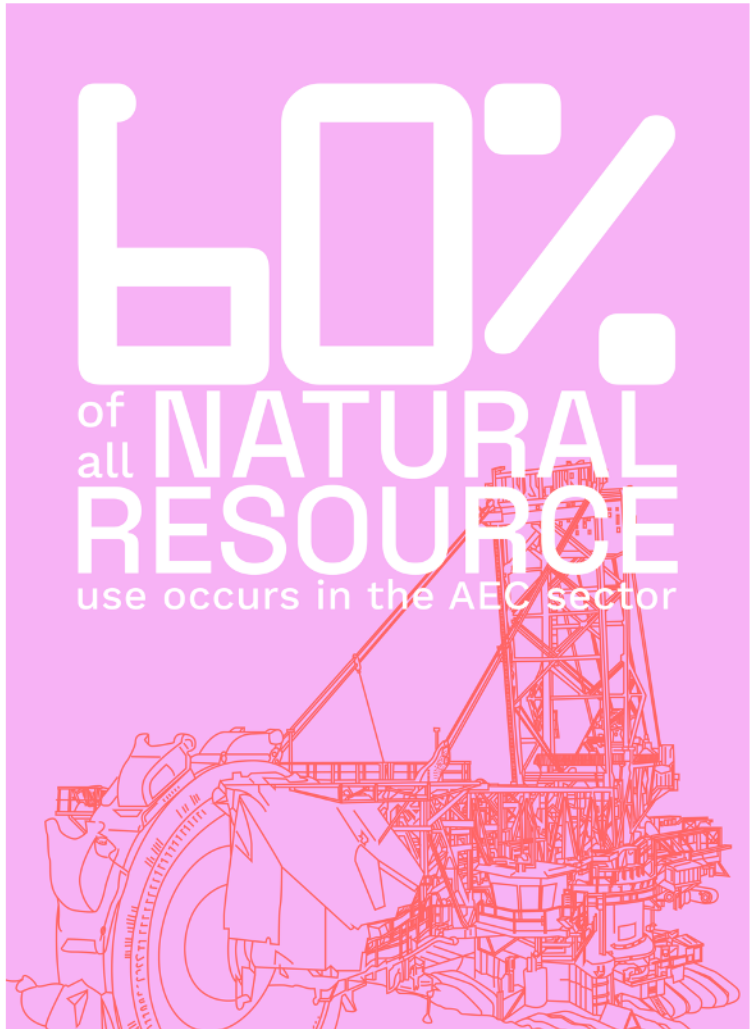
→ **Global challenges.** We are motivated and it is our mission to act on the below as the AEC sector is responsible for







