IBM Research

How Can Science and Technology Contribute to The UK's Industrial Strategy?

Dr Peter Waggett
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IBM Q

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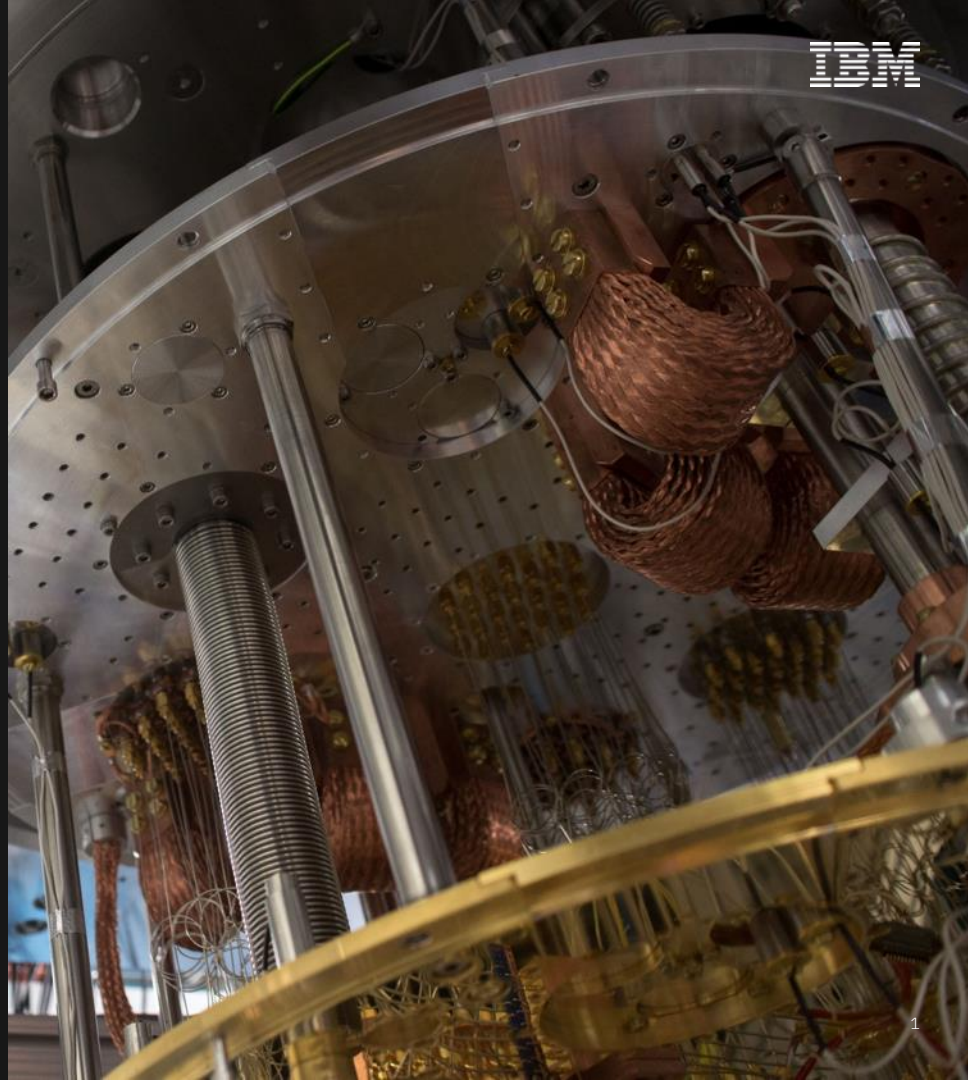
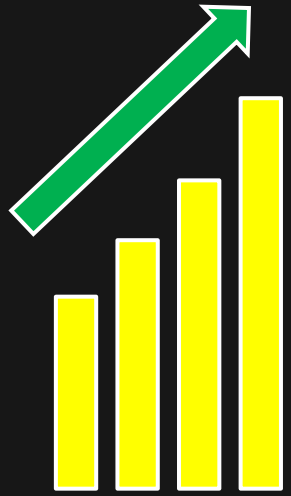
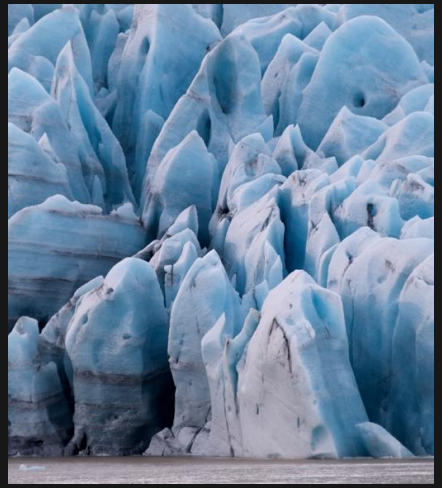


