



The potential impact of ChatGPT and the new AI on business



KPMG Ireland

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Write an ad for a luxury perfume.

Write a piece arguing for/against raising interest rates.

Write a poem about a starry night.

You can't have missed the press coverage and social media chatter surrounding ChatGPT, the accessible writing tool from OpenAI.¹

Following a stream of developments from major artificial intelligence (AI) projects in 2022, ChatGPT proved a tipping point in the popular imagination. And despite some of the amusing answers it has produced, many people are wondering how tools like ChatGPT will be used by organisations.

Anyone can sign up, and ask it a question, or to perform a task, with a simple, conversational prompt. ChatGPT responds authoritatively — in a sci-fi style that reminds you of AI tech from a futuristic film. Here's an example:



User

actually i'm wondering how to protect my home from burglary



ChatGPT

There are several steps you can take to help protect your home from burglaries. Some of these include:

1. Install strong, durable locks on all doors and windows.
2. Keep doors and windows locked, even when you are home.
3. Use a security system, such as alarms or surveillance cameras.
4. Keep your property well-lit, both inside and outside.
5. Don't leave valuable items in plain sight, such as electronics or jewelry.
6. Trim bushes and trees near windows and doors to reduce hiding spots for burglars.
7. Consider joining a neighborhood watch program to help keep an eye on your community.

Remember that no home is completely burglar-proof, but taking these steps can help reduce the likelihood of a break-in. If you have additional concerns, may be a good idea to talk to a security professional for more advice.

Ask a question on almost any topic, and ChatGPT has a reasonable answer ready. You can ask it to write a song or give you a five-part framework for a corporate digital strategy. On most general topics, like the one in our example, the output will likely be sensible. But on more specific questions, it might get a fair amount of detail wrong.

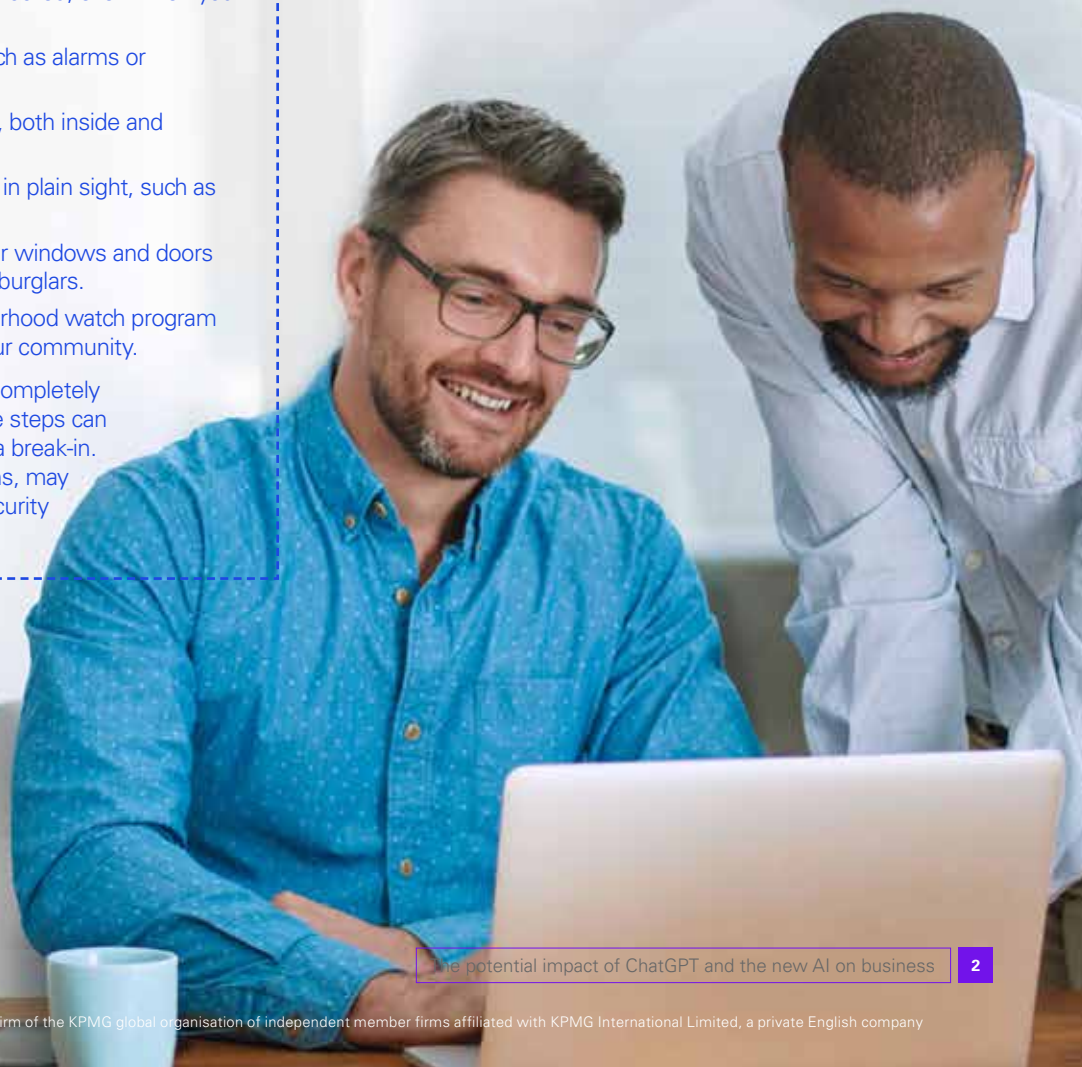
People have used generative AI to negotiate discounts on phone bills, dispense therapy to real-life patients, write Python code, poems, songs or novels, and to take (or cheat in) exams. Generally, large language models (LLMs) produce good results that appear amazing.

