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Ashish Gupta, CVP and Head of EMEA, HCL Technologies

"CEMEX has started its journey to design new services focusing on improving our customers' experience. The Design Lab Services was launched to research, diffuse and implement new approaches and best practices for service design. We are also committed to collaborating with the best universities and experts around the world on applied research and innovation projects to get prepared for the digital revolution."

Martin Adolfo Herrera Salado, Digital Enablement, Business Consulting Services

"One of the key things about the Alliance is the non-competitive nature of the partners within it. That allows us to move away from some of the more traditional IP and confidentiality rules, to openly share our challenges, dig beneath the surface of some of the hype about digital and get into the nuts and bolts about how we really deliver it and the challenges we all face.'

Caroline Burstall, Supply Manager For Industrial Power Systems, Caterpillar

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Connecting the **digital, physical** and **social**

New thinking about the future of services

CAMBRIDGE SERVICE ALLIANCE

UNIVERSITY OF CAMBRIDGE
Department of Engineering

IfM MANAGEMENT TECHNOLOGY POLICY

New technologies and new business models have already changed the way organisations interact with their customers. In the not too distant future, developments such as AI, robots and virtual reality will be a completely normal part of the customer experience. However, these new ways of engaging with customers will not replace face-to-face encounters but will work alongside them, making already complex service systems even more so. In this world, managers will need to understand customer experiences across the digital, physical and social 'spaces'. Until now service research has looked at these three distinct service environments separately but organisations increasingly need to understand how they come together to create satisfying customer experiences and to design their services accordingly.

Why is it so important to think in terms of these three digital, physical and social spaces? The simple answer is that doing so will enable organisations to design better services for – and with – their customers. It will also help them avoid potential pitfalls. Not thinking about these connections when dealing with complex service systems can have serious consequences. A good (or bad) example of this is when a small electrical fire started at Atlanta's airport (in its physical space) in 2017. The back-up power system (in its digital space) responded by shutting itself down which in turn stopped the emergency teams (in its social space) from dealing with the fire. Result: passengers were going nowhere fast. Each of those systems responded to a local issue in a logical way but a lack of integration ended up escalating the problem rather than solving it.

Services 2050

We know service delivery is going to change over the next 30 years thanks to new technologies. To get a better idea of what that will mean in the digital, physical and social spaces, we consider the likely trajectory of three different service sectors.

Asset-heavy B2B services

In sectors such as construction, energy and transport services it is common for maintenance and repair services to be part of the package when customers buy or lease an asset. These services take place in the physical space (onsite at a building or in a workshop) and in the social space (working with a team of experts). However, digitalisation is also becoming