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GENERATIVE AI: A GAME CHANGER FOR INNOVATION

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INTRODUCTION

GENERATIVE AI (GENAI) IS LIGHTING THE TOUCH-PAPER UNDER AI TRANSFORMATION. IT WILL IMPROVE PRODUCTIVITY, SUPPORT WIDESPREAD INNOVATION AND ENABLE MORE HUMAN CREATIVITY. BUT ACHIEVING THOSE BENEFITS WILL REQUIRE A TRANSFORMATION IN THE NATURE OF WORK ITSELF.

This article examines the challenges and how a transformation should be designed to resolve them. It considers:

- The growth of GenAI
- The impact of GenAI on people, processes and organisations
- The risks associated with GenAI
- How to transform to take advantage of GenAI.

This article was developed by Paul Walton, Chris Dawkins, Michael Gottlieb, Jamie Rich, Rhys Singleton (Capgemini), Andreas Arghyrou, Andrei Bunea, Zeyu Gong and Aadi Singhi (UCL students) as part of a project at the Analytics Lab to consider these questions.

GENAI WILL CHANGE YOUR ORGANISATION

GenAI will have a major impact on the world of business and is already growing very fast. As McKinsey say:

- GenAI has achieved “[explosive growth](#)”
- Generative AI could add between [\\$2.6 trillion to \\$4.4 trillion](#) annually across 63 use cases
- Generative AI is predicted to “[unleash the next wave of productivity](#)”.

McKinsey predicts that the largest financial impact of GenAI will be in sales, marketing software engineering, customer operations and product R&D, but also that it will also reach most organisational functions.

This growth is possible because GenAI enables fundamental changes to the nature of work. It will change the relationship between people and technology and also how applications are developed. For example:

- It has the potential to [automate](#) “activities that absorb 60 to 70 percent of employees’ time today”
- Because of its ease of use and widespread applicability to many business challenges, it “[opens a new world of applications](#)”
- The technology can also enable new types of innovation, for example, in [medical research](#)
- GenAI is being included in numerous products and, by enabling a new approach to the development of app (through [citizen development](#)), it could change the relationship between employees and organisations.

In particular, GenAI can help people to find and interact effectively with large amounts of information. So, it will help with any form of knowledge working if people make the changes needed. For example:

- [70% of consumers](#) are using GenAI for product and service recommendations
- GenAI tools will enable the [automation of knowledge work](#) and decision-making
- [Many new jobs](#) will be created for people who can use the new tools effectively.

This is why GenAI shows so much promise. It helps people to understand, navigate and create the complex information that is at the core of most work.

GENAI WILL IMPACT ORGANISATIONS AT ALL LEVELS

We can analyse its impact by considering the relationship of GenAI with people, processes and wider organisational mechanisms.

GenAI and People

Given the numerous scare stories about AI and its potential impact on jobs, trust is a key ingredient. This means both that the AI needs to be trustworthy and that it is trusted by the people that use it. But many people aren't used to AI and do not recognise how it differs from conventional technology. Engendering that trust needs a range of new skills.

Human frailties. In his book, "Thinking Fast and Slow", Kahneman addresses fundamental issues that people have with the quality of information. He describes our instinctive thinking as "a machine for jumping to conclusions" and "insensitive to both the quality and quantity of information". It can be held in check by effortful processing but that needs to be specifically triggered.

GenAI exacerbates the problem – it can produce "convincing-sounding nonsense". It looks good, so people are likely to think it is right and won't subject it to more rigorous analysis. But unfortunately, they have no easy way of telling when it is actually right and when it is "hallucinating" (i.e., inventing information).

The nature of work. The interface between people and AI needs to combine the best of both. This is a large-scale issue given the number of jobs affected and people will need new skills to take advantage of the technology. To achieve this requires careful thought – there are human qualities that the joint approach needs to enable.

Because of the many risks associated with AI, people need to be in control. This applies throughout the operating model, but it also requires the implementation of human-centric AI principles. Shneiderman (in his book, "Human-Centred AI") describes the key ideas. He aims for "high levels of human control and high levels of automation".

As AI takes on more complex activities, it will become more difficult for people and AI to work together. In particular, AI will need to be able to explain itself. But this is a difficulty since machine learning (including GenAI) cannot explain why it does what it does. So, interactions with GenAI will need careful design.

