

ChatGPT and generative AI: What are the opportunities and challenges for SMEs?



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1. Introduction

ChatGPT has made a name for itself very quickly, **reaching 10 million daily users in its first 40 days** and gaining worldwide attention. The technology it uses is generative Artificial Intelligence (AI), which has made huge advances in the last decade and is a constantly evolving branch of AI [REF-01].

Generative AI refers to a branch of artificial intelligence that has the ability to **create new content in a variety of media, such as text, images, video, synthetic data, audio and code, after receiving an instruction from the user**. SMEs cannot be left behind without knowing how it works, its uses and the challenges involved. According to Gartner, "revolutionary as it is, ChatGPT is just the beginning; the uses of generative AI in the enterprise can be much more sophisticated." [REF-02].

Generative AI offers **many opportunities for an SME**, such as the creation of images for brand marketing, the creation of written content or the incorporation of chatbots to automate frequently asked questions, but it also raises fears of various kinds, from respect for copyrights to malicious use that may infringe on privacy, so regulation is needed to provide a clear framework and security guarantees.

Generative AI represents a world of opportunities for any company, and the key is to learn how to use it in an **ethical way, bringing out its full potential** to reinforce the capabilities that already exist in the company itself.

2. What is generative AI and how does it work?

Generative Artificial Intelligence (AI) is a branch of machine learning AI, **which is capable of creating new original content from existing data.**

Unlike conventional artificial intelligence, which focuses on specific and predefined tasks, generative AI is primarily aimed at creativity and the production of new and unique content.

It uses deep learning techniques, neural networks and other advanced algorithms to analyze large data sets, identify patterns and create models capable of generating new information with similar characteristics. **These models generate something that did not previously exist (text, images, code, music, data...) based on existing data or information with which they have been trained [REF-03].**

GAN (Generative Adversarial Network) type generative AI works with a **learning model** that consists of two main elements: **the generator and the discriminator.**

The generator has to create data samples that resemble the training data set. At first, it provides random samples that do not resemble the real images.

On the other hand, **the discriminator** acts as an evaluator that tries to differentiate between the samples generated by the generator and the real samples from the training dataset. Its goal is to correctly classify the samples as "real" or "generated".

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The **generator** seeks in its **continuous improvement** to overcome the filters and criteria of the discriminator, generating content as realistic as possible. The discriminator also **improves in the detection of real or generated content [REF-04]**.

As for the Large Language Models (LLMs), their operation is based on the architecture of Transformers, which have become the mainstay of Machine Learning. These models are the ones that have made possible the emergence of **ChatGPT**.

In 2017 former Google researchers published "Attention is all you need", which unveiled the Transformer architecture. Its transformative nature is based on the fact that it manages to analyze whole sentences and not just words by words, which allows to better learn the context surrounding the texts. The "Large Language Models" are trained with a large number of texts to find relationship patterns, for example, ChatGPT did a massive analysis of Internet data (publications, books, news, etc.), and with this process they learn the statistical relationships between words and phrases, in various languages and linguistic **styles [REF-05]**.

In any case, **generative AI is a technology that is constantly growing and improving, so advances will be rapid.**

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3. Use cases

Generative AIs have a wide **variety of uses** and there are specialized tools for text, images, videos, sound, etc. The following are the most useful uses for SMEs or startups:



- **Content generator**

They are used to generate content for websites, blogs and social media posts. Help with publication ideas, service write-ups, advertising copy, social media content creation, prototype research, etc.



- **Customer service and sales**

Large linguistic models are used to create chatbots capable of interacting with users in a natural way and answering common questions. They manage to provide quick and personalized answers to queries and requirements, at any time. In addition, they can redirect attention to a person at a later time **[REF-06]**.