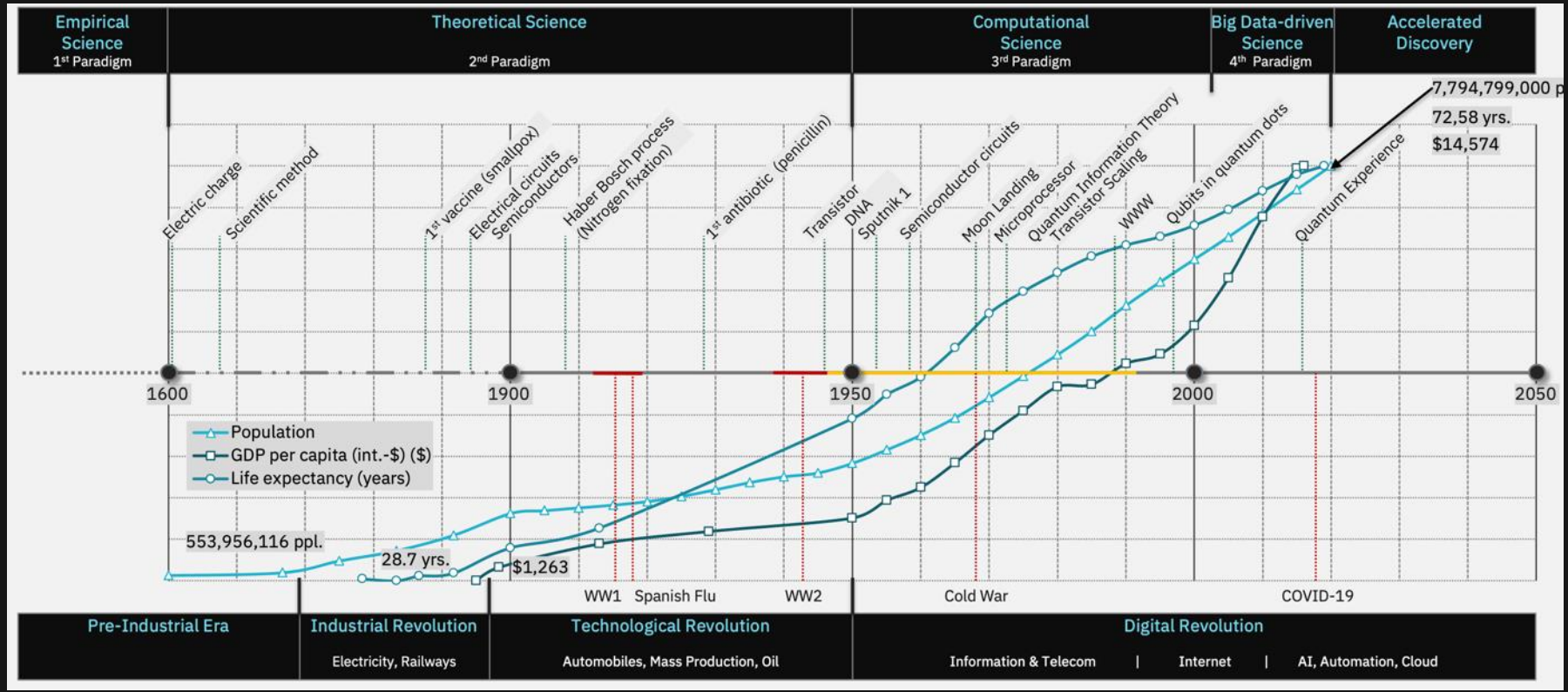
The Impact of Science and Technology has Never Been as Important or Needed as it is Now





The scientific method has been humanity's best model for discovery.