GenAI and Processes

If introducing GenAI involves changing the nature of work, what does this mean for business processes?

Organisational knowledge. Many current GenAI implementations enable better access to organisational knowledge. For decades, understanding and accessing organizational knowledge has been difficult. But summarizing and analysing large amounts of information is a strength of GenAI, so it should improve access to organisational information.

Process flexibility. Many business processes rely on highly structured information (think of form-filling or following a call centre script). GenAI promises the ability to improve the ability to pick structured information out of a less structured interaction. This will make processes less linear and brittle and more flexible.

But processes also need to be flexible in a different way. The relationship between people and GenAI is likely to change as both sides learn. This means that processes will need to both enable and cater for that joint learning.

Process understanding. GenAI will increase the complexity of processes. Understanding is a problem with individual interactions but the difficulties will scale up when processes contain a range of GenAI inputs. In this case, how can the workings of the process, and the decisions made be understood?

GenAI and Organisations

Taking advantage of AI as a whole requires transformation. But GenAI is accelerating the adoption of AI and adds some extra complexity into the mix.

Application delivery. The nature of application delivery is changing. GenAI promises to revolutionise development. It will accelerate the momentum established by no/how code technologies that already make it easier for citizen developers (i.e. not professional developers) to build applications more easily. As Davenport et al say:

“The need for citizen developers is obvious. Software vendors have begun adding generative AI interfaces to their products to facilitate chat- or voice-based requests for transactions, data, and analysis. We anticipate that most business software will soon be created or interacted with through similar systems.”

But this level of empowerment scales up the governance challenge:

“Without proper controls and guardrails, widespread citizen development could result in chaos.”

Innovation. If the right balance is struck between people and AI (see above), the GenAI can empower creativity and innovation. GenAI allows easier access to new ideas and enables more personalized solutions so it can speed up the innovation process.

The differences, together with the changes in application delivery, will enable people to develop new ideas and embed them in technology more easily. As a result, the innovation process can become increasingly democratized.

Governance. AI requires new governance but the pace of GenAI growth may outstrip the implementation of the controls needed. Figure 1 shows how GenAI has amplified the control challenge.

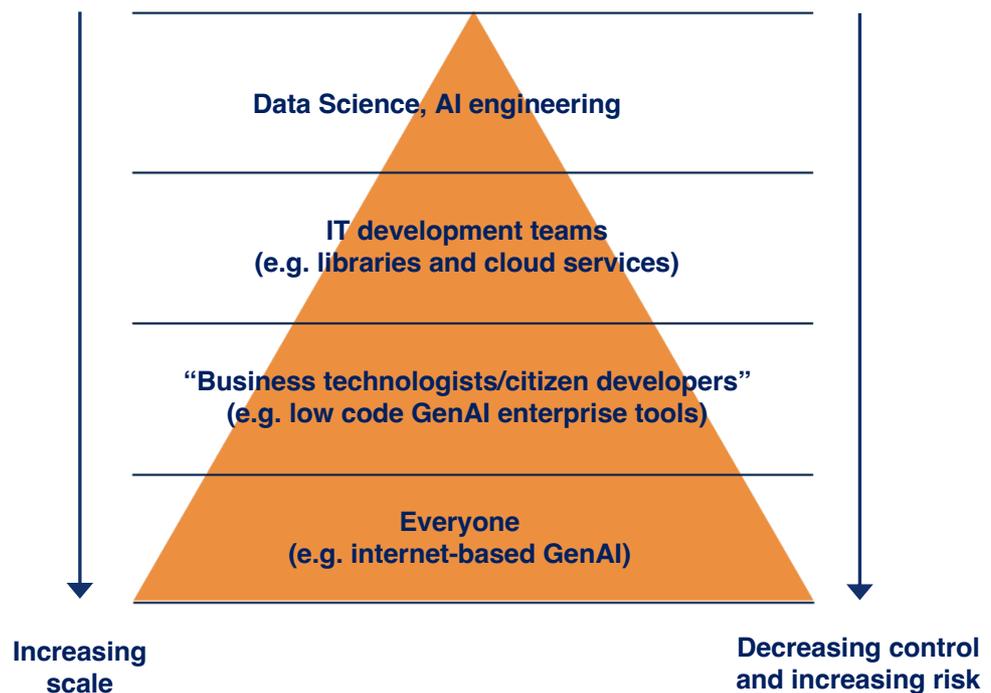


Figure 1: Increasing levels of empowerment and risk.