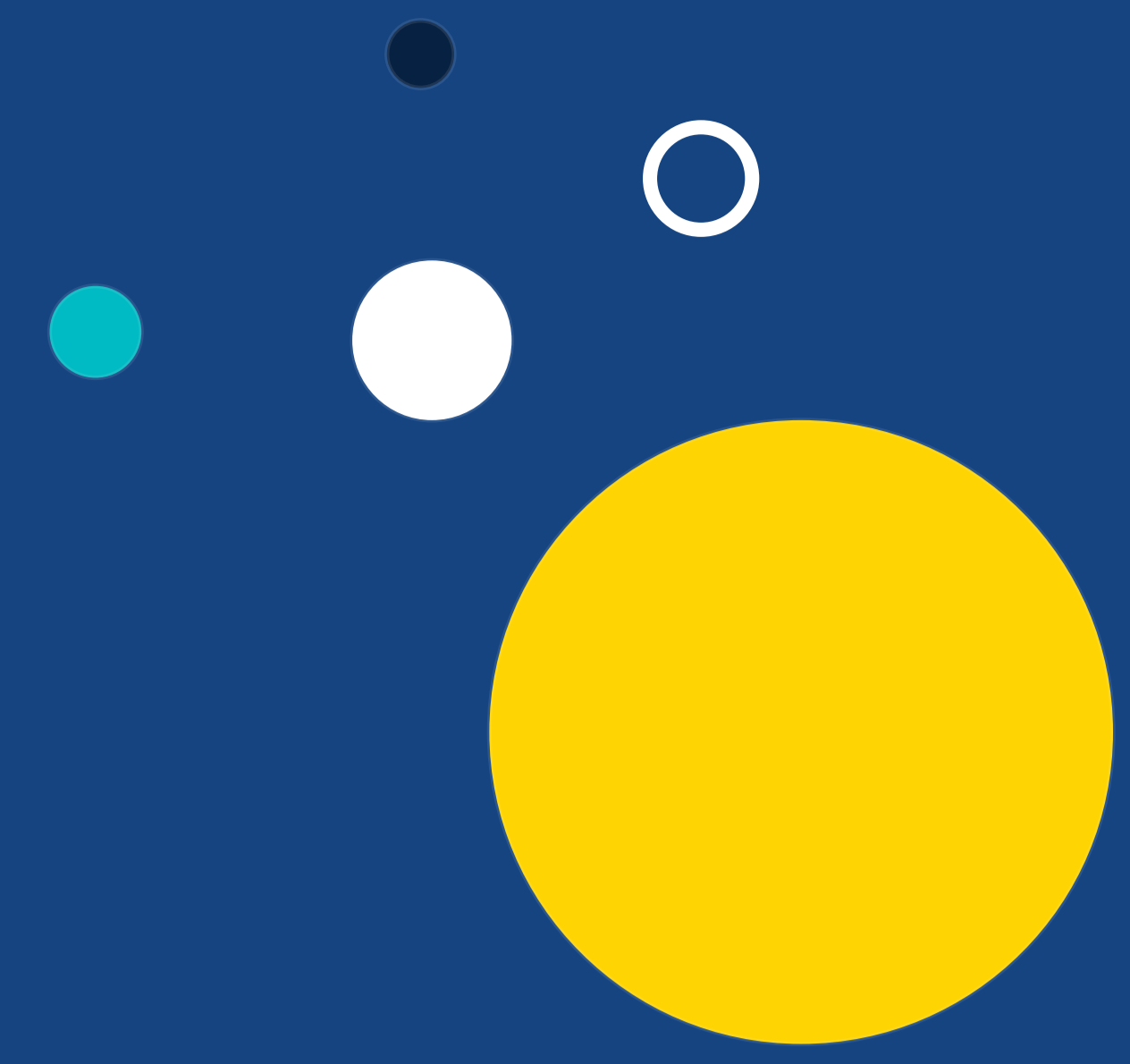
- **Research**

It can provide collected data of interest, guidelines on how to improve areas of the company, etc.



- **SEO strategy or web positioning**

SEO strategies need to make use of keywords within the web and tools such as ChatGPT can help in analyzing them and identifying which ones are most important for the business.



- **Summaries and Information Extraction**

Summarize texts by extracting the most important information and presenting it clearly and concisely.



- **Translations or writing in other languages**

Large linguistic models are used to create language translation services that can automatically translate texts from one language to another.



- **Sentiment or behavioral analysis**

Large linguistic models are used to analyze and understand the sentiment underlying social media texts, product comments and reviews. This enables the creation of marketing campaigns that are triggered by consumer-identified behavior **[REF-07]**.



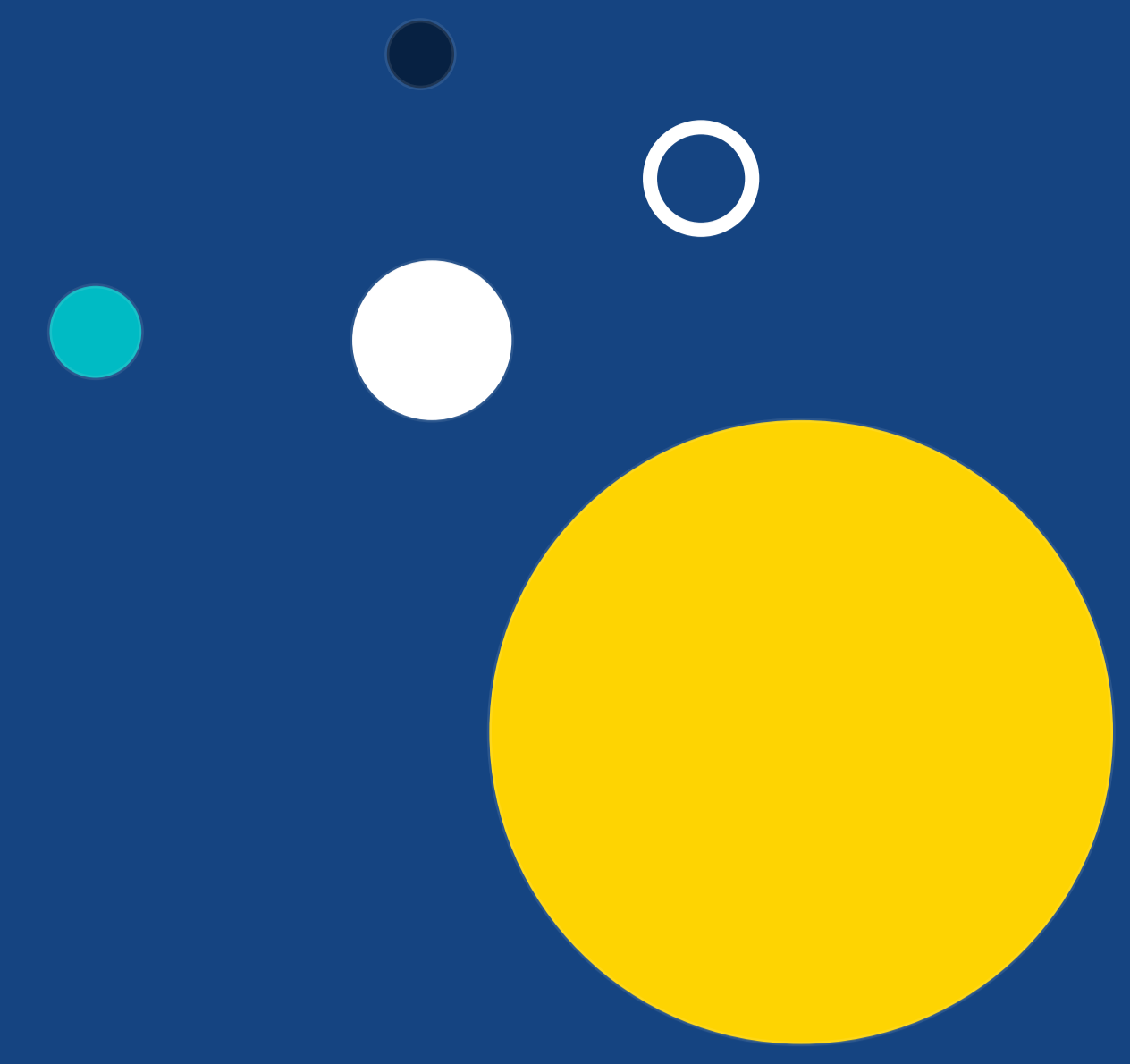
- **Process automation**

It allows the automation and scheduling of various processes, such as information organization, inventory management, creation of forms, reports, agenda management or social network management, resulting in cost and time savings. However, this automation requires supervision.



- **Generation of images and videos**

Generative AI has the ability to create new images and videos after given instructions, as well as edit original images and videos. These can be used in a variety of ways, such as in product launch presentations, in marketing and social media strategies, or to generate prototype ideas.