Science has solved some of the world's most difficult problems



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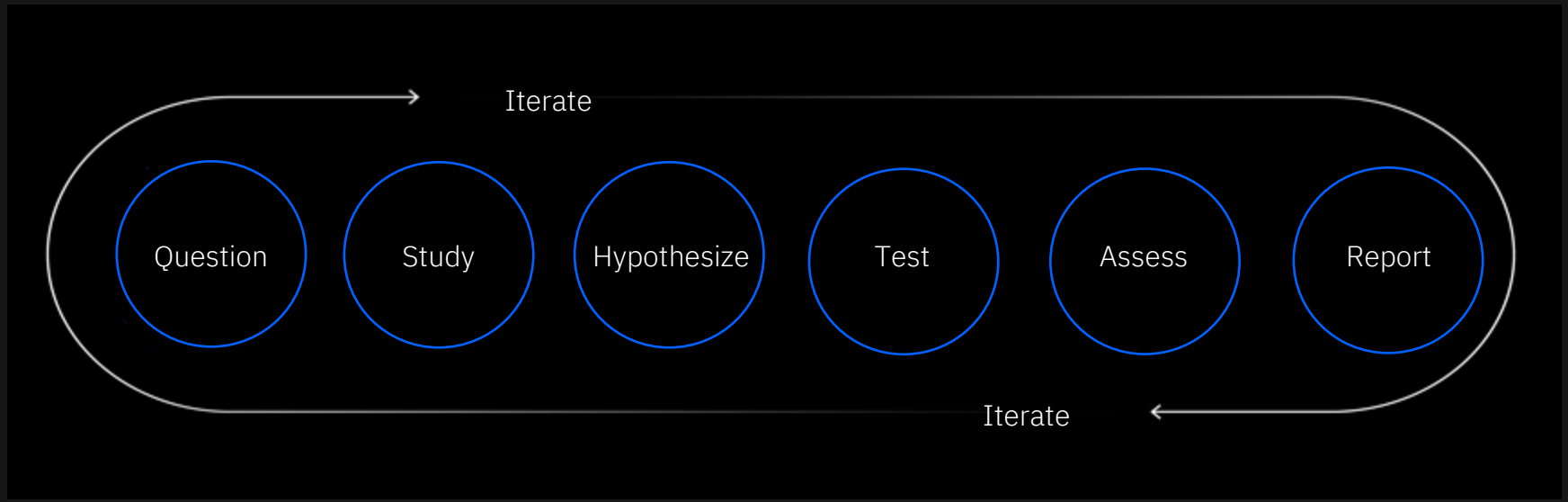
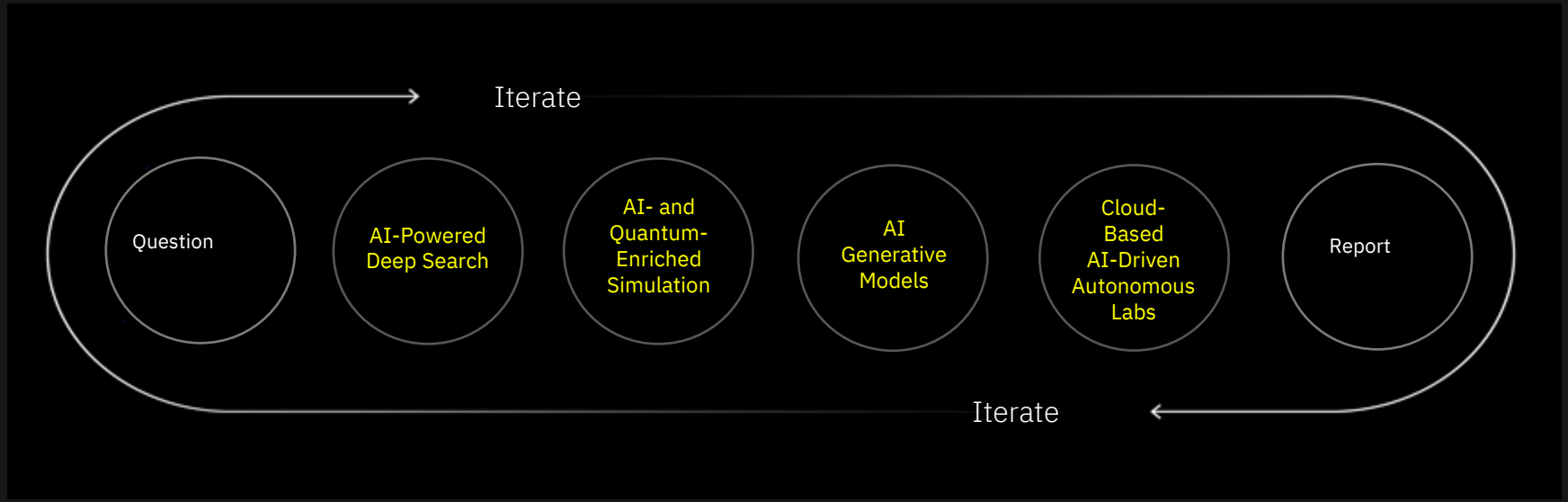
… and it has evolved over time and we are now entering a new paradigm of discovery.