The scope of changes at these different levels demonstrates the transformation challenge – it needs to address fundamental questions about:

- **People and skills:** what changes are needed to ensure that people have the understanding and skills they need to trust, work with, and control the technology? How can GenAI help people to develop new skills by removing barriers to learning? What is the risk that GenAI will deskill people? How should these changes be embedded into organizational change activities?
- **Culture:** what change in culture is needed to enable the levels of innovation and learning required to benefit from GenAI? How should this be embedded in organizational change?
- **Processes:** how can work be designed to enable the best of people and the best of AI, and avoid the worst of each? What skills are needed in process design to achieve this?
- **Application delivery:** how should citizen development be empowered and controlled? Where should the balance be drawn? How will GenAI change existing deliver models? What new skills are needed in user research, interface design, business analysis, development and testing?
- **Trustworthy AI:** how can the data, machine learning models and delivery process be guaranteed to meet the standard needed to be sufficiently trustworthy (even for citizen development)?
- **Organisational knowledge:** how can organisational data and knowledge (as needed) be made available to GenAI tools? How can the quality of the data be assured?

- **Governance:** what governance and controls are needed, at scale, to mitigate the risks and enable a response in time to avoid unforeseen consequence? How will GenAI, and AI in general, change the ways in which decision-making takes place in organisations? How can organisations ensure the quality of decisions when these are increasingly delegated to AI with a limited ability to explain itself?

These questions address many fundamental issues and require a rigorous transformation approach covering all of the topics shown in Figure 2.

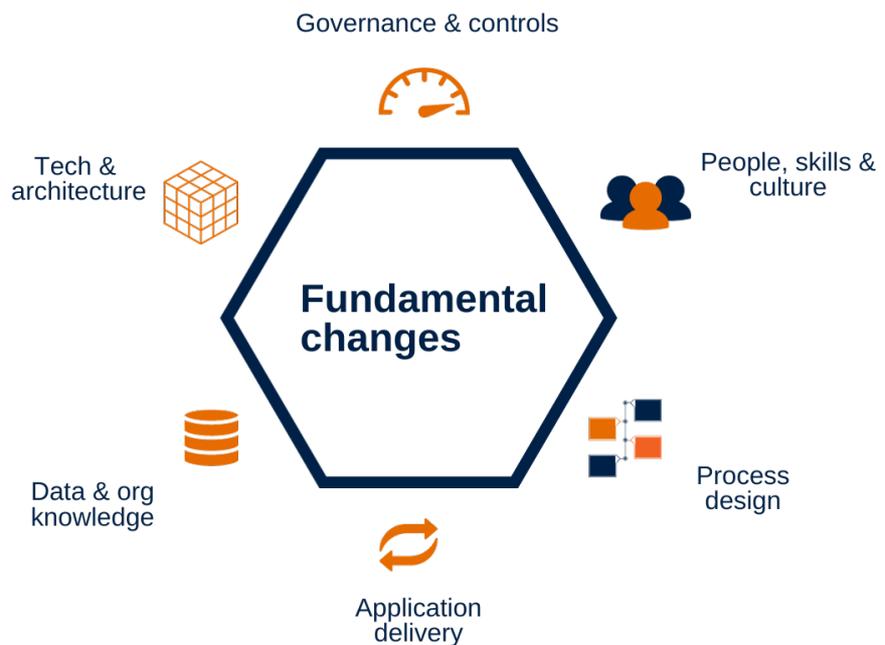


Figure 2: Implementing GenAI at scale requires fundamental changes.

And the transformation approach needs to take into account the ease of the use of GenAI. There is a significant risk of widespread, unknown and uncontrolled usage. Knowing the scale of the challenge may, in itself, be difficult.

GENAI AMPLIFIES MANY OF THE RISKS ASSOCIATED WITH AI

Any transformation needs to cater for the new risks created by GenAI. Because GenAI is different from conventional technology many of the assumptions that organisations make about implementing technology are not sufficient.

GenAI uses machine learning so it suffers from the inherent problems of machine learning (since "bias is machine learning's original sin"). Machine learning generates a set of difficult ethical risks as well as added risks stemming from the added complexity and acceleration of decision-making.