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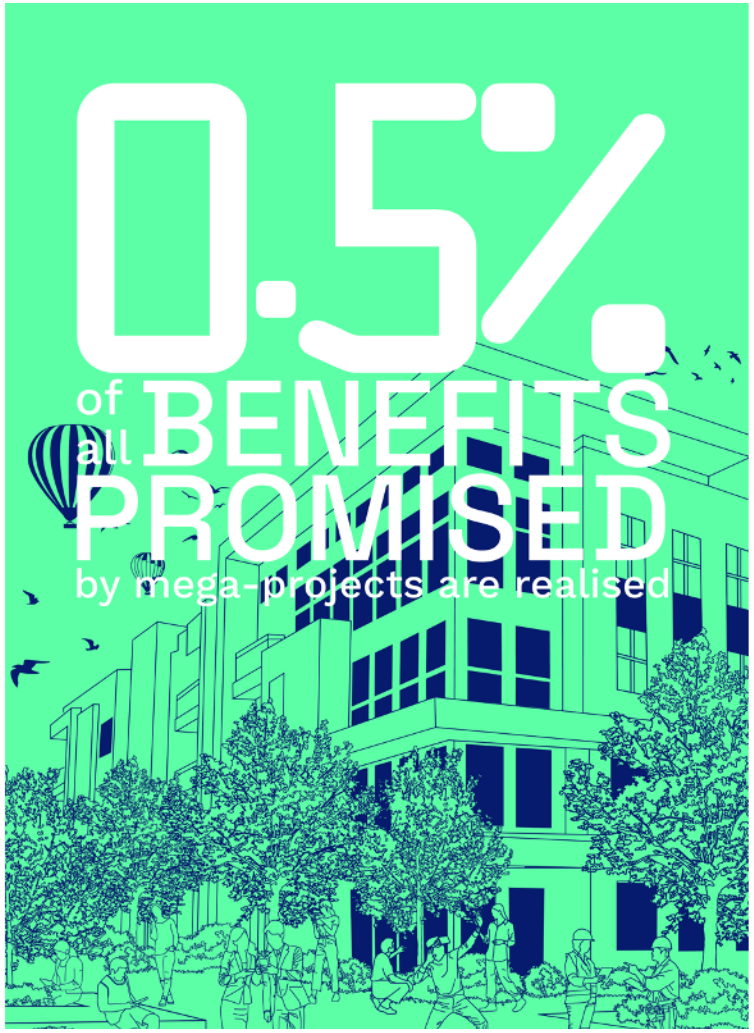
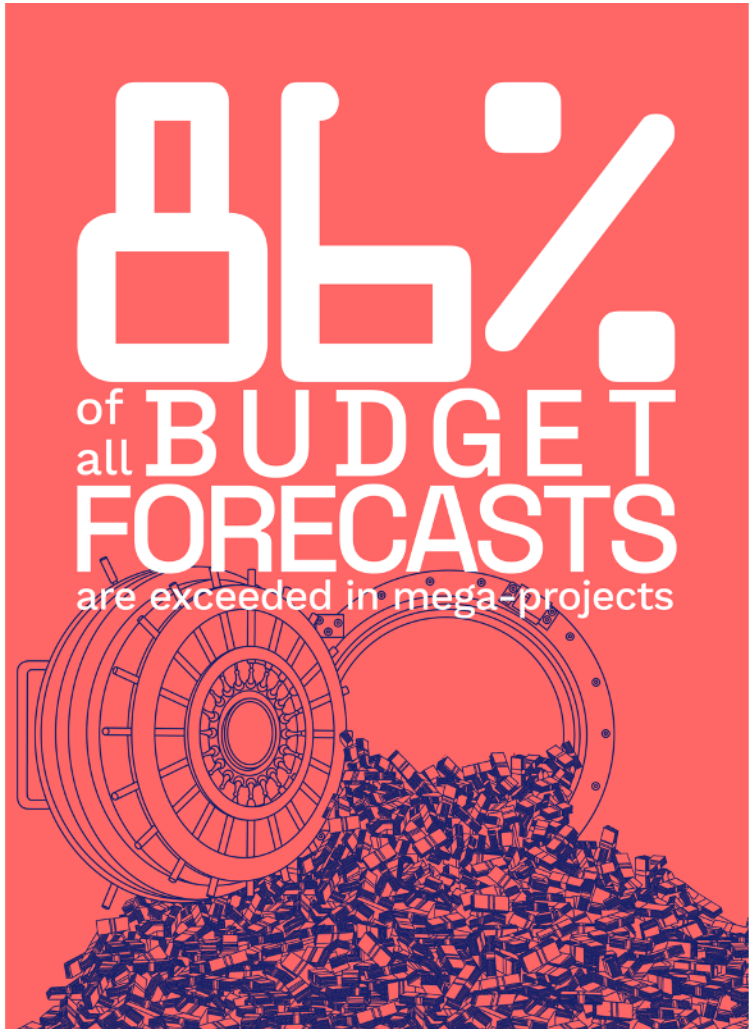
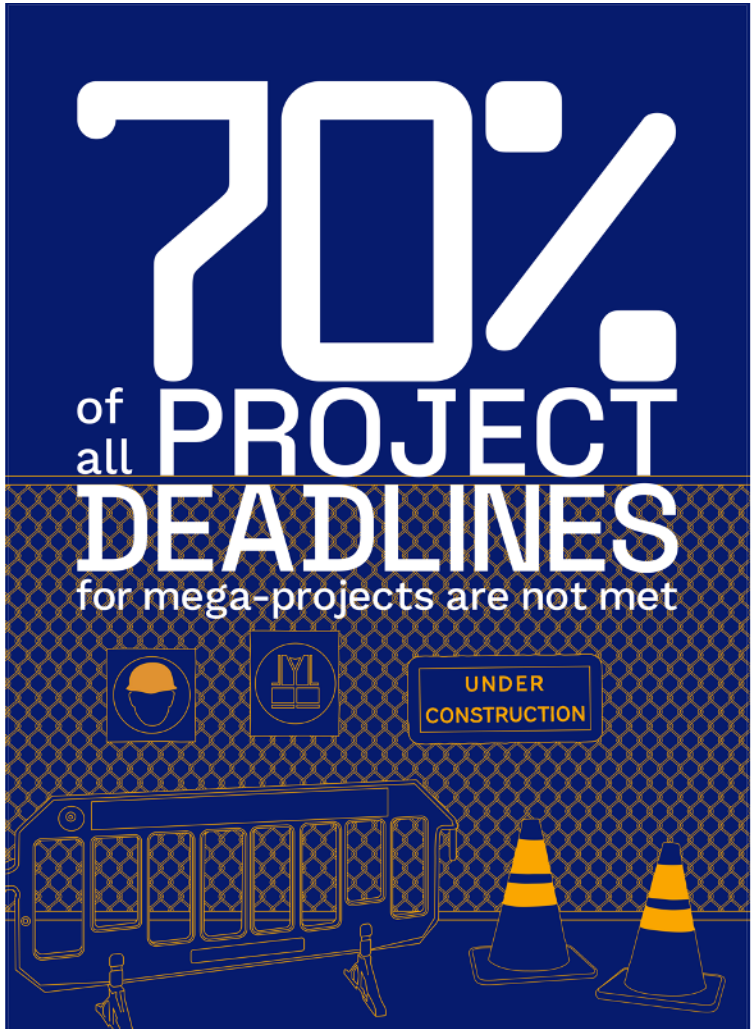






