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Rise of the ‘prompt economy’

Generative AI could shake up the global economic order, and it is not clear who the winners and losers might be.

Mark Purdy

From general knowledge questions to student essays, from haiku to advertising copy, the emergence and use of generative AI has captured the public imagination like no other technology in recent memory. Commonly associated in the public mind with ChatGPT and Google Bard, generative AI in fact encompasses a wide array of deep learning technologies that are able to comb vast tracts of data – images, text, numbers, software code – and understand and replicate their structures. But the singular feature of these technologies lies not in their analytical powers but in their creative prowess: With a single prompt of text or code, users as diverse as business analysts, creative artists and advertising copywriters can summon up business forecasts, music, art, poems and campaign ideas that are often indistinguishable from those of human origin.

SIZE OF EMERGING ‘PROMPT ECONOMY’

Estimates of the potential size of this emerging “prompt economy” differ, but nearly all agree that it will be large: McKinsey estimates that the application of generative AI to different industries could add up to US\$4.4 trillion (\$\$5.9

trillion) to global gross domestic product (GDP) annually – equivalent to adding an economy about the size of Britain. Goldman Sachs Research calculates that generative AI has the potential to raise global GDP by 7 per cent over a 10-year period, partly by automating labour but predominantly by turbocharging the productivity of existing workers. While the global economic prize of generative AI may be enormous, it is less clear how those gains will be divided between countries – developed and developing, rich and poor, highly skilled or low-skilled – and who the winners and losers might be. One reason is to do with skills. Automation technologies have traditionally targeted manual or routine cognitive tasks – think invoice processing, customer checkouts, or customer contact centres. But generative AI is largely focused on non-routine creative activities, typically the province of more highly skilled sectors and workers.

IMPACT OF GENERATIVE AI ON ‘INTANGIBLES’

But a more fundamental factor that will dictate the gains from generative AI is the changing nature of investment. In recent years there has been a major shift from investment in physical capital – plant,

equipment, land, lorries and so on – to investment in “intangibles” – ideas, designs, research and development, marketing acumen, branding, in-house training, managerial capabilities, and many others – as drivers of economic growth. All of these intangibles map closely to generative AI use cases. Economists Corrado and Haskel et al estimate that investment in intangibles was 16.75 per cent of US private-sector GDP in 2021, almost double that of physical investment. In fact, there are compelling reasons for thinking that the advent of generative AI could foreshadow significant shifts in the global economic order over the coming years through its influence on intangibles’ investment. To date, investment in intangibles has been heavily skewed towards developed economies: According to the Organisation for Economic Cooperation and Development, intangible investment varies from highs of 12 per cent and 10 per cent of value added in Sweden and the United States, to around 5 per cent in India and less than 2 per cent in parts of Latin America. Yet the rise of generative AI now offers developing countries an unprecedented opportunity to narrow and eventually close the intangibles gap, in at least three important ways.

PROMPT FOR INNOVATION

First, generative AI will furnish developed and developing economies alike with new opportunities to accelerate scientific discovery and R&D life

cycles, key aspects of intangible value creation. Already, generative AI is being used to scour chemical databases to predict the folding structures of proteins, a key factor in developing new drug treatments for diseases such as cancer. A critical concept in this new age of discovery is that of “inverse design” – scientists and engineers can tell the AI what they are looking for – drug molecules with certain binding properties to attack viruses, a solar panel with greater energy efficiency, or a fabrication material with a certain tensile strength – and the algorithm will come up with novel structures that are likely to possess the desired features. Inverse design holds out significant promise in areas such as materials science, where new materials often take years or even decades to appear. It has significant potential to optimise the design of batteries for green technologies, trial alternative types of semiconductors, and identify new kinds of metal alloys. In short, this ability to prompt for innovation will drastically cut the time for scientific discovery from years and months to days and hours. Inverse design and faster scientific discovery are likely just the start of AI’s impact on R&D cycles. Other possibilities include AI-powered assistants that can write software code for engineers, call up scientific papers, simulate different experimental methods or identify novel sets of hypotheses. Generative AI is also set to accelerate commercial development of new products. Japanese automotive giant Toyota,

for example, is using generative AI to optimise car performance, with engineers using text prompts to simulate different car designs on their screens and incorporate constraints such as size and drag which affect car handling.

FASTER SKILLS ACCUMULATION

The second area where generative AI will help developing countries more quickly accumulate intangible capital is in workforce skills and talent development. In-house training and workforce development is a critical aspect of the intangibles economy, although hard to measure precisely. Here, generative AI will have many immediate applications, from summarising learning materials to dissecting workforce skill patterns to devising targeted training plans. Virtual colleagues could help with training and problem-solving nudges. But an even bigger impact will be its role in accelerating learning paths, drawing on the creative power of generative AI to give students and workers faster and wider exposure to a range of simulated problem-solving experiences in “match play” type work conditions. Generative AI will also accelerate skills through virtual role-play, for example a sales agent switching to the customer point of view, or an engineer switching to the designer or car driver point of view. Research by Brynjolfsson et al, in the context of the customer support centre industry, has confirmed some of these upskilling effects.