On top of this, GenAI creates additional risks that "many organisations are not yet addressing". The use of current Internet-based tools comes with legal and commercial risks because of the possibility that data and intellectual property may leak.

GenAI will amplify the risks associated with complexity. As decision-making becomes more automated and accelerated it will become harder and harder for people to understand what is going on and how to resolve any issues.

All of these factors lead to the diverse and complex mix of risks shown round the outside of Figure 3. Each of these will require fundamental changes to the operating model components shown in the middle.

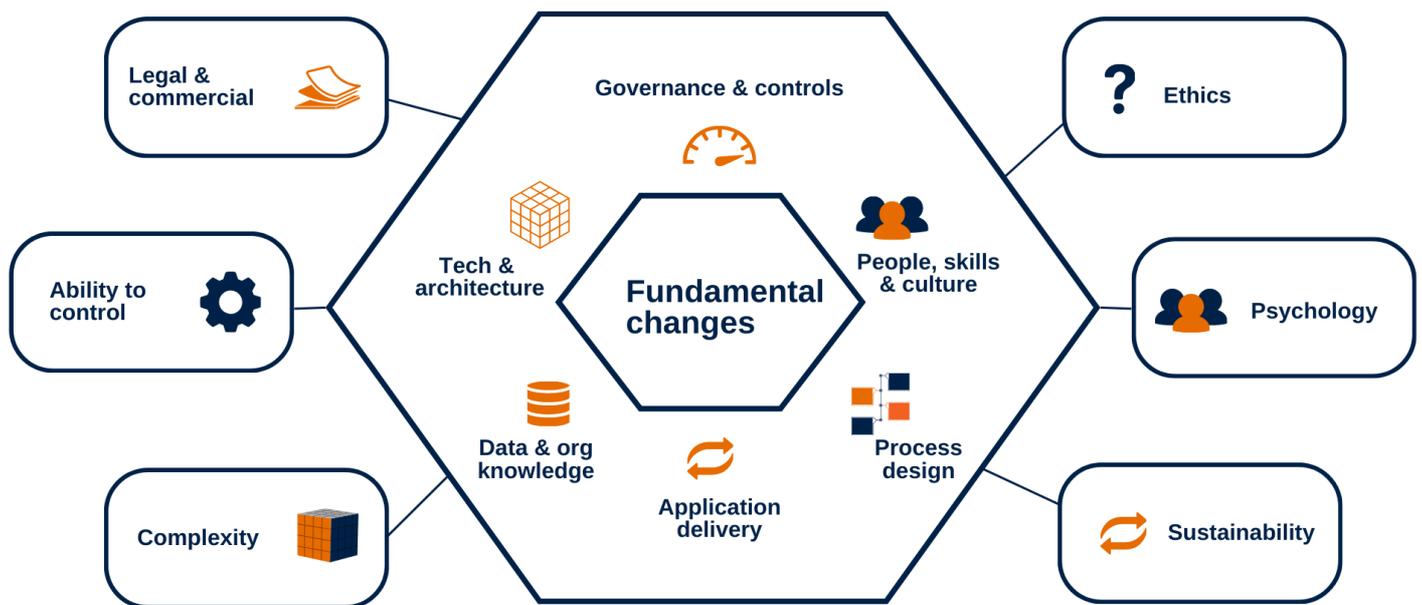


Figure 3: Diverse and complex risks will affect many components of the operating model.

These risks are not theoretical. The pace of GenAI implementation means that the use of GenAI may outpace the controls needed to mitigate the risks.

Because of these different types of risk, a risk-based approach to regulation is being formulated. For example, the draft EU AI Act proposes to mandate a risk-based approach. The objective of this regulation is to ensure that AI components used in different applications are analysed and classified according to the risk they pose to users. The different risk levels will mean more or less regulation. The proposals also include the need to be transparent about GenAI use. This includes disclosing that content was produced by GenAI, designing the model not to produce illegal content and publishing summaries of copyrighted data.

ORGANISATIONS NEED AN INCREMENTAL, INTEGRATED TRANSFORMATION

The scale of this challenge is daunting. Each of the elements shown in Figure 2 will need to be substantially rethought but without any clarity yet about what the future holds. This means that any approach needs to be incremental, since the workforce and GenAI will evolve together iteratively.