→ **Global challenges.** Deadline constraints as we need to meet our net-zero targets by.

2050

→ **Global challenges.** Growth constraints need to meet the net-zero targets with an increase in human population.

9.7BN

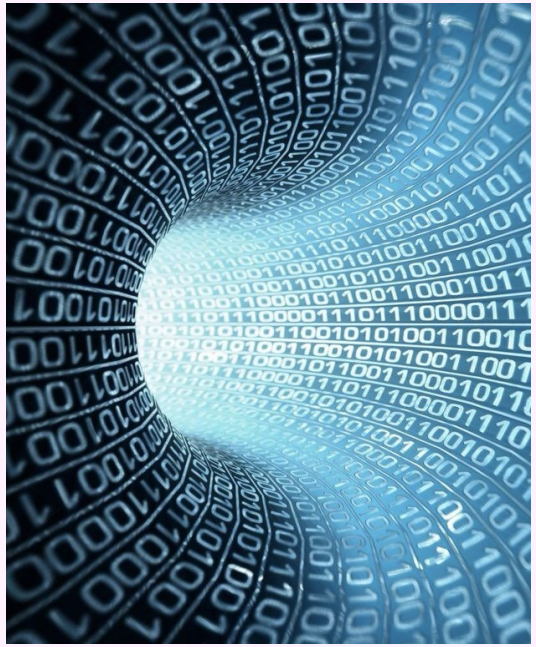
→ **Global challenges.** Time constraints need to act fast for our net-zero target.

