

Emerging Technology (EmTech) - 20 Year Landscape



Overview of existing landscape

The Emerging Tech landscape is vast, and filled with concepts and technologies that are unfamiliar to many. Consequently, it can be difficult not only for people to understand frequently used EmTech terms, but achieve a broad understanding of the overall state of the EmTech landscape.

Emerging technologies are set to disrupt a number of government processes and services, alongside citizens engagement with government and the services they offer. The EmTech 20 year landscape is a piece of ongoing research, that's intended to help people working in government understand the types, forms, connections and impacts of these different technologies and the challenges and opportunities posed by developments in the EmTech space. The outcome of having this consistently evolving landscape is that people working in these spaces can better understand how emerging technologies are relevant to their work, and use this to inform their decisions.

Background to 20 year EmTech Landscape:

The purpose of this document is to identify emerging technologies, anticipate when they will be prevalent, explore how they are related to one another, and suggest how they might be considered in collective groups. This aim is to help inform decision makers across agencies by providing a collective point of reference in a complex, and rapidly changing space.

The selected technologies and their positioning on the landscape has been informed by research and shaped by consultation with other emerging tech leaders engaged through participation in forums. These sources include:

- [OECD](#)
- [World Economic Forum](#)
- [McKinsey Institute](#)
- [Gartner - Hype Cycle](#)
- [SAP](#)
- [AIForum New Zealand](#)

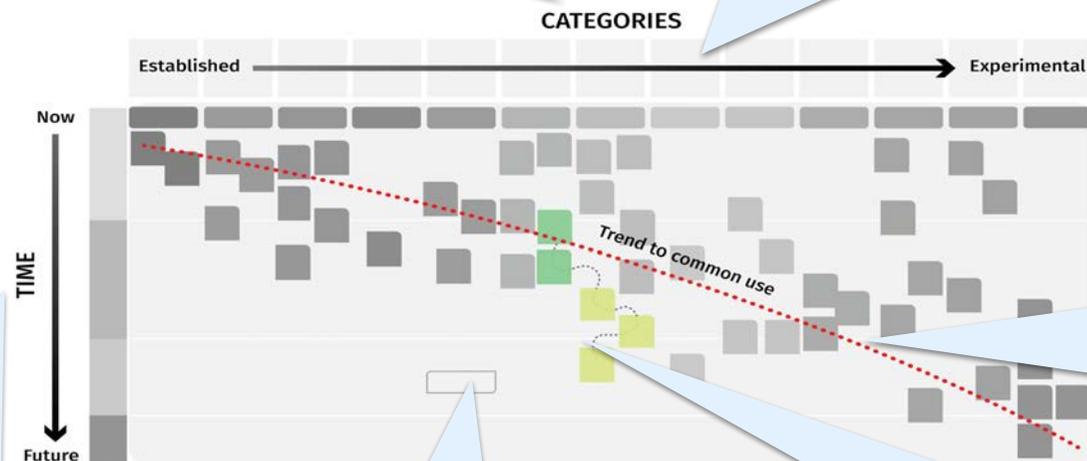
We welcome all feedback regarding this landscape - please contact us at EmTechTeam@dia.govt.nz

Category Descriptions

The categories at the top of the landscape have been used to group associated emergent technologies. The descriptions listed here describe the category as a collective. Future versions of this A3 will have descriptions/definition of each individual card listed in the landscape.

Category Positioning (horizontal axis)

Reading from left to right, the horizontal positioning of categories, which are in common use now and transitioning to the categories on the right are technologies that are still in research and development (in an experimental phase) or the availability of this technology being limited to academic or private institutions.



There is a sloping trend from left to right indicating that some technologies (such as cloud computing) are in relatively common use today in government and government services, whereas quantum computing is still in its infancy and activity is confined to research institutions.

Card Positioning (vertical axis)

Although all these technologies are in existence now. They will take time to become widespread. The timeline starts at the top with what can be considered current technology. Cards positioned closer to the bottom of the page represent emerging technologies which are expected to evolve before becoming mainstream.

A special case displayed in the landscape is Spatial Computing. Currently when people refer to spatial computing they refer to it as three distinct areas; Augmented Reality, Virtual Reality and Mixed Reality. In the future, these three areas are expected to merge and be known as Spatial Computing.

Relatedness between technologies

The cards are positioned on the timeline based on how they relate to one another. Some emergent technologies depend on other technologies to mature before they can reach maturity themselves.

For example: In the category Artificial Intelligence Applications, Conversational Interfaces depend on both Natural Language Generation and Natural Language Processing.

Note: that one of the ideas for future versions of this landscape are to more clearly identify which technologies are needed before another technology can be utilised effectively (such as use of a trail visualisation as seen in this diagram).

Our lens is emerging technologies that enable a digital public service. Part of the Government Chief Digital Officer's (GCDO) role is to provide advice and guidance to All of Government (AoG) on the digital landscape of emerging technology. The aim is to help ensure we are prepared for impacts on society, and the implications for our public service systems. This landscape provides support to do this.

Using this lens we have prioritised the following areas to focus on:

1. Artificial Intelligence Tools and Applications
2. Spatial Computing
3. Encryption
4. Internet of Things
5. Big Data
6. Robotics and Autonomous Systems
7. Quantum computing

This is our first draft of the landscape and we understand that our lens may be different to what you might have in your organisation. If you have any changes or feedback which relate to your lens, such as the below, please [let us know](#):

- Positioning of cards
- Maturity of technology
- Category descriptions
- Which technology would be prioritized with your organisations lens
- Any other information that you feel is relevant

As future iterations of this document are completed we'll send these through to you. As a next step we will include definitions for the various technologies,

If you'd prefer to not receive any updates or there's someone else you'd prefer these to go to, please [let us know](#) and we'll make the changes to our mailing list.