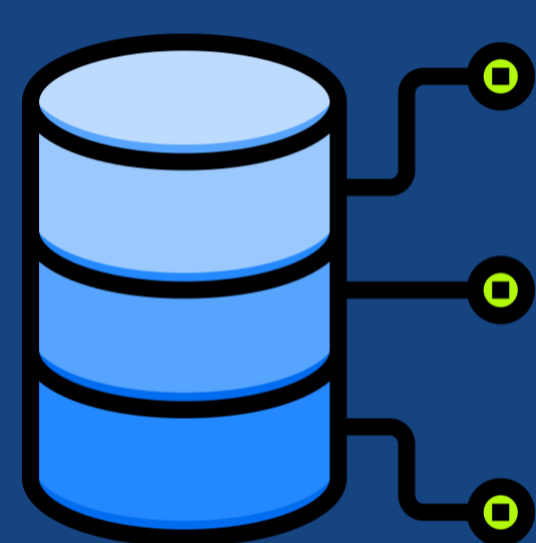
- **Computer code development**

One of the advances of ChatGPT was the ability to create code, which helps the work of developers, being able to create complete websites. Other generative AI tools also facilitate this option. In any case, its use will require supervision.



- **Music generator**

Music production is linked to mathematics and sounds can be generated through generative AI in different ways, with "reinforcement learning" algorithms with real users selecting what works best. However, it is still under development, its use may involve copyright risk and requires a lot of training for successful use **[REF-08]**.

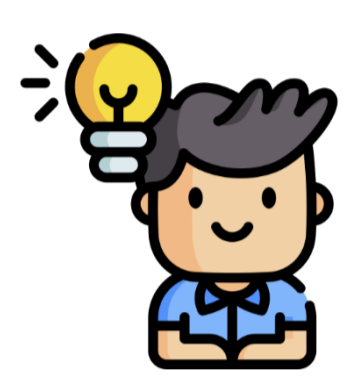


- **Synthetic Data generator**

To develop AI projects, it is necessary to train the model with a large amount of data. Synthetic data is artificially generated by the AI itself, it mimics real data but without the drawbacks of data protection or sensitive data. The data is created on the basis of statistics and algorithms that simulate real-life patterns. Furthermore, with this creation of synthetic data, social biases that are reproduced when training with real data can be reduced. **[REF-09] [REF-10]**.

4. Benefits

As we have seen, the uses of generative AI are varied and present a number of **benefits for SMEs or startups:**



› **Specific intelligence:** the ability to mimic human-level intelligence in many tasks.



› **Creativity:** allows experimenting with new ideas, images, services, or content, being a key tool in marketing, but also in other areas. It can generate innovative solutions.



› **Design and customization:** generative AI can be used to create personalized designs tailored to specific customer needs.



› **Accessibility:** many tools are open and accessible to all, whether free or paid, and allow their content to be used for commercial purposes freely [REF-11].



› **Reduction of repetitive tasks:** by automating processes, these tasks can be reduced, which means that resources can be allocated to tasks that are more attractive to them and achieve greater growth.

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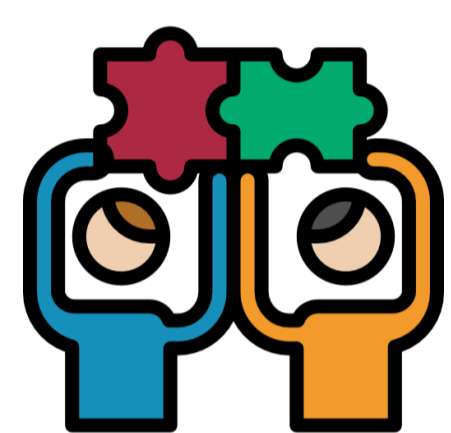
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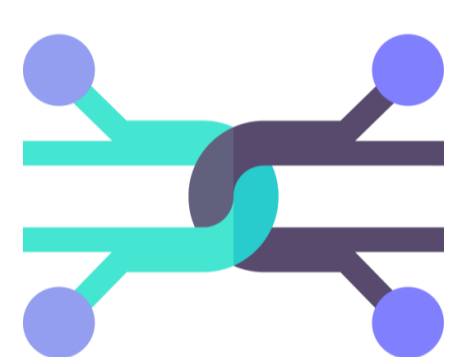
› **Productivity and cost reduction:** saving time and cost in generating content, products or services and the possibility of automating tasks allows for greater efficiency and productivity. "11 % - 37 % Estimated increase in labor productivity, related to AI, by 2035 "(EP Think Tank, 2020) **[REF-12]**.



› **Advanced data analytics:** allows large volume of data to be analyzed efficiently. This analysis can facilitate pattern detection and data-driven decision making.



› **Integration:** can be integrated into most existing products and services, which will improve the user experience.



› **Disruption:** it is constantly evolving, enabling the emergence of new AI products and services **[REF-13]**.



