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GENAI
AND SKILLS

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MEETING THE CHALLENGE OF GENAI SKILLS

GENERATIVE AI (GENAI) IS SET TO REVOLUTIONISE THE NATURE OF WORK AND CHANGE THE NATURE OF SKILLS NEEDED FOR KNOWLEDGE WORKING.

Four in five executives say that generative AI will change employee roles and skills, but organisations just aren't ready for GenAI.

This article, written as part of a joint project between Capgemini and the UCL School of Management, analyses the changes in skills required and how organisations can approach reskilling.

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GENAI WILL CHANGE THE NATURE OF WORK

GenAI offers the opportunity of re-imaging how work is done and, in the process, delivering major productivity improvements. There is a widespread consensus that its impact will be large. For example:

- Generative AI is predicted to "unleash the next wave of productivity";
- Because of its ease of use and widespread applicability to many business challenges, it "opens a new world of applications";
- It will affect up to "70% of business activities";
- 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.

But GenAI is different from conventional technology and introduces a range of new risks. Implementing GenAI will only succeed if organisations recognise the required ethical principles and the difficulty of the changes needed.

The GenAI journey is only starting – as McKinsey says:

> "The generative AI payoff may only come when companies do deeper organizational surgery on their business […] The initial enthusiasm and flurry of activity […] is giving way to second thoughts and recalibrations as companies realize that capturing gen AI's enormous potential value is harder than expected."

An In-depth review of skills is a major part of this surgery.

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Unlike previous automation phases, GenAI will deliver much more productive knowledge working. An AI assistant can augment human activities by helping to shape work, manage information and draft outputs all in a very personalised way and with a more natural user interface (see, for example, the different Copilot additions to Microsoft products). These augmentations are shown in Figure 1.

GenAI - shaping work
- Ideation
- Good practice
- Recommendations

People
- Exploiting human capabilities
- Ensuring quality, compliance and ethics
- Delegating to, coaching and managing the AI

GenAI - drafting output
- Creating drafts
- Converting formats and styles
- Personalising

GenAI - managing work
- Accessing organisational information
- Converting, summarising, analysing
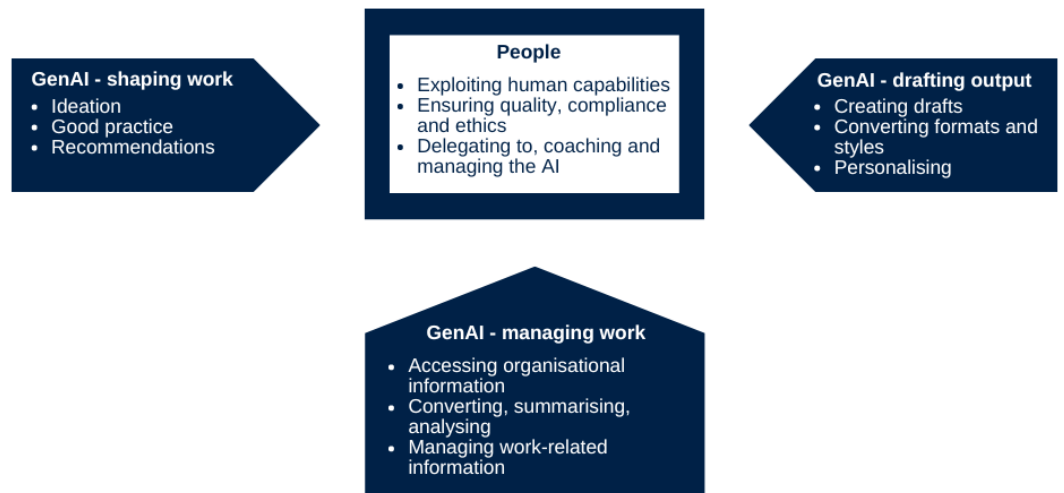- Managing work-related information

Figure 1: GenAI and knowledge working

In this GenAI-enabled way of working, the GenAI will democratise many skills, allowing people to use human attributes that the technology is incapable of.

These new skill requirements will be very widely distributed since GenAI will affect up to 40% of tasks and around 30% of hours worked.

