

## GENERATIVE AI

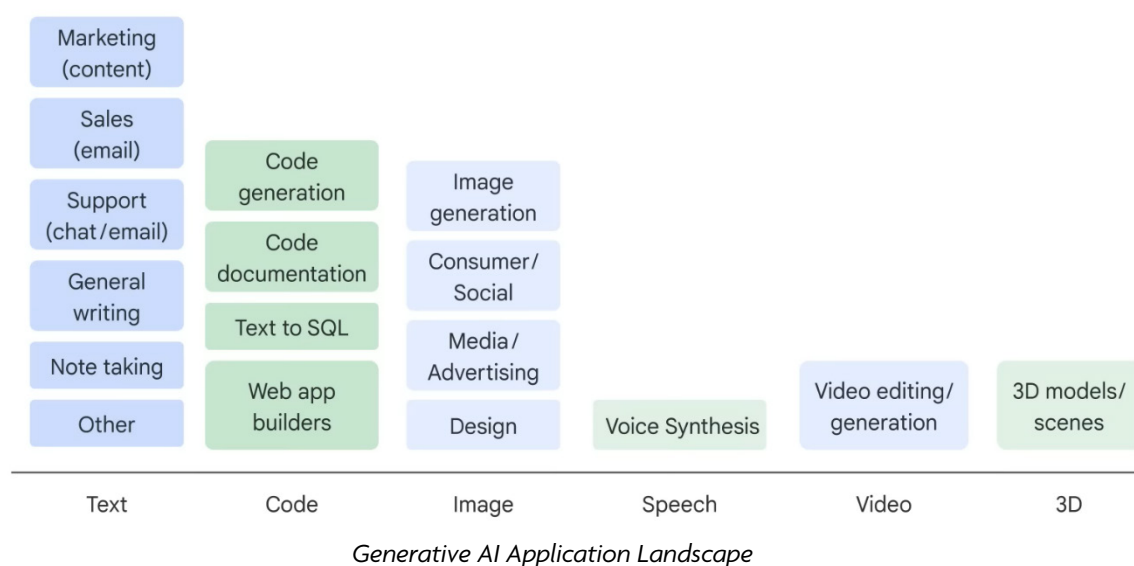
Generative AI (sometimes abbreviated to “Gen AI”) is a relatively new form of AI that burst onto the global scene in late 2022 with the release of a sophisticated AI chatbot called **ChatGPT**.

**ChatGPT** took the world by storm with its ability to generate intelligent and amusing written content that resembles human speech, combined with its capability to generate useful, high quality content very quickly, such as emails, poems, business plans, holiday schedules and much more.

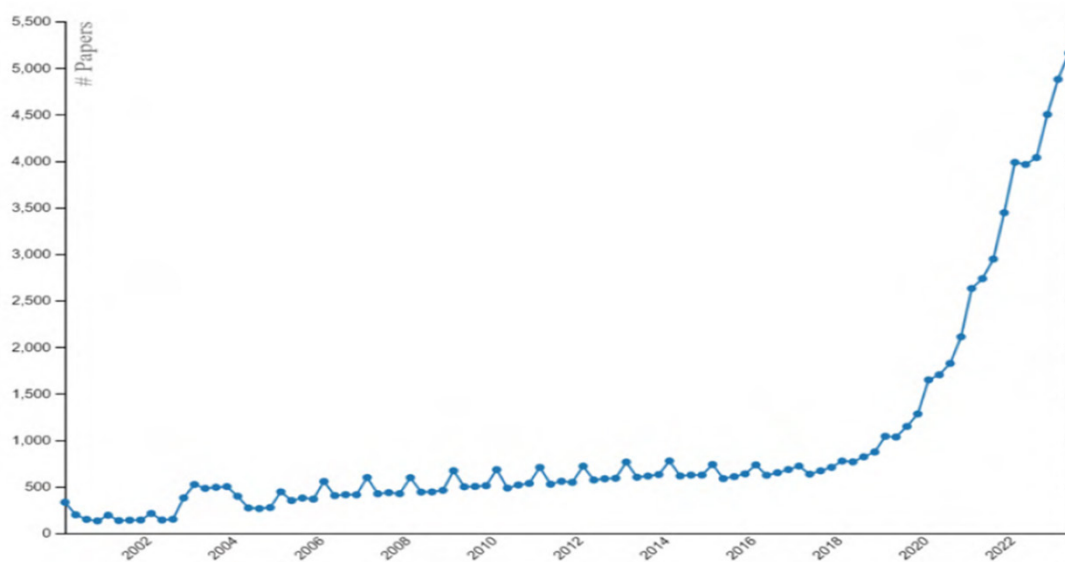
As illustrated in the earlier chapters of this report, AI technology has been around for many years and routinely used in applications such as weather forecasting, or email spam filters, but these are often hidden and unknown to the users of systems. ChatGPT, along with other sophisticated AI chatbots released in 2023 such as **Google Bard** and **Microsoft Copilot**, could be credited with really exposing the power and potential of AI to corporate businesses and the mass general public.

AI chatbots are powered by generative AI, which is a type of AI technology that can produce new and creative content such as text, imagery, video and audio, from a user ‘**prompt**’. It creates this new content based on the prompt and what it has learned from very large quantities of training data (sometimes many millions of internet pages) to produce a **generative AI model**.

An example of this is **foundation models** which can be defined as “AI models trained on a broad data set that can applied to a wide range of downstream tasks” <sup>21</sup>. These enable anyone to automate projects and generate amazing content on a standard computer. The diagram below illustrates just some of the possible outputs (such as text, computer code, images and video) and tasks (such as producing marketing and advertising material, website building, video editing and document summarisation) that generative AI foundation models can achieve.

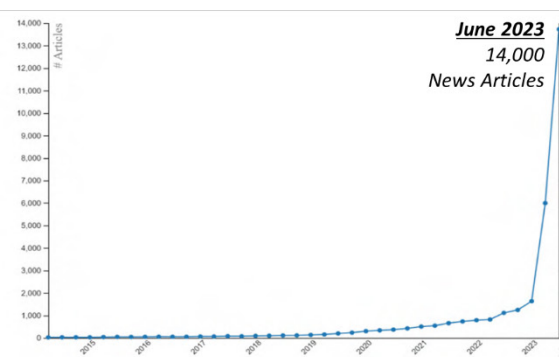


Generative AI has its origins in a 2017 Google research paper entitled “**Attention Is All You Need**” <sup>22</sup>, which introduced a new type of AI architecture for language understanding called ‘**Transformers**’. Many research organisations, universities and companies have investigated this technique to develop innovative AI applications. Since 2017, the number of scientific publications focussed on generative AI has grown fivefold and venture capital (VC) investment in generative AI solutions reached \$12 billion (USD) in the first six months of 2023 alone.

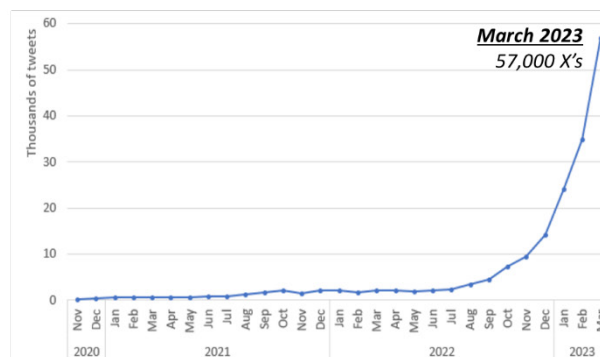


*Number of Scientific Publications on Generative AI (by year)*

Generative AI's ability to produce new, exciting and creative content is predicted to create considerable global business and economic value, but also comes with potentially significant challenges and risks (discussed further in the accompany WTTC report on '**AI Risks & Governance**'). As a result generative AI has taken centre stage in many public, academic and political discussions. This can be illustrated by the huge rise in global news stories and posts on X (formerly Twitter) dedicated to generative AI worldwide, with international news stories on generative AI increasing from just under 2000 in late 2022, to nearly 14,000 by June 2023. The number of posts on X (tweets) rose from 7000 in October 2022, to 57,000 in March 2023 (an 8x increase) <sup>23</sup>. The global interest in this new form of AI is phenomenal and is therefore an important technology for all Travel & Tourism businesses to recognise.



*Number of Global News Articles*



*Number of posts on X (formerly Twitter)*

A specific type of generative AI foundation model is a **large language model (LLM)**, which is a sophisticated AI model designed to generate human like text responses to a user's prompt. It is the underlying AI model driving AI chatbots (such as **Google Bard** or **Microsoft CoPilot**). The user 'prompt' is commonly a text input, but could also be something else, such as an image or audio input for example.

A prompt allows the user to provide instructions to an LLM (often an AI chatbot) in a natural conversational style, which is understood by the AI in a process called **natural language processing (NLP)**. This natural, conversational way of providing instructions to an AI system is the same way that instructions are provided to 'home smart speakers' and is a new, exciting and innovative way for humans to interact with computers.