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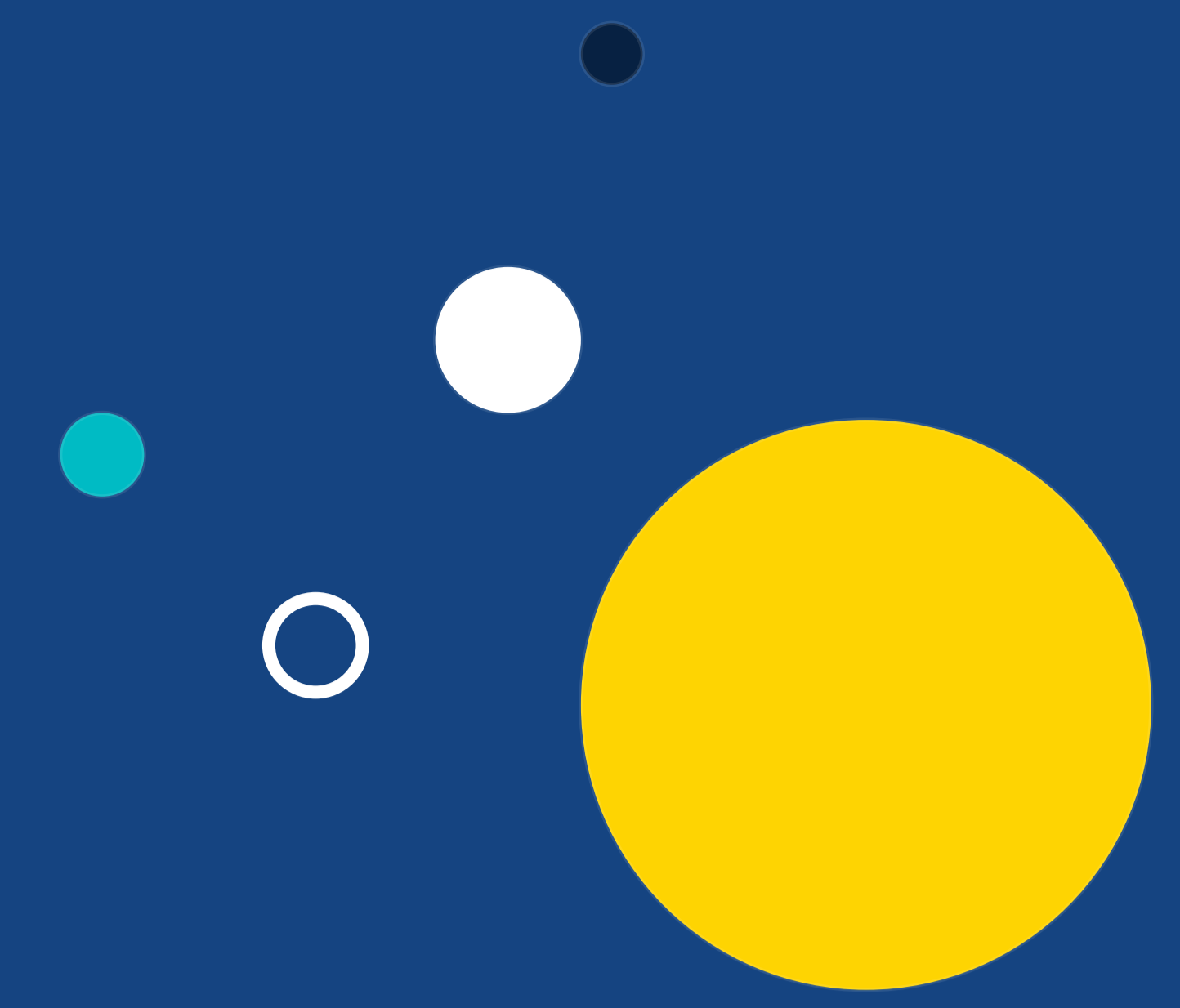


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5. Challenges and fears

Generative AI has many advantages, but the very intelligence of mimicking human-level capability and accessibility to all also become risks in its development. It is necessary to know these challenges, risks and fears it presents in order to make good use of it [REF-14].

- **Monopoly:** a few companies have the capacity to train and maintain these models.
- **Possible misuse of technology:** Support in decision making processes: although they facilitate decision making their outcome must always be controlled. The ultimate responsibility must be clearly defined.
 - ✓ **Fake news:** which with a bad use of generative AI can be easily created, being important to learn to discern information from unreliable sources and contrast.
 - ✓ **Deepfakes:** These are images and videos where the image of a real person is manipulated without their consent to make the image or video in question look real, with very realistic effects.
 - ✓ **Impersonation:** It facilitates the creation of fake profiles [REF-15].
- **Accuracy and veracity:** errors and generation of inaccurate results, especially in automatic translation or text generation. In some cases, the information may be outdated, such as ChatGPT that warns that the training information is up to 2021. The use of AI should be done taking into account the information and context for which it is required and with revisions/supervisions.



- **Intellectual property and legal challenges:** it has generated debate since it uses previous images to create new images, or previous texts to create new ones, or codes for development, etc., and the traceability of the contents and the "original" property may be dissolved. In Italy, OpenAI had therefore been banned and following this decision, ChatGPT's privacy controls were increased. In turn, regarding the ownership of new content created by AI, European legislation determines that AI is not copyrighted and is the property of the end user **[REF-16]**.
- **Staff replacements:** the fear of how technological advances may affect employment is present in many areas, and there is a certain alertness with generative AI. It should be kept in mind that the use of AI requires knowledge, supervision and complementarity with human tasks, and that they can serve as another work tool, not a replacement. Similarly, the reduction of repetitive tasks with automation can allow resources to be invested in areas of higher value.
- **Biases:** by relying on previous texts and information, it runs the risk of reproducing biases and reinforcing prejudices or structural discriminations, for example, gender bias, culture, etc. **[REF-17]**.
- **Environment:** the development of generative AI may have an environmental impact due to the energy resources it consumes and to mitigate this challenge, guidelines for sustainable AI development should be taken into account.
- **Innovation vs. regulation:** the great speed at which generative AI is advancing presents a challenge: regulations and policies must be generated in time and be sufficient to control risks, but not excessive to impede innovation.

6. Application tips

Considering the challenges it poses, it is important that its use be supervised and contrasted, with other sources of information and with the contribution of creativity and reflection of the employees themselves. The following are a series of **recommendations for its proper use**:

- › **Human supervision:** in a cross-cutting manner, it is required that the uses of AI have supervision, for example, in the case of creating a chatbot, it will have to be tested and supervised in a cycle of continuous improvement.
- › **Verify and validate sources:** before sharing information, it can be supplemented with other trusted sources.
- › **Provide clear instructions:** to obtain the answers best suited to the specific need.
- › **Train the AI:** to fit the need of the SME or startup, its style, its context, more context information can be provided to improve its accuracy.
- › **Check biases:** be aware of possible biases and challenge them if they are identified.
- › **Transparency:** an ethical way to use AI is to communicate and be transparent about it, in line with European regulatory developments.



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7. Regulations to consider

The challenges posed by generative AI and the legal debates it generates require clear and consistent regulation. In recent years, the European Commission has promoted several regulatory proposals that lay the foundations for the ethical use of AI **[REF-18]**.

The exponential growth experienced by generative AI makes it necessary to reflect on how to develop this technology in a safer and more sustainable way so that all the actors involved can benefit from it.

