Our digital futures
Perspectives from the market
Our digital futures

At Aurecon, we're aware that the corporate world we inhabit changes at an exponential rate.

Aurecon recognise that we need to challenge ourselves to build a culture of digital readiness and innovation within our own company.

As we ensure that our own process of digitisation continually improves, our knowledge deepens and we are using this to help our clients digitise their businesses across energy and resources, infrastructure and the built environment.

To better understand how we can help our clients, we spoke at length to a broad group of professionals across many organisations, industries and countries and asked them to share their thoughts on how digital technologies would shape and change their organisations in the future.

During these in-depth interviews we captured feedback and undertook a thematic analysis of what we learned. We'd like to share with you some of the key insights from this research as useful consideration to inform your roadmap to take charge of your own digital future.

When doing so, we recommend organisations take a zoom lens approach across McKinsey’s three horizons and we invite you to contact a member of our digital team to explore this with you.

Dr Andrew Maher
Chief Digital Officer, Aurecon
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What is ‘digital’?

We live in a digital world. From the moment we wake up and turn on our digital radios till we put down our smart phones at night, we are digitally connected. And for every digital interaction you can notice, there are millions of digital conversations you can’t. For some, this invisibility feels like losing control. For those who are willing to fully embrace digital possibilities, nothing feels more powerful.

But it’s easy to see how digital conversations can be confusing as some of the terminology is often misused. For example, sometimes the word ‘digital’ is incorrectly used as a noun instead of an adjective. ‘Digital’ can, therefore, only be defined by its context. ‘Digital’ is, in its simplest form, an electronic way of completing a task. So, in the world of communications, a digital device is one that can convert data into electronic signals. And digital computers are machines that store and process information using a binary system.

In general terms, a *digital system* is one that replaces something that previously worked in a manual or analogue way and the process of *digitisation* enables greater efficiency and effectiveness through an electronic means.

People use the term ‘digital’ in many different ways. Some organisations use it broadly to describe making existing processes and systems more efficient, while for others it’s about working towards a future where people’s roles will be entirely different. Some use it more narrowly to describe an electronic function or a new way of working.

As a company you can’t just go ‘digital’, you need to define what needs to be digitised.

‘Digital’ is an overused word, similar to cloud and big data. It just means electronic.

It means the way technology impacts on my business, but also potentially the way we engage with our customers’ customers.

Analogue has limitations. ‘Digital’ is limitless.

It’s about information and the accessibility of that information.
Digital possibilities

From the way we consume entertainment in our homes to how smart phones navigate us around the world, the way digitisation has changed people’s lives for the better is there for everyone to see. How you choose to harness this digital power in the future will be key to the success of your organisation.
The endless possibilities of digital enablement

‘Digital’ is a way of doing things not a thing in itself, which means the possible benefits of future digital enablement are limitless. Right now, it’s important to consider the ways in which digital systems can replace existing analogue or manual systems and how this digitisation can create greater efficiency and effectiveness through electronic means. Most of the future digital applications haven’t been thought of yet.

Disrupting digital disruption

The phrase ‘digital disruption’ often gets bandied about by people who don’t completely understand its meaning. It can cause us to panic and think we’ve missed some digital boat that all of our competitors have already boarded.

Digital disruption can be defined as the change that occurs when new digital technologies and business models affect the value proposition of existing goods and services.

Our clients realise that as digital technologies never stand still the potential for digital disruption is a constant factor for all businesses, in all markets, to a greater or lesser extent. Digital readiness can simultaneously protect you against major disruptions and give you the ability to be agile, when the time is right. Both are critical to the constant evolution of your business model.

The benefits of digital design and delivery

Digital technologies are helpful for collaboration, communication, planning and alignment with multiple stakeholders. Over the lifecycle of a project, they can help stakeholders understand different components of infrastructure by visualising the impact of different options and approaches. This allows more upfront planning and projects to be de-risked early and can reduce the chance of scope creep or rework.

It’s about ‘opportunity’ not ‘digital’.

It means enabling the business to do more with less through electronic means.

‘Digital’ is only the language and the enabler. You still need the underlying knowledge – it’s just a tool to do a job.

It will free up people from automated tasks to focus on more interesting tasks.

Disrupt or be disrupted isn’t true. There is the opportunity to be agile.

We need to understand how it changes our business model and our clients’ business models.

Digital designing and the ability to represent things quickly and run through design iterations, visualisations and representations. It’s a huge opportunity that will hopefully help us close the gap between fabrication and construction and the digital model.