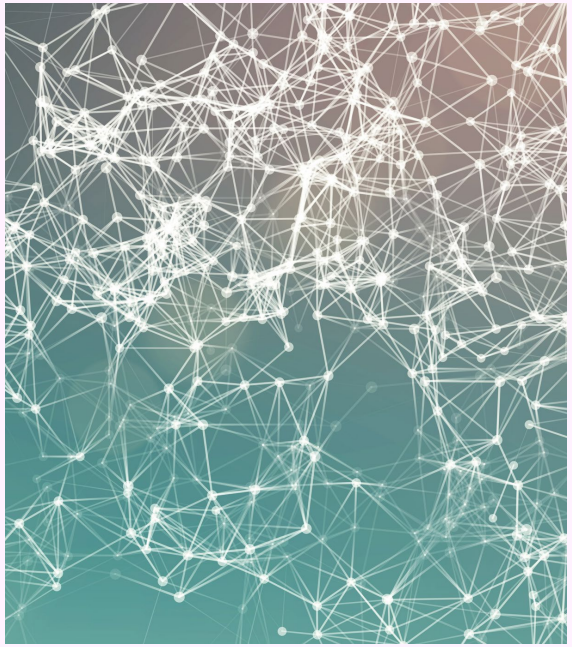
Speed

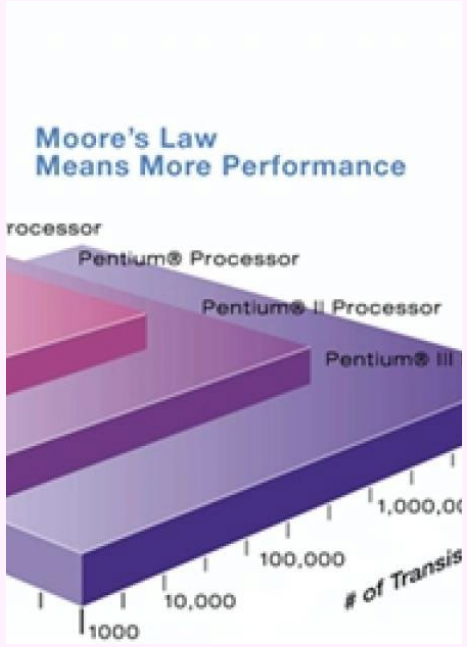
→ **Global challenges.** Spatial constraints need to act everywhere.

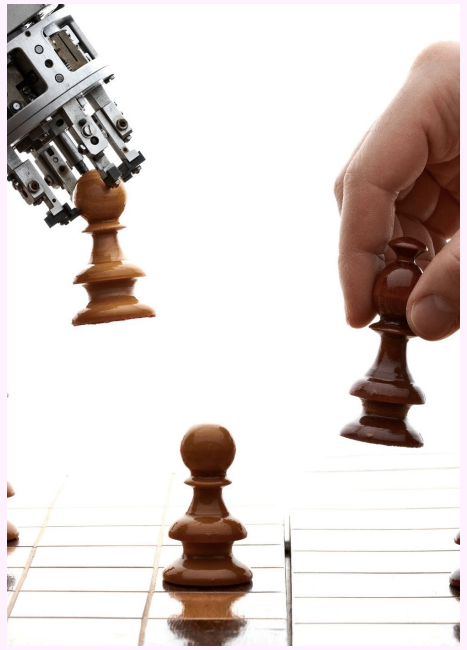
Scalability

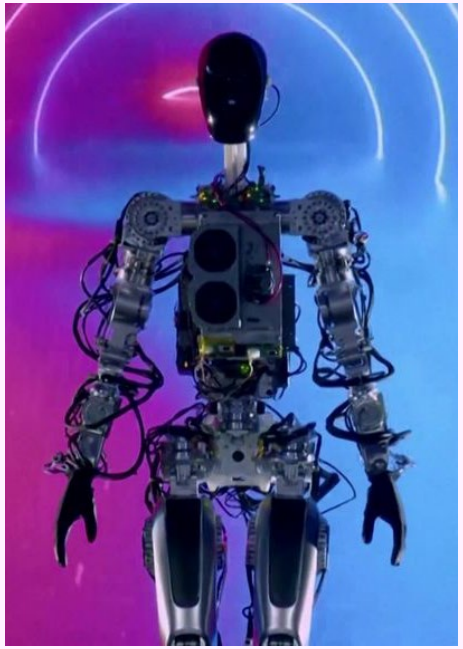
→ **Global challenges.** These constraints can be addressed with second machine age technologies.