1st Paradigm	2nd Paradigm	3rd Paradigm	4th Paradigm	
Empirical Science	Theoretical Science	Computational Science	Big data-driven Science	Accelerated Discovery
Observations Experimentation	Scientific laws Physics Biology Chemistry	Simulations Molecular dynamics Mechanistic models	Big data Machine learning Patterns Anomalies Visualization	Scientific knowledge at scale AI generated hypotheses Autonomous testing
Pre-Renaissance	~1600s	~1950	~2000	2020

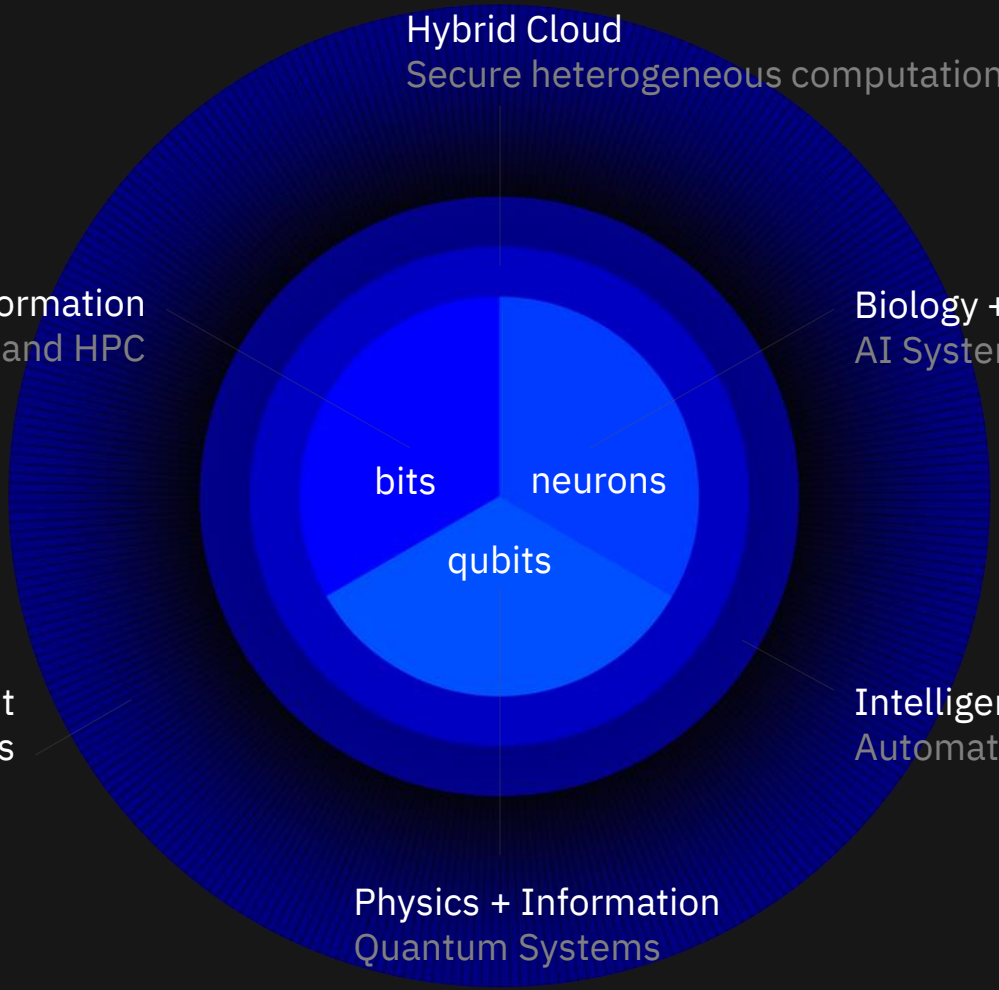
We supercharge the scientific method …



To Deliver Order of Magnitude Improvements to Progress and Growth



The future of computing



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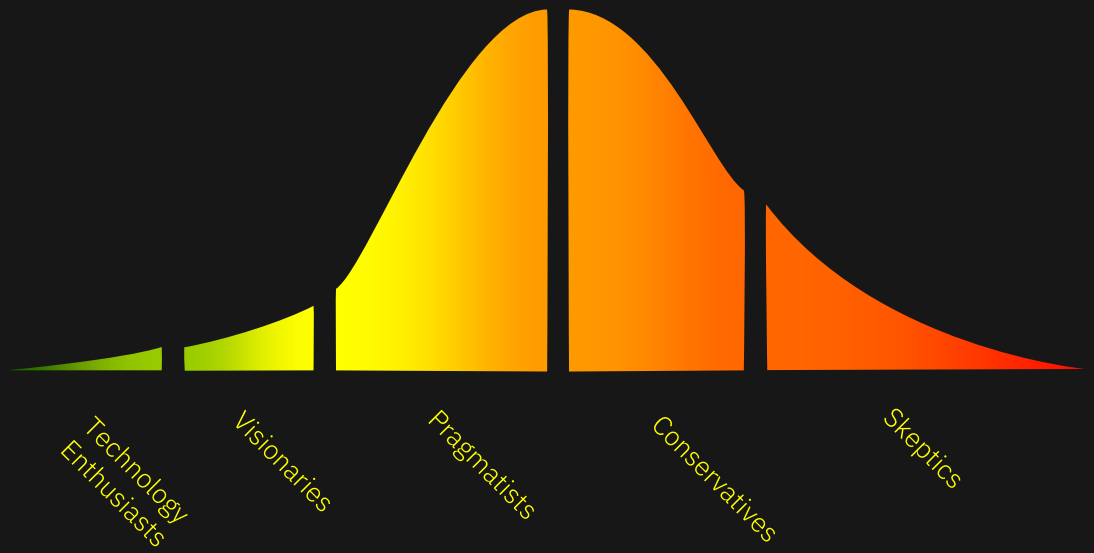