From a collaboration point of view, I find it fantastic that I can communicate off the same models with my overseas partners and look forward to digitally track the building with them.

I look forward to ‘real time’ construction modelling via digital cameras – especially in remote areas. Then I won’t have to pay for flights and the time of the whole project team to go and inspect the site or progress.

We shouldn’t think ‘threats’, we should see ‘opportunities’.

We need to understand how it changes our business model and our clients’ business models.
Digital inertia

When something moves as fast as the world of digital technologies, there’s bound to be a degree of nervousness around uptake. You might worry if there’s ever a ‘right time’ to make your move but there’s a far stronger argument that the longer you delay your commitment to digital readiness, the more exposed you become to the threat of digital disruption.
Banking on ‘digital’?

Organisations want the value and usefulness of digitisation to be demonstrated before they make this change. It’s understandable that people want to know the benefits of any new approach or technology, even more so if it’s ‘digital’. Part of the problem is in the invisibility of digital technologies, as the lack of physicality and palpability makes it feel very ‘unknown’. For those trying to implement change, they believe it’s important to focus on the non-fiscal opportunities that digitisation represents, rather than think of it purely in terms of cost savings.

We are interested in how ‘digital’ can help us improve. Anything that affects our triangle of Brief (Quality), Budget (Cost) and Programme (Time) or the relationship between them will have an impact.

Unless ‘digital’ will translate what we are trying to do into hard savings and benefits then it doesn’t get too much air time.

The technology needs to show it’s improving things like safety and isn’t just cutting jobs.

Distrust of digitisation

There was a strong sense from some of our clients that “if it ain’t broke, don’t fix it”. They have a fear that the rapid rate of change in technology means that even if you start upgrading your system, it’ll be too ‘old’ by the time you finish it. Their scepticism extends to the belief that investing in new digital technologies could lead to implementing the ‘wrong’ system or one that doesn’t work as well as the old methods.

‘Digital’ is not a priority for me at the moment. Better way to do things is always in the back of my mind, but you don’t want to change for the sake of change. If it works, it works.

If people don’t have a piece of paper that says the dimension should be, for example, 200 metres, then sometimes they don’t believe the computer.

You can go back, if a new system doesn’t work, but the costs are high – huge!

The speed with which new innovative solutions are coming to market is scary.
In analogue we trust

Even though digital technologies were generally seen as collaboratively enabling on design projects or infrastructure management, there are still trust issues around sharing information between partners due to legacy contractual structures, IP concerns and data security.

I’m worried about the control of the information and the point at which we as designers share it with clients. The design process in terms of interactions with clients is quite delicate and if we show a model too early in the process, before everything has been worked through, it runs the risk of the client losing confidence.

One of the big challenges in leveraging a collaborative digital environment is trust. To get past this, owners, engineers, architects and contractors need to understand that real IP is not in the design, it’s in the way you apply it.

The greatest potential threat is related to ‘open data’ and the possibility of data being stolen or misused.

Digital dependencies

Architects, contractors and clients all shared a fear about the power of software vendors. Knowing that you’re picking the right software for your needs is critical from a cost and operations perspective. There was a sense that if you implement the wrong system you often have to compromise activities to fit the software. The inability to change software without huge expenditure only compounds the risk and highlights the importance and pressure of getting the solution right in the first place.

There is a risk when you engage a software provider – you are letting go and losing a bit of your control.

I’m concerned about being held back by vendors. Lots of cool stuff is open source. It would be great to see a future not beholden to the vendors.

The power of software companies is huge because you’re locked in and that’s a lot of power. Not everyone can program and it’s costly if you get it wrong – you can lose a lot of business.
Know your customer

By understanding how you can add digital value to your clients and customers, you can define your own digital strategy. Your organisation’s digital solutions will come about through a process of human-centred observation and engagement of your own customers’ needs.
Your customer is always right. Right?
Some of our clients believe that their clients aren’t being considered enough when it comes to digitisation. They feel that not all digital developments go far enough to understand today’s constantly changing end user demands. Ultimately, end user experience is what matters and so it’s essential that the expectations of the client and their well-informed end users aren’t only listened to but also acted upon.

The rise of the prosumer
We found a consistent theme of expectations management from clients and end users alike. The technology cannot keep up with expectations. Their customers want everything now, perfect and personalised – as they have become so accustomed to this in their personal digital experiences. Therefore, business must keep up with the pace of digital change in society.

What you see is what you get
Our clients felt that the visualisation tools that digital technologies bring help to bridge the knowledge and language barriers and create transparency in the design process. They reduce construction risks by improving pre-building design, enabling rapid prototyping and testing of ideas as well as knowledge transfer.