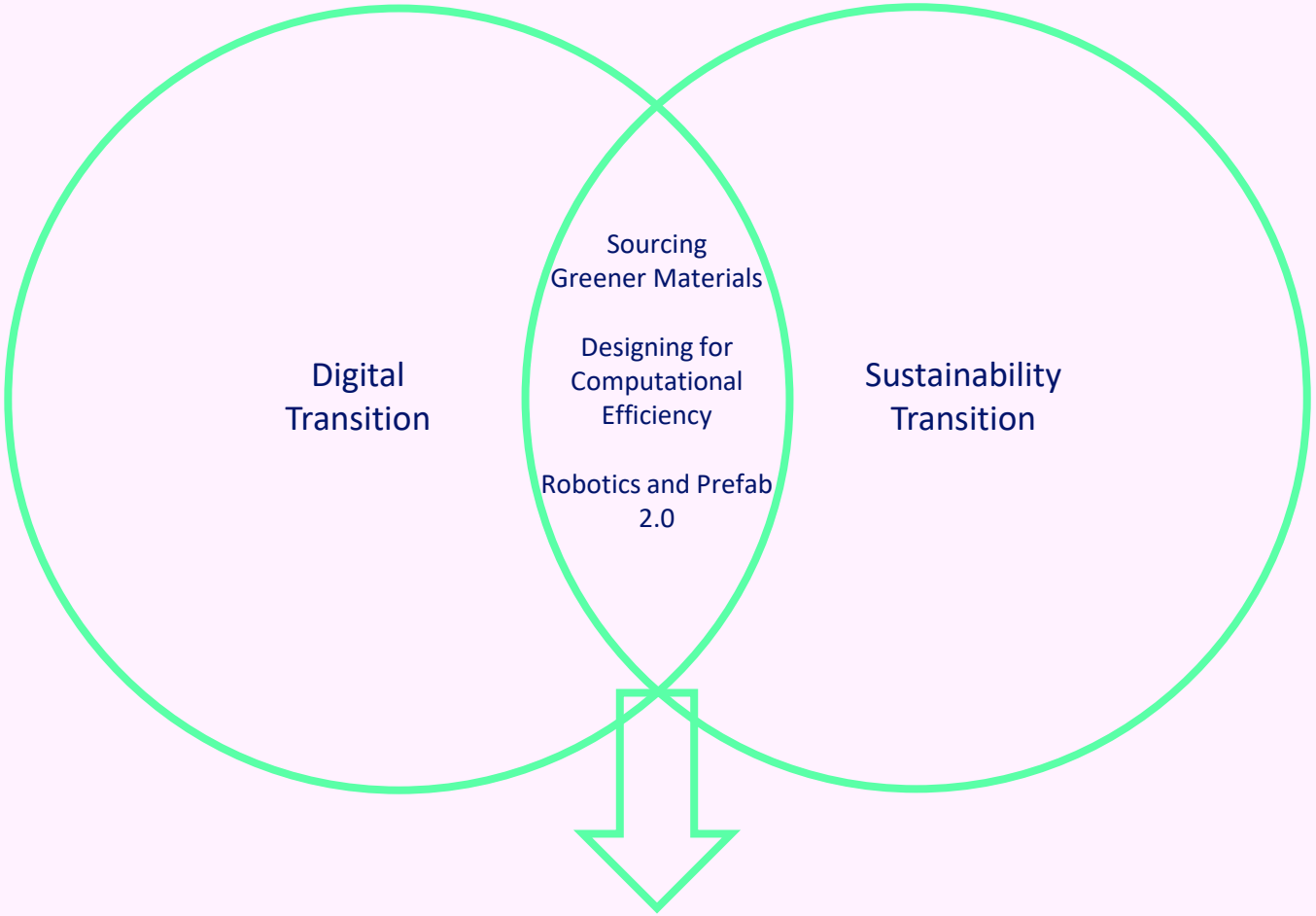


Such as Big Data, Social Media, Digitalized Information, Internet of Things, Sensors, Moore's Law, ML / AI, robotics do offer speed and scalability.

Brynjolfsson, E; McAfee, A. (2014) The Second Machine Age - Work, Progress, and Prosperity in a Time of Brilliant Technologies, Norton Publisher

Digital Sustainability

→ **Digital sustainability.** Our proposed vision as a twin transformation / twin transition.



The intersection in which digitalization strengthen sustainability and visa versa

AI for Architecture, Architects, and/or Architectural Business

Q&A

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