But what should the increments be? How should the implementation of controls relate to use cases? Where is the balance between empowerment and control? At what level will control stifle innovation and achievement of the benefits?

But also, what are the risks? Do you know the actual level of GenAI use and the level of risk?

These questions are difficult, so the transformation design needs to deal with them head on. The journey needs to be iterative. It needs to develop digital products (those that include GenAI) through an agile product lifecycle. But each product will only achieve any scale successfully if the right controls and organisational enablers are in place. And the changes will only stick if the organisational culture is aligned with the required learning and innovation.

To prioritise amongst the various options, the transformation governance needs to balance benefits and risks, opportunities, and enablers. This will ensure that risks can be sufficiently mitigated before they arise and enough organisational enablers are in place when needed so that full advantage can be taken of the opportunities.

But this level of decision-making requires good quality information about potential use cases, potential innovations and associated risks and issues. In turn, this requires clarity about the actual degree of usage of GenAI, including the use of those Internet tools not already included in enterprise technology.

So, the transformation needs to be iterative, integrated and well-informed. It needs to align digital product development, the implementation of controls and organisational enablers (for example, those in Figure 2) and embed a culture that will embrace learning and innovation. These characteristics are shown in Figure 4.

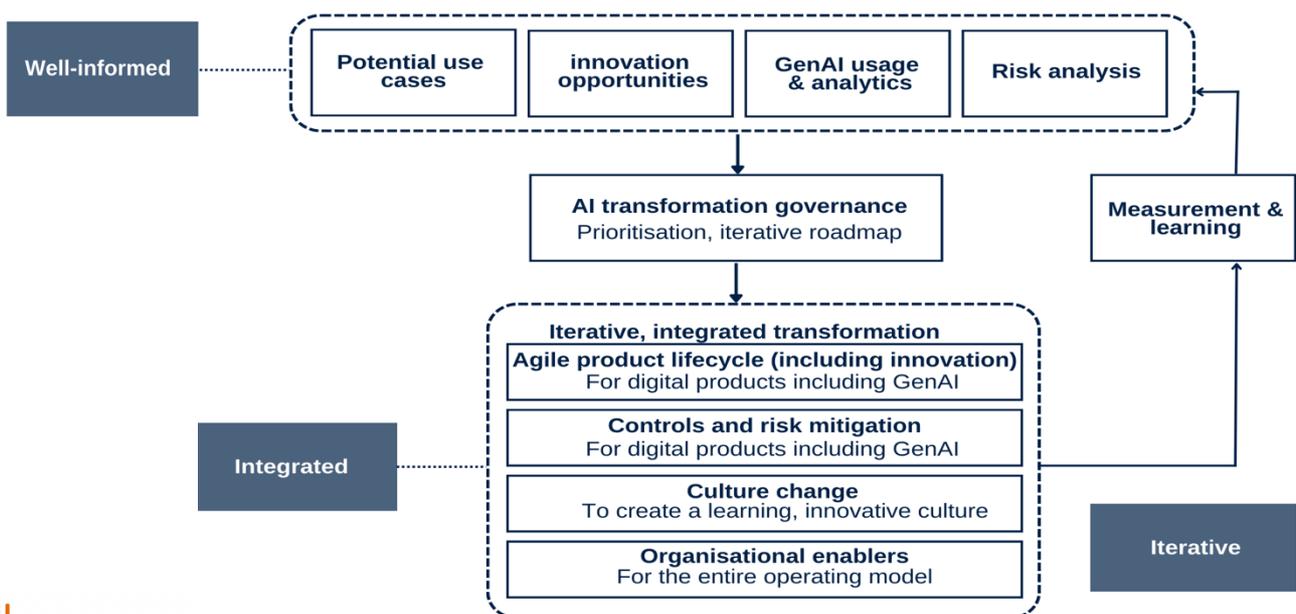


Figure 4: GenAI requires a well-informed, incremental, integrated transformation.

CONCLUSION

GenAI is growing fast, will deliver major benefits and will impact functions and processes across organisations. It will achieve this scale because it enables important changes to the nature of work and large improvements in the performance of business processes.

To achieve the benefits, organisations need to recognise how AI and GenAI are different from conventional technology and the enablers needed to take advantage of them. This will require an incremental and integrated transformation approach able to:

- Mitigate the risks
- Develop the enablers
- Understand the opportunities and deliver benefits at scale.

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