As such, they could signal a shift in the way communications and businesses work. But it would be all too easy to assume that it's time to make room for our AI overlords. A number of writers have, with some irony, written about how AI will likely put them out of business.

That sort of panic is a mistake. To understand the potential, let's look at how AI tools like ChatGPT work, what they're capable of, and how businesses can use them.



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¹ <https://openai.com/blog/chatgpt/>

What's behind the interface?

The most recent generation of AI is based on LLMs. Interestingly, ChatGPT combines an LLM with an interaction layer that uses reinforcement learning.

An LLM is a neural network model that uses unsupervised learning to predict outcomes. Among the many AI models developed, LLMs are uniquely unexplainable.

Language models (as distinct from *large* language models) have existed for a while and can predict the next word or phrase in a sentence. They use different techniques than LLMs and have different applications — auto-correct is a common use.



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Adding the 'large' element involves training the models on a large collection of publicly accessible electronic documents. That collection (or 'corpus' in AI terminology) comprises many petabytes of data — one petabyte being a million gigabytes. Training a model on such massive amounts of data allows it to learn about many topics, as well as language patterns.

So LLMs are 'large' partly because of the amount of data they're trained on. But also due to the size of the models themselves. A few years ago, a complex model might have had a couple of hundred parameters; LLMs have billions. ChatGPT's underlying LLM has 175 billion parameters and is training on something like 500 billion 'tokens' (words or word fragments).

The advances we've seen so far are largely a result of efforts to answer a single question: how can a model with that many parameters do something useful?

Large amounts of venture capital, human effort and computing power are required to train LLMs. OpenAI received a multi-billion US dollar investment from Microsoft²; other LLM projects have come from companies like Google³ and Meta.⁴ Sophisticated academic research has backed most of the development that's been going on. Given the range of possible applications, an entire industry is being built on making LLMs useful. And it's expanding rapidly: ChatGPT racked up a million users within a week of launch.⁵

So why has this particular application become so popular, so quickly? It's partly because people from non-technical backgrounds can use it for a range of tasks. Many professionals, creators and writers have already tried it: they are the universe of users, customers and citizens that would need to accept AI for it to likely have a real impact.

But there's another factor. ChatGPT also has an analytics layer, comprising reinforcement learning built using feedback from humans (known as 'labelers' in AI-speak).

To create this, the 'labelers' gave OpenAI examples of what a "good" answer would look like. Then they ranked ChatGPT output for a particular prompt, from worst to best, with the results used to train a separate 'reward' model. Finally, this was used in a supervised exercise to create a policy which formed the logic that makes ChatGPT's user experience (UX) so good.



² <https://blogs.microsoft.com/blog/2023/01/23/microsoftandopenaiextendpartnership/>

³ <https://blog.google/technology/ai/bard-google-ai-search-updates/>

⁴ <https://ai.facebook.com/>

⁵ <https://www.statista.com/chart/29174/time-to-one-million-users/>

Making AI work



How do we know if an AI tool works? We could wonder whether it passes the *Turing Test*. This was created by computing pioneer Alan Turing to define the point at which AI attains a ‘human’ level of intelligence. An extremely simple version is whether AI can persuade a person that it’s human. But a more practical benchmark would be whether interacting with AI is helpful and feels natural.