The relationship between people and technology will also change. Because Large Language Models (LLMs), like ChatGPT, are so fluent with language they enable a different kind of interface between people and technology, one that is closer to human interaction. This idea is currently being included in chatbots (see, for example, Microsoft's Copilot Studio) but will also affect other types of interface.

This new style of interaction has prompted new thinking about how to design processes. For example, in "Your Organization isn't Designed to Work with GenAI", the authors describe "Designing for Dialogue":

> "Unlike traditional, technology-driven process redesign principles that focus on taking capabilities 'out' of the human and putting them 'into' the machine, Designing for Dialogue is rooted in the idea that technology and humans can share responsibilities dynamically. Each takes the lead at different points throughout a process based on context and competence. It essentially treats GenAI more like a coworker than a static technology."

People will need different skills to navigate a dialogue of this type with GenAI. As well as entry-level skills (for example prompt engineering), the skills will need to match the challenges of understanding the context when work moves between AI and human.

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THE RE-SKILLING REQUIRED IS WIDE-RANGING

These changes have an extensive impact on the skills requirements of organisations, shown in the following diagram.
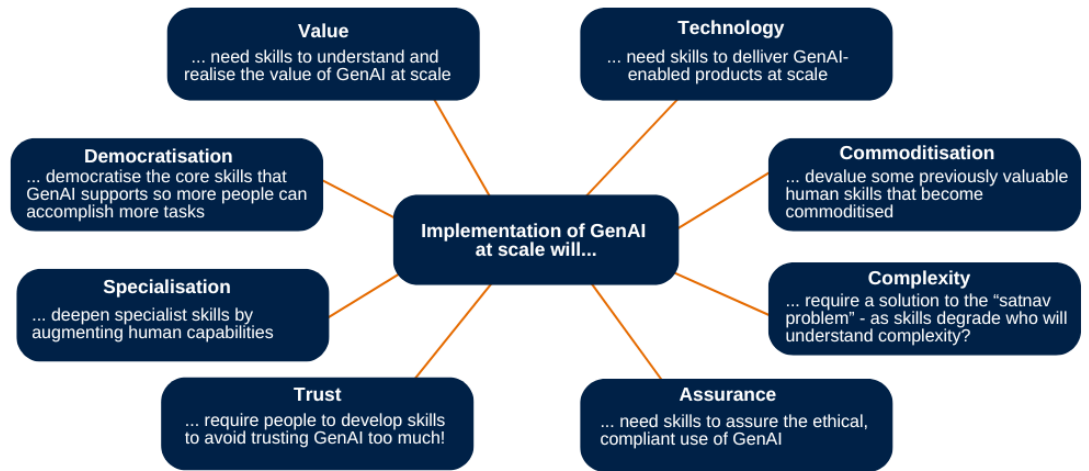

Figure 2: The impact of GenAI on skills

Delivering GenAI

The first skills requirement is the most obvious. Organisations will need the skills to delivery technology in a GenAI world. Because of the radical changes that GenAI is already making to software engineering, these changes will affect the delivery of any form of software as well as the delivery of GenAI-enabled applications. Because the entire software engineering lifecycle will be affected, it isn't just developers and testers who will need to change, but also architects, user researchers, business analysts, product managers and many others.

But the need to realise value from GenAI-enabled technology also means that organisations will need to understand what the value is and how to realise it. Because of the new and evolving relationship with technology and the widespread impact on people and skills discussed in this article, enhanced organisational change skills will be needed.

GenAI also poses a curious organisational change conundrum. People can trust it too much even if they fear the impact it is likely to have on their jobs. As Kahneman pointed out, people are disinclined to assess the quality of information: if it looks good, people will think it is good. But that's a problem with GenAI. It looks good but it might not be right.

Democratisation, Specialisation and Commoditisation

One of the benefits of GenAI is that it will make some skills (see Figure 1 above) widely available. For example:

> "Generative AI is most useful in democratising knowledge and creativity through augmentation, lowering the skills premiums traditionally required for a variety of creative tasks. Generative AI will also affect low-volume, highly variable work, in numerous professions." [World Economic Forum]

> "Generative AI will drive a democratized workplace, empowering employees with knowledge and skills to achieve their potential." [Gartner]

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This type of democratisation can help to solve some current skills shortages and also enable people to perform more specialised and valuable tasks.