The authors examined the impact of introducing a generative AI conversational assistant for customer service agents in a Fortune 500 company, the majority of whom were in the Philippines, with the remainder in the US. They found that the AI-powered assistant increased worker productivity by 13.8 per cent on average, measured in terms of agents’ ability to handle and resolve customer issues. Notably, the AI had a bigger impact on lower-skilled and less experienced workers, with the AI helping “newer agents to move more quickly down the experience curve: treated agents with two months of tenure perform just as well as untreated agents with over six months of tenure”.

IMPACT ON BRAND AND MARKETING INTANGIBLES

The third area where generative AI is poised to make a major difference to accumulation of intangibles is in branding and marketing. Research by Heys and Fotopoulou suggests that branding assets could be over 6 per cent of intangible assets in Britain. Recent years have witnessed a mushrooming of technology start-ups applying generative AI to improve the efficiency and impact of firms’ marketing and branding activities: Algorithms that can, at a prompt, generate detailed product descriptions in multiple languages, create customer explainer videos, orchestrate e-mails linked to specific seasonal events or sales triggers, or devise personalised marketing materials in a company’s unique tone of voice. Perhaps the biggest impact will be on professional content production: By typing in a prompt, marketers can repurpose wordy blogs into full-blown videos, create hundreds of virtual humans with unique personalities to advertise a product, turn a written speech into a video, or create alternative images and themes for multi-country marketing campaigns. By drastically lowering the barriers to entry in these fields, generative AI dramatically evens the playing field between large and small players in the accumulation of intangible marketing capital. Generative AI is still in its infancy, and the impact of the emerging prompt economy on the broader competitiveness contest between nations will depend on many factors. Countries that are able to marshal abundant sources of data – geographic, social, business, demographic – will have an advantage. Many questions are still to be resolved. How will national rules around privacy, intellectual property, and AI governance influence the national economic potential of generative AI? What does the likely future trajectory of education and skills strategies look like in the light of generative AI? How will global and regional R&D value chains be reshaped, to name but a few. With new generative AI breakthroughs emerging day by day, it is not too early for policymakers and business leaders to start addressing these questions.

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AI entering the dating pool is a bleak prospect

As matchmaking apps struggle, the temptation to lean on this technology could prove risky.

Elaine Moore

Terrible news from the world of online dating. As if a parade of dubious romantic prospects and dead-end chats was not bad enough, artificial intelligence (AI) has dipped its toe into the dating pool. Eleven years ago, Tinder helped to turn dating into a series of quick-fire interactions on the Internet. But for some jaded users, even writing “Hi” to a romantic prospect is now too much effort. Tech start-ups such as Rizz and YourMove AI are

gaining a foothold in the sector by offering AI assistance in creating witty opening lines and appealing profiles. Meeting strangers on the Internet is by nature a random affair. Artificial chat is at least a less sinister way to help that process along than asking users to swab the insides of their mouth, as DNA-dating app Pheramor once did. But a proliferation of AI-assisted conversations suggests that eventually dating apps will simply be full of computers trying to woo other computers. One start-up even offers the chance to watch this exact premise unfold. Teaser AI asks

users questions about themselves and their personalities, and then crafts AI-generated chat that is designed to mimic them. When individuals match, they can sit back and watch as their chatbots try to chat each other up. The companies behind the biggest dating apps are following these developments with great interest. Bumble claims that AI is improving matches. Chief executive Whitney Wolfe Herd has also said that AI might be used to simplify the process of creating an online dating profile, helping people to become more confident. Match Group, which owns Tinder and OkCupid, notes that Tinder already uses AI to moderate photos (a bid to keep the site respectable). Now it wants to see if it can help with profile creations. Generative AI

could ease online dating “fatigue”, said Match chief executive Bernard Kim in May. He argues that having an AI assistant at hand could help to tackle the scourge of modern dating that is ghosting – that is, someone abruptly terminating all contact without warning. But daters who need AI to remind them to end a conversation may not bother to take the advice. Plus, already fragile ties between strangers will fracture further if one or both suspect that they are not engaging with a real person. Ghosting would become even more common. Undeterred, online tech magazine Wired made the bold claim in 2023 that AI would make dating more fun by serving up pithy icebreakers. It claimed any opposition was the result of

tedious cynicism. Yet even the pithiest of opening lines loses value once you know that it didn’t come from a real person. Journalist Nancy Jo Sales, who once wrote a book about her online dating exploits, points out that AI eliminates the entire point of dating, which is supposed to be about getting to know another person. There is also the possibility that the technology will supercharge the problem of fake accounts. If real users are adding AI-generated chat, then bots will become more difficult to identify. This is something that dating apps and their users are both very sensitive about. Putting off users is a gamble that these apps cannot afford to take. The number of paying users at Tinder has flatlined. Parent company Match Group’s share price has

fallen by more than a third in the past 12 months. Rival dating app company Bumble, which listed on markets in 2021 at US\$43 per share, now trades at just over US\$18. It is not as if users of other forms of social media have shown much interest in chatting with AI, either. After Snapchat added an AI chatbot called My AI, users were so cross that they posted multiple negative reviews on Apple’s App Store. “Either make your new AI experience bearable to speak to, or remove it from the top of my friends list,” wrote one. Meta’s suggestion that AI personas can help its users in messaging apps WhatsApp and Messenger has also received little positive feedback. In the end, AI-enhanced seduction may turn out to be no more sophisticated than the human kind. The test will come when the conversation moves beyond the app. In the real world, it will quickly become apparent who was blessed with genuine charm and who was flirting with a little help from AI all along. FINANCIAL TIMES