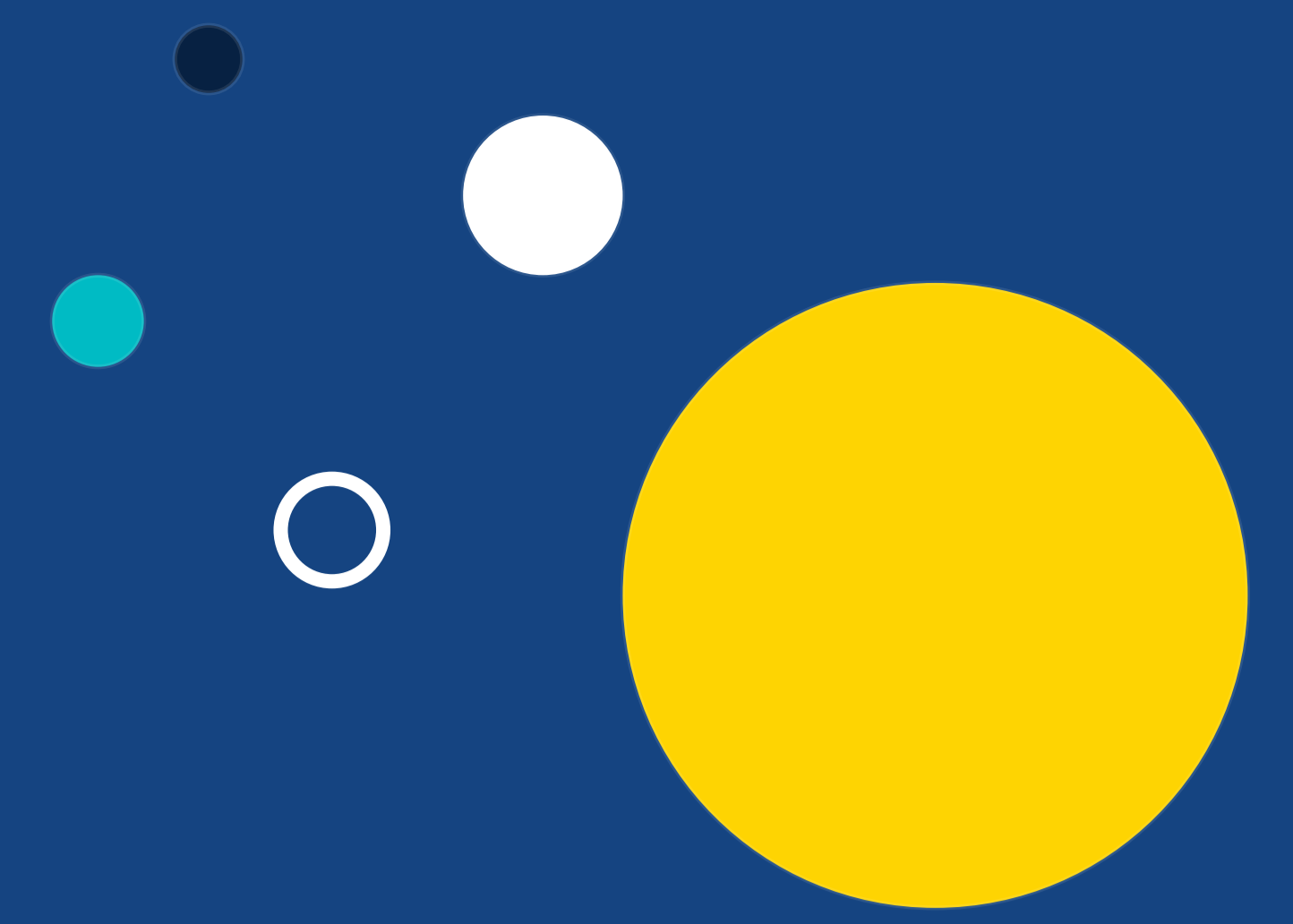
Key dates for European regulatory development

- **2019:** Ethical guidelines for trustworthy AI (High Level Expert Group on AI).
- **2021:** Regulation on artificial intelligence. The world's first comprehensive AI law. Under parliamentary development, with the goal being to reach agreement by the end of 2023.

Ethical Guidelines for Trustworthy

AI The Ethical Guidelines for Trustworthy AI ("Ethical Guidelines for Trustworthy AI") (2019) is a regulatory framework developed by the High Level Expert Group on Artificial Intelligence (HLEG AI), appointed by the European Commission. This document outlines the ethical vision of artificial intelligence **[REF-19]**.

The IA system must comply with all applicable laws and regulations, adhere to ethical principles and values, and be technically and socially robust. The HLPE presents several **requirements** for AI systems to be considered reliable, highlighting the following:



- **Human Intervention**

AI systems must empower humans, promote their fundamental rights and allow for human intervention. Organizations must be aware of the potential overestimation of dynamics and the difficulty of monitoring results to ensure human autonomy.

- **Human manipulation and surveillance**

Very human-like responses may mislead people interacting with it and should be warned that it is an AI.

- **Technical robustness and safety**

Ensure that the AI system is designed, tested and monitored to perform consistently and accurately under a range of conditions and scenarios.

- **Data protection and data governance**

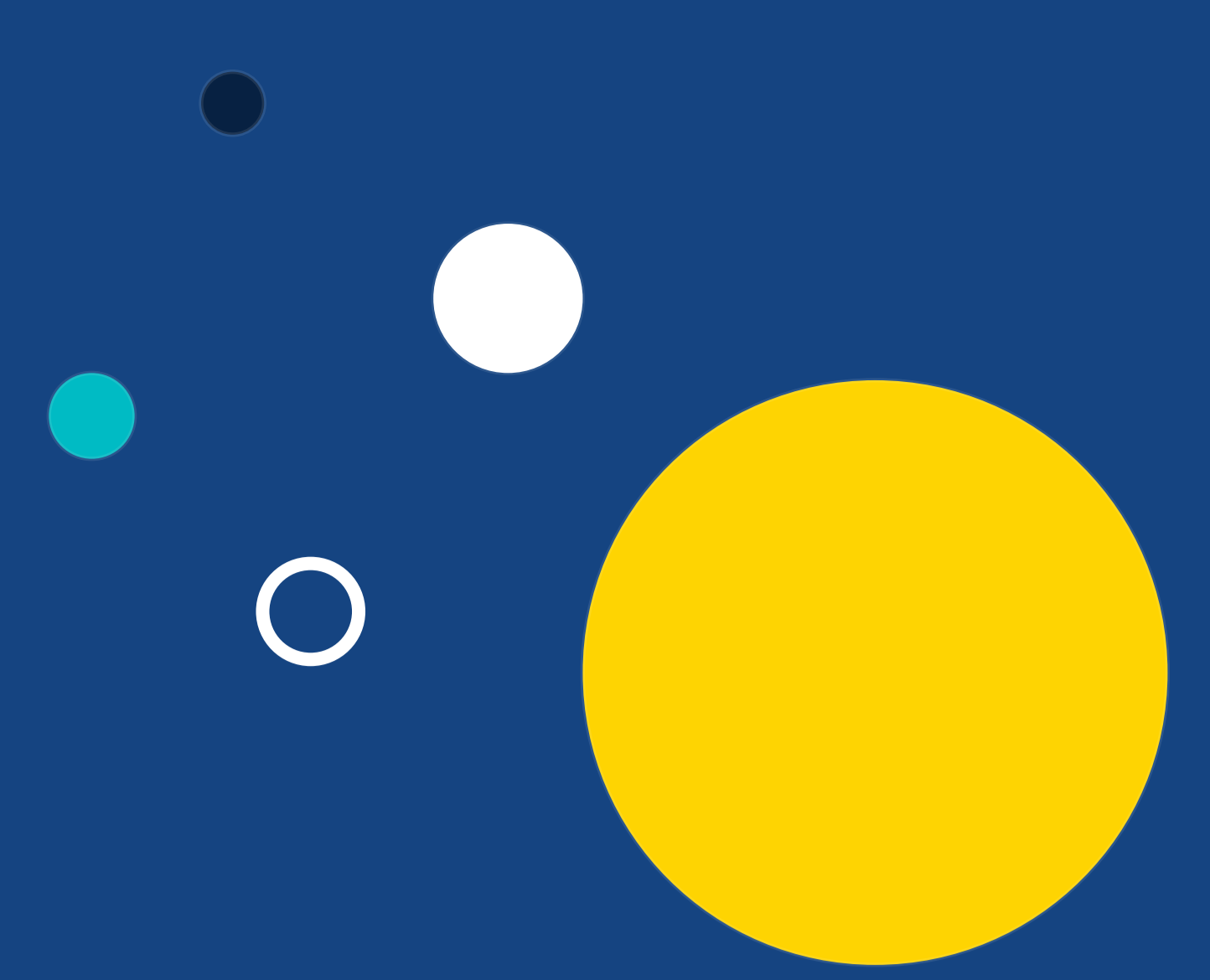
AI datasets often include personal or copyrighted information. If this data is not adequately protected or anonymized, it could be used for malicious purposes. A robust data governance framework (clear policies and procedures for data collection, storage and use) needs to be in place.