From that perspective, there are three critical success factors for the use of AI in a public or business context:

1. A good UX

AI results must meet a certain threshold to be useful.

For the better part of a decade, AI tools have outperformed clinicians in determining whether MRI scans show cancer. Others can predict whether an employee will be successful at a company from their CV for 20 years. But these applications failed to gain traction, because the users that would need to adopt them weren’t convinced by the UX.

Perhaps an extension of the Turing Test should be whether AI tools feel too smart or bossy; and whether we can ask our own questions, rather than being told what to ask.



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2. Failing well



Failing well can be more critical to AI adoption than succeeding (i.e. being accurate).



ChatGPT answers sound coherent and authoritative, even when some of the details are flawed. This is what we call a good “fail state”.

Failing well can be more critical to AI adoption than succeeding (i.e., being accurate). If users have a poor experience, even just once or twice, they’ll quickly lose trust in the tool.

Good fail states vary between applications. Sounding plausible, but getting the finer details wrong, isn’t a great fail state for an investment advice tool. In some cases, a good fail state may mean asking for more information, or allowing users to refine the output via a conversation. ChatGPT does this, as do some image-generation AI tools.

3. Ethical boundaries

The use of AI is fraught with ethical complications.

There are many examples of language models “learning” to be offensive, because they absorb offensive content into their corpus. And let’s face it: social media is rife with bad patterns for them to learn from.

It’s actually pretty difficult to get LLMs not to learn certain things — even though that’s what their analytical and policy layers are for. This is a particular problem for image-generation models, which are capable of producing images in the style of specific artists. That’s why some recently developed tools have introduced artist rights protections.

Consent is another key ethical consideration. A non-profit, mental-health platform ran into trouble for using AI to provide health counselling — without informing the patients that the content was AI-generated.

Work in progress



LLMs can be deployed to approach a wide range of problems — many quite limited in scope.



LLMs can be deployed to approach a wide range of problems — many quite limited in scope. They can be modified to help summarise and classify legal documents; respond to customer enquiries; assist expert advisors; and generate engineering and architectural drawings. Such applications require labelling to produce a good UX — but far less of it than previous generations of language modelling technology.

All the same, there's work to do before we can use the latest generation of AI for customer, employee, citizen and business interactions.

The starting point for that work is UX. While modifying models and working on analytics, businesses must think about users, interactions and processes. Users may range from employees and expert practitioners to customers, regulators and legal supervisors. How may each of these transition to using AI-powered tools?

Counterintuitively, limiting what models can do may have a more transformative impact, as users are likelier to reject more far-reaching change.

Start-ups may have the luxury of targeting users who are comfortable with change. And they can start small, making headway before regulation and enforcement catch up with the potential impact of their applications at scale. However, larger firms will likely face a UX challenge from the outset; that should be the target for AI pilots.

When developing new AI applications, there are four important questions to consider:

01 What do users want?

This doesn't mean making a tool do what users want it to. It means understanding how they see their role in AI transformation. That includes the people who will use it and the end-customers who will experience it. For example, clinicians and patients for a medical application.

02 How valuable is the potential change?

This is a question for the leaders and investors sponsoring AI development. What are the expected costs and potential benefits of a new application? A few years ago, an AI tool was developed to process insurance claims. But as there were only three people involved in that process, it offered limited value.

03 What does good failure look like?

AI will get things 'wrong'. As we've seen, the crucial question is: what's the UX like in such scenarios? How can businesses anticipate and design good fail states for them?

04 What do we not want AI to do?

Deployers of generative AI must be explicit about the ethical, regulatory, legal and other risk boundaries AI operates within, and use the technology to maintain and operate within those boundaries.



How KPMG can help

An early and enthusiastic advocate for the power of AI, KPMG firms are positioned to help your organisation leverage generative AI to transform software development and maintenance. Drawing on our deep expertise in machine learning and natural language processing, KPMG professionals can guide your organisation through strategy development, platform selection and implementation — and then provide ongoing support to help you optimise your investment in this transformative technology. We understand both the promise of generative AI and the process and cultural challenges — including the embrace of responsible AI practices — that will be required to help realise its full potential.

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