People will need to focus on skills that are clearly differentiated from GenAI. These are the skills that will ensure higher quality, compliant, ethical outputs (see Figure 1). People, often currently treated as process automatons, will be able to develop broader and also more specialised skills that help contribute to high quality organisational services as they collaborate with GenAI.

However, as skills become democratised some commodity skills will transfer to the technology. Skills that were previously available only to a few will become available to many. This can provide considerable value, but some people will see their knowledge and skills commoditised adding to the difficulty of organisational change.

Skills Degradation and Complexity

As skills become lost to people, people may find it harder to master their tasks. This is already a concern in software engineering. Since software engineering is ahead of other processes in its use of GenAI, we can expect the same of other processes. This relates directly to the ethical principles (see Figure 2 for the Capgemini principles, based on the EU principles).

1. AI with carefully delimited impact - designed for human benefit, with a clearly defined purpose setting out what the solution will deliver, to whom.

2. Sustainable AI - developed mindful of each stakeholder, to benefit the environment and all present and future members of our ecosystem, human and non-human alike, and to address pressing challenges such as climate change, CO reduction, health improvement, and sustainable food production.

3. Fair AI - produced by diverse teams using sound data for unbiased outcomes and the inclusion of all individuals and population groups.

4. Transparent and explainable AI - with outcomes that can be understood, traced and audited, as appropriate.

5. Controllable AI with clear accountability - enabling humans to make more informed choices and keep the last say.

6. Robust and safe AI - including fallback plans where needed.

7. AI respectful of privacy and data protection - considering data privacy and security from the design phase, for data usage that is secure, and legally compliant with privacy regulations.

Figure 3: AI ethics principles

This is the organisational equivalent of the over-reliance of satnav but with much more serious repercussions. Without careful design, organisations will use processes that are too complex for people to understand, and which use technology whose workings cannot be understood (this is a well-known issue with Large Language Models). How then can they be controlled?

Assurance

All of these considerations imply a need for assurance. Organisations will need to assure and control activities that are touched by GenAI, perhaps using the framework for assuring AI provided by the UK government. This, in itself, generates the need for new skills. While recognising the difficulties and the changing regulatory standards context for AI, the framework says that

organisations should be upskilling their assurance of AI while "looking to develop their understanding of AI assurance and anticipating likely future requirements".

A FRAMEWORK FOR GENAI SKILLS

These considerations demonstrate the scope of the skills changes needed. This requires a systematic, consistent approach and the need to update competency models accordingly. But there is also a wider context to be addressed.

Implementing AI and GenAI requires justified trust which has two components: "building trust in AI systems through effective communication to appropriate stakeholders, and ensuring the trustworthiness of AI systems". There has been considerable work on the trustworthiness of AI systems, but less on developing sufficient trust and the implications for people. Any skills changes need to be placed in a context that recognises both these parts. The implementation of new skills needs to be based on sufficient knowledge and awareness of GenAI. Many issues are not technical. For example, "heavy users and creators of gen AI overwhelmingly feel they need higher-level cognitive and social-emotional skills to do their jobs".

Because GenAI is very different from conventional technology, people will need a deeper level of understanding of the risks and challenges of GenAI than with conventional technology. Otherwise, the assumptions they make may not apply. In addition, they will need to understand the widespread implications of AI ethics (see Figure 3 above).

The AI and GenAI journey is just starting in many organisations and will take years before there is clarity about its overall impact. The framework shown in Table 1 can be used for addressing GenAI and skills.

Table 1: A Framework for GenAI Awareness and Skills

Objective	Activities
Create awareness: ensure that people understand what GenAI is, what it isn't and how it can empower them	Communicate: • How GenAI will augment jobs and roles • How AI/GenAI is different from conventional technology • GenAI risks and what they mean in practice—how to understand the risks • The importance of AI ethics and what they mean in practice
Enable continuous change: ensure that people understand that the journey is just starting	Communicate: • The scale of the change and the opportunities that change will provide people • Clarity about the nature of the journey, how it will be incremental and focused on mitigation of risks as well as opportunities
Democratise: ensure that everyone can interact with generic GenAI successfully	Promote the underlying knowledge and generic skills to exploit GenAI as it becomes embedded in widely used tools, including: • Core skills training (e.g. prompt engineering) • The role of GenAI in knowledge working (and the dos and don'ts) • How to manage and use generic GenAI tools (e.g. Microsoft365 Copilot) • Awareness of the governance that applies and its importance
Specialise: ensure that relevant people can	Ensure that specialist skills are developed where relevant, including:

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use specialist GenAI tools successfully	● How to use specific GenAI-enabled tools ● Awareness of the governance that applies and its importance
Differentiate: enable people to identify, nurture and develop their differentiating skills	Help people to develop their uniquely human skills in support of GenAI, including: ● How to be more creative and innovative (where relevant) ● How to develop the right socio-emotional skills ● How to enrich their skills in understanding, analysing and working with information ● How to stay in control of the GenAI to ensure compliance, ethics, quality and avoid trusting the GenAI too much
Assurance: ensure that skills are in place to assure the use of GenAI	Incorporating an awareness of GenAI in relevant governance across the organisation (see, for example, the UK government assurance framework), and developing: ● Measurement, evaluation and communication ● Assurance mechanisms (including alignment with standards as they develop).

MAKING THE CHANGES

GenAI can deliver benefits now but organisations need "surgery". They need to implement GenAI with "speed and safety" and make sure that there are no negative unexpected consequences. So, what should they do? Before focusing on skills, there is a wider context to consider.

We can learn important lessons from the long history of digital transformation. For example, in "Leading Digital" the authors discuss different approaches:

- "Fashionistas": They implement proofs of concept and individual use cases to generate excitement and a sense of progress. But without the hard work of scaling up the organisational enablers (e.g. architecture, data governance, ethical governance, process re-imagining, culture and skills) the initiatives lead nowhere.

- "Conservative": They, at the other extreme, put in place the long-term enablers but miss out on opportunities to learn and deliver value in the shorter term.

A middle way (conducted by "Digital Masters") is a combination that can integrate the individual use cases with the organisational enablers and support incremental change. This approach applies directly to skills. Implementing the framework above, and subsequent recruitment and training will take time and the requirement for many new skills will only become apparent as GenAI matures. But change is needed now which requires an agile transformation.

Evolution of this type relies heavily on the right strategy and operating model. But, within the operating model, the key ingredient is a rigorous product management approach for GenAI-enabled products enabling a balance between the "Fashionista" and "Conservative" approaches.

Product management, implemented widely for consumer-facing digital products, provides the tools for learning, adapting to change and scaling—just what is needed for GenAI. The critical difference in this case is that the approach needs to learn about and adapt to the changes in the **internal** environment (including the implementation of all of the skills enablers required) as well. With this in place, GenAI-enabled roadmaps will be realistic and achievable, constrained (but only as much as needed) by the status of the organisational enablers and will match the pace of skills changes. In addition, a debate about roadmaps and value will drive prioritisation of wider organisational skills requirements based on hard evidence.

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CONCLUSION

The impact of GenAI on organisational skills will be extensive. It will change how people work with information across the organisation as well as changing the delivery of technology. Implementing the skills needed for GenAI needs form part of a transformation approach that:

- Recognises the extent of the changes (including skills changes) needed and sets in place the transformational activities needed;
- Enables the implementation of (sufficiently safe) use cases now;
- Can balance and align the tactical and strategic initiatives while maintaining sufficient levels of governance to mitigate the risks;
- Can learn, adapt and scale.

This requires a delivery approach based on product-centric principles.

ABOUT US

CAPGEMINI

Capgemini a global leader in consulting, digital transformation, and technology and engineering services. The company is at the forefront of innovation, addressing the entire breadth of clients' opportunities in the evolving world of digital technology.

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THE ANALYTICS LAB

The Analytics Lab is an enrichment module for UCL students, allowing them to explore topical questions in the domains of analytics and the digital economy through hands-on experience. Students are offered the opportunity to conduct research and work on projects with leading technology service and consulting companies, as well as discuss and develop their own ideas and projects.

The Lab aspires to position UCL students and alumni at the forefront of fundamental changes and digital transformations in the business environment, although not limited to it. Students enhance their practical abilities to manage analytics and digital operations effectively, considering the rapidly developing technological advancements in relevant domains.

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