We will need to stay relevant and affordable to our customer’s customer.
As manufacturers, we’ve developed lots and lots of digital apps for customers to interact with us. For example, an interactive showroom where people are taken on a digital tour or shown all sorts of tricks with 3D.
Software developers only cater for their customers not the end user.

Consumer expectations of what is possible is rapidly evolving and increasing. One of our challenges is transferability of these expectations to our industry.

Expectations are exceeding what the software can do.

The retail experience is becoming more important in the competition with online commerce. How do you draw customers to the mall? What part can design play in this?

You can flesh out crazy ideas and rule them in or out, simply and quickly.

Visuals are good for non-engineers.

Virtual Reality helps us to communicate any understanding gaps between stakeholders.

We’re interested in what we can learn about finished works before we start building.
People are the agents of digital transformation. Without their input, nothing will change. When this digital change does happen, it will have a ripple effect throughout your organisation. Some people will, to continue with this same metaphorical theme, take to it like a duck to water, while others will feel like they’re sinking. With foresight, nobody will drown.
The positive culture of change

Whenever digitisation occurs within an organisation, it requires an understanding of the necessary culture changes and employee readiness that are critical for the new processes to be embraced early on in the process. Incentivising people to do this, or even better to drive change, relies on people reassessing their attitudes and ways of working and developing a level of comfort with the ambiguity of 'new'. There will often be a need to empower an ageing, potentially less tech-savvy, section of the workforce. The effects of the change to the culture, external to an organisation, can be equally important. It can impact on, or require support from, trade unions, end users and governments.

It’s not about the technology, it’s about the change management.

So often it isn’t digital advances that are the issue, it’s how society reacts to them.

Challenges are social, not technological. You need to adapt.

Bridging the digital skills gap

To bridge the inevitable digital knowledge and skills gap, it’s essential to train people so they can understand the new processes, systems, tools and, in particular, the software. When clients implement new digital processes or strategies, their people need to be educated on the benefits of the digital changes.

Training and development of our people is our number one priority – we need to get the majority of our people up to a certain level of digital capability and keep them learning.

The rate of change in the business environment has increased so much that it is probably not possible for a single organisation or individual to keep up with all the relevant information and trends. This means we need to embrace more specialists either inside or outside our organisation.

For us, training is our priority. The social and cultural shift, which comes from understanding our own process of digitisation, is what will help us transform. Understanding comes from training.

Setting digital standards

There was a desire for a digital common language, particularly in the infrastructure industry. The ability to communicate easily across all industries, technology platforms, states and countries was important, especially to those clients with a global footprint. The standardisation of quality control in digital models was key for clients in their internal information management and, particularly at the point, when they share with stakeholders. However, there was a concern about who is or can be responsible for the development of these necessary standards.

The biggest challenges come from meshing different technologies together and agreeing a new way of doing things.

A lot of the higher, strategic bodies aren’t equipped to make decisions. If industry bodies develop them there is a risk of standards being too high-level or impractical.
We believe organisations need to look at their digital needs today, tomorrow and in the future. McKinsey’s Three Horizons model gives us a succinct way of talking about this landscape of digital opportunities.

The first horizon, the foreground, is the here and now. When thinking about infrastructure, for example, we ask: How can we leverage digital engineering to deliver more effective and efficient infrastructure outcomes? The second horizon, the midground, relates to the emerging opportunities such as intelligent buildings, which has the potential to deliver significant benefits. The third horizon, the as yet unknown future, is where there is likely to be the greatest opportunity to disrupt or be disrupted.

A zoom lens gives you the ability to look at all three, changing your focus quickly and easily, as needed so you can concurrently manage your current and future opportunities.

It’s essential to use the zoom lens to focus close up on the foreground right now. It’s here that you can assess what digital tools and applications will increase productivity and profitably in the short term. While you must always keep one eye on the here and now, you need another to look ahead and plan for a future, which is only predictable in its uncertainty. By using the zoom lens approach, you can quickly shift focus between the present and the future and stay updated on emerging trends and new technology. By being agile, you will be able to turn disruption into opportunity.
Aurecon believes that the **digitisation** of infrastructure is essential to ensuring value for money and future proofing of infrastructure.

Digitisation of infrastructure will enable business and communities to capture not only all of the inherent value in its built infrastructure assets, but also the data required to create a digital and smart city economy for the future.

Please contact our digital team for further information about how we might assist you with your digital future.

Aurecon Digital Built Framework

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