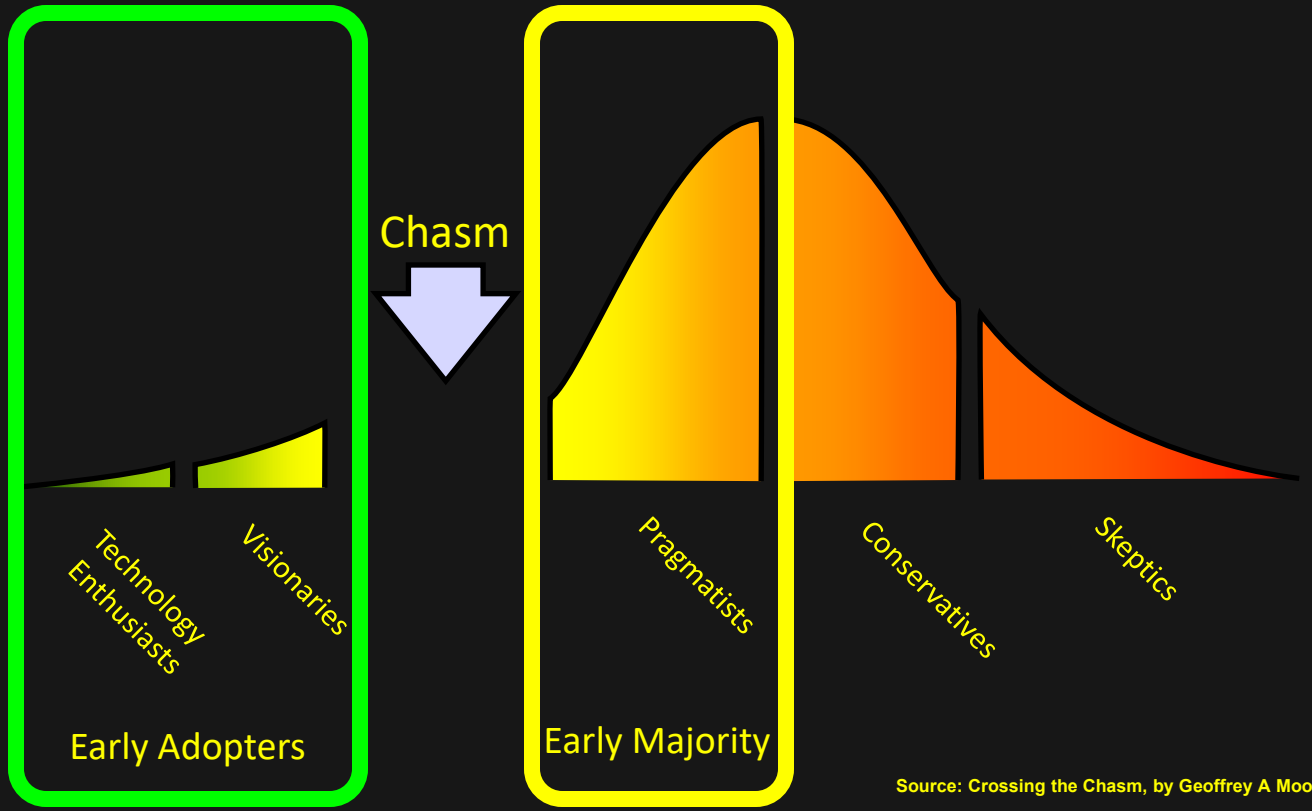
Crossing the Chasm



Source: *Crossing the Chasm*, by Geoffrey A Moore

Crossing the Chasm



Source: Crossing the Chasm, by Geoffrey A Moore

HARTREE NATIONAL CENTRE FOR DIGITAL INNOVATION

UKRI Science and Technology Facilities Council

Hartree Centre

IBM

Hartree National Centre for Digital Innovation (HNCDI)

- New collaborative partnership between IBM Research and STFC
- Enabling businesses and public sector organisations to adopt AI and quantum computing
- A dynamic and supportive expert environment for UK organisations of all sizes to explore the latest technologies, develop proofs-of-concept and apply them to industry and public sector challenges for productivity, innovation and economic growth.
- Helping navigate the possibilities, de-risk investment into new technologies and discover the next step

Tackling Industry and Societal Challenges

Skills
Tackling gaps within your organisation and widening the talent pool

Technical Capability
Exploring and evaluating data-driven AI technologies to help enhance productivity

Application
Developing and implementing practical solutions within your business

Resilience
Knowing how to prepare for and when to invest in the right emerging technologies (e.g. quantum computing)

EXPLAIN

EXPLORE

EXCELERATE

EMERGING TECHNOLOGY

Thank you

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