- **Copyright and intellectual property**

AI-generated works may infringe existing copyrights, such as when an AI model is trained on copyrighted data without the permission of the copyright holder. Therefore, a clear regulatory breakthrough is required in this regard.

- **Transparency**

They must have the ability to provide clear and understandable explanations of their processes, decisions and results, in a way that is accessible and comprehensible to their users and stakeholders. In other words, ensure that users have the information they need to make informed decisions about the use of generative AI.



- **Diversity, non-discrimination and equity**

Achieving impartiality requires careful attention to the design and training of these systems and ongoing evaluation and monitoring.

- **Lack of clear responsibility**

Responsibility for IA processes must be clearly defined.

- **Regulation on artificial intelligence**

As part of its digital strategy, the EU is creating the legislative framework that regulates AI systems, so that there are better guarantees in their development and use. It will be the first comprehensive regulation on AI in the world and is in the process of regulatory development and institutional debate since 2021.

The proposed regulation establishes risk categories according to the AI system and will be more strictly regulated based on the level of risk involved.

1. Unacceptable risk: these are systems that are a threat to people and will be prohibited (autonomous weapons or social scoring - classifying people based on economic status or personal characteristics).

2. High risk: systems that may affect security or human rights. They are classified in two, products subject to security regulation (such as aviation, medical devices...) and areas that have to be registered in a database in the EU (such as biometric identification, education, employment, migration and border management or law interpretation and enforcement).

These systems will have to be evaluated prior to commercialization and during their life cycle. In the case of generative AI, it is determined that it complies with transparency requirements, which are as follows:

- ✓ Disclose that the content has been generated by AI.
- ✓ Design the model to prevent it from generating illegal content.
- ✓ Publish summaries of copyrighted data used for AI training.

3. Limited risk: For these systems, transparency is required, that users know that they are interacting with the applications (e.g., AI manipulating video and text).

8. Tools

There is a wide variety of tools, depending on the areas of interest, and it is a field that is constantly growing. The following are the main tools on the market of interest to SMEs **[REF-20]**:

Transversal:



- **Azure OpenAI Services**

Microsoft offers this tool to use different generative AI models, but in a commercial way, for a specific use by companies. It allows the use of GPT-3, Codex and Embeddings. For now, Dall E 2 is available by invitation only. Its advantage is that it enables enterprise integration of several AI models in a secure way (as more than 3500 experts are dedicated to monitoring secure use), as well as customizing AI models to the needs and use cases of the SME. In other words, it enables a more professional use. Pricing is flexible, varies according to each model, and a free trial is available **[REF-21]**.

Textual content and conversation:

- **CHATGPT/ GPT-3**



It is a language model developed by Open AI, with the ability to generate coherent and contextual responses. It is pre-trained until 2021 with large amounts of data to learn linguistic patterns and structures. According to CHATGPT itself its goal is to "provide relevant and useful answers to user queries". This is a free tool.

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ChatGPT informs its users before searching for information of its own limits and risks:

- ✓ "May occasionally generate incorrect information.
- ✓ May occasionally generate harmful instructions or biased content.
- ✓ Limited knowledge of the world and events after 2021" **[REF-22]**.

Some of the **most common uses** of ChatGPT have already been outlined in the generative AI uses in general, in brief, are **[REF-23] [REF-24]**:

- **Content generation**
- **Automated customer service and sales**
- **Research SEO strategy**
- **Data analysis**
- **Task automation**
- **Summaries**
- **Translations or writing in other languages**
- **Development of computer code**

It is important that the use made is with supervision and contrast, and taking into account that it can be deepened with other sources of information and with the contribution of creativity and reflection of the employees themselves **[REF-25]**.

There are other alternatives to Chat PT, such as, for example:



- **Hypewrite:**

It is used to create texts, summaries, automatic responses to emails, edit and optimize writing, quickly and easily. It has a free option and premium paid versions.

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- **HuggingChat**

Open source, freely available, works from the web with functionalities similar to those of ChatGPT, generate written content, summaries, code development **[REF-26] [REF-27]**.



Jasper

- **Jasper:**

It allows you to compose emails, posts for social networks and blog, and it can also generate images. There is a fee **[REF-28]**.

Images and visual content:

Applications that create images through words, serve to generate photographs, visual representations of products, designs, inspirational ideas... and to integrate images in areas of the SME such as communication or marketing and advertising.



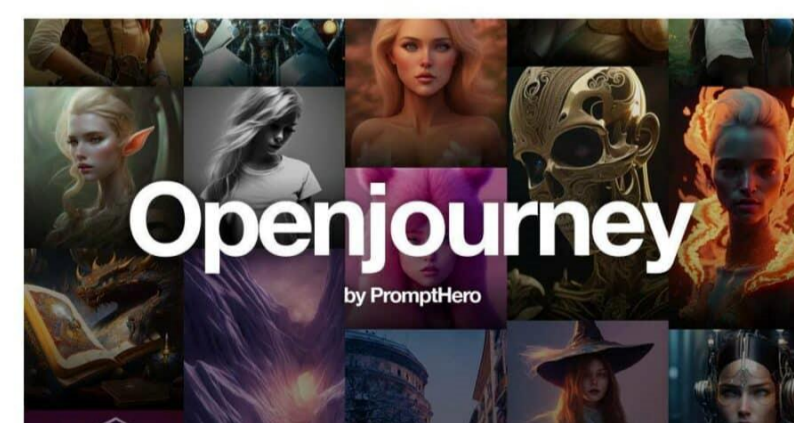
- **DALL-E**

Creates realistic images from text descriptions, using "deep learning" technology. It allows the creation of images of more complex concepts that do not exist in real life. There is a fee.



- **MidjourneyAI**

It is used to create images from text, and allows you to create precise and detailed images, depending on the detail included in the description of the image to be created. It is a paid tool **[REF-29]**.



- **Openjourney**

It is similar to MidJourney, but for free.

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- **Dreamstudio**

Generates images from a word search engine, open source and free. It allows to select the "style" of the image to be generated. However, the ability to generate images of abstract ideas is more limited. It is a free tool.



- **Canva**

It has thousands of templates such as infographics and presentations, as well as photo and video editing. In addition, it has a functionality to create images with generative AI. It has a free option and premium paid options.



- **Photosonic AI**

No registration required and free of charge, it works by typing keywords and displays many variants of illustrations and designs.



- **Adobe Sensei**

Adobe Sensei is a platform that integrates artificial intelligence into various Adobe products, such as Photoshop, Lightroom and other photo editing software. It uses AI algorithms to automatically enhance images, remove unwanted objects, apply color and tone adjustments, and perform other editing tasks.

Videos:



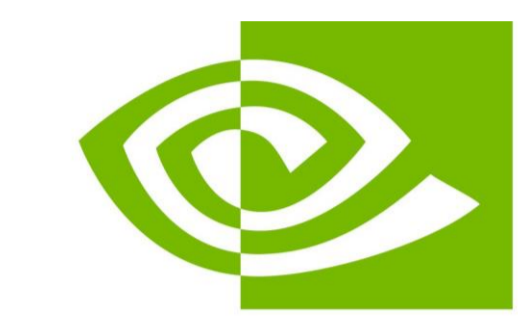
- **D-ID:**

This tool allows you to select an "avatar" with a realistic human shape, write the desired text or script and the language (and country) and then create a video, emulating a "natural" language. A pre-recorded audio can also be uploaded. It is paid, allowing a free trial **[REF-30] [REF-31]**.

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3D Models:



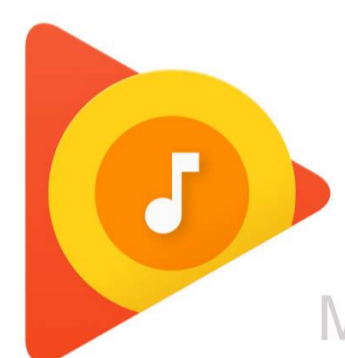
NVIDIA.

- **NVIDIA GauGAN**

It allows to generate realistic 3D models, such as landscapes, buildings and other objects, from a simple sketch. It can be used from presentations or prototypes to the creation of video games or virtual reality experiences **[REF-32]**.

Music:

They are tools for the creation of musical samples of generative language. They are still in an experimental and development phase. They allow the creation of coherent musical sequences in different musical styles or genres. It should be noted that the use of these tools requires supervision and control over the authorship.



Google
MusicLM

- **MusicLM**

The Google tool. The idea is to create 2 melodies from a text description, to choose the one you like the most. There is a waiting list to sign up to try it out **[REF-33]**.



- **Jukebox**

The Open AI tool. Samples already generated can be explored.



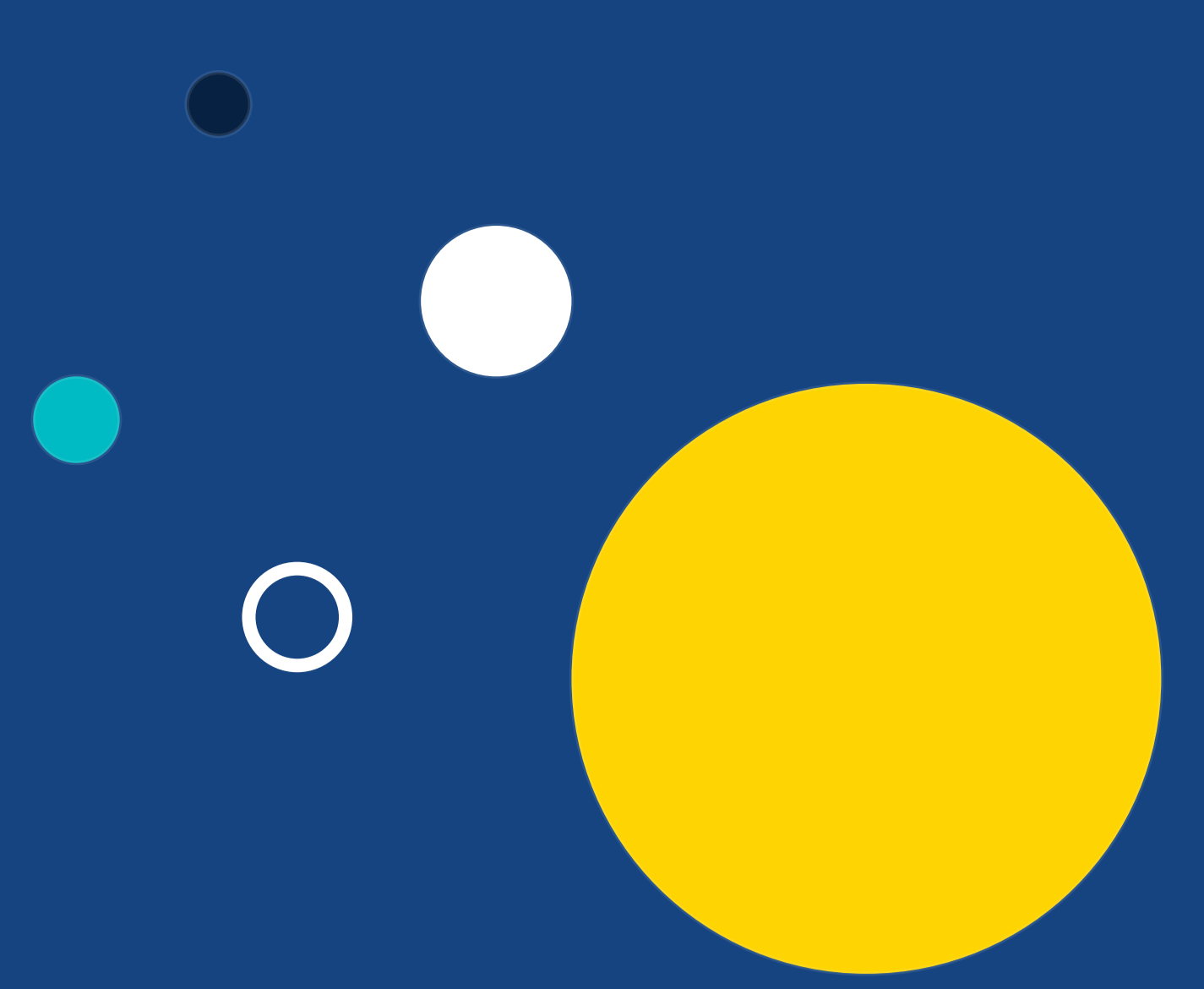
Automation:

- **Bardeen**

It is used to automate emails, spreadsheets or other repetitive tasks. It offers free and premium paid plans **[REF-34]**.

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9. Conclusion

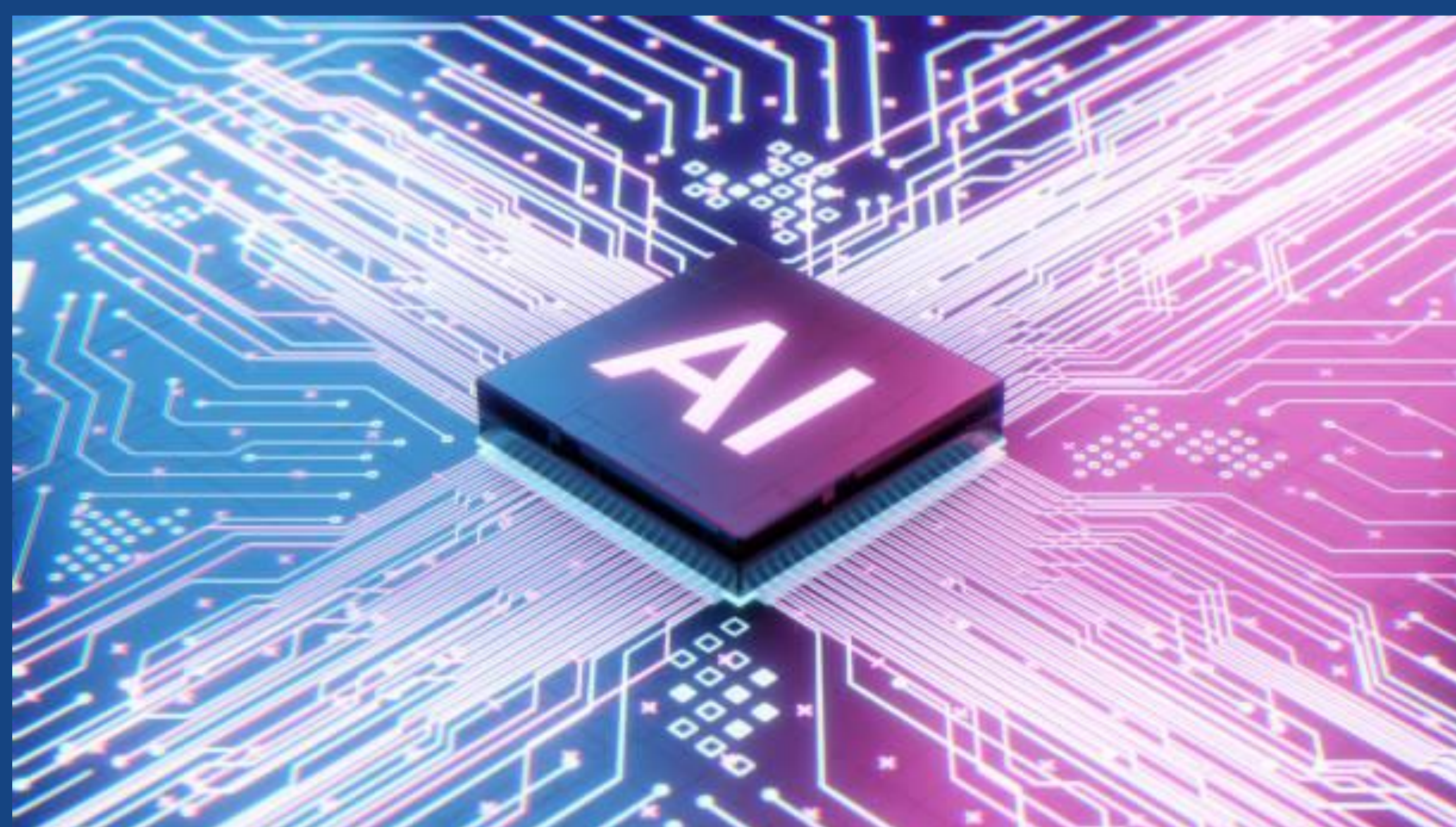
Generative AI offers **multiple opportunities** for SMEs, from the creation of written content, chatbots, images or process automation.

It is a field of AI with **exponential growth**, and it is essential to know its **uses** and useful tools. At the same time, it is also essential to be aware of its **risks**, the legal debates surrounding it, such as copyright or privacy, and the regulatory developments that are being considered in the EU. The regulation on AI that is being created at the European level is very ambitious and it is important to be aware of its implications.

ChatGPT is the best-known tool, but there are many more, and the capabilities of generative AI will be refined and expanded in the coming years.

Knowledge of these technologies is essential for the whole of society, including SMEs, due to the **power of innovation and transformation** that they imply.

In short, their use brings **great benefits, and must be carried out in an ethical and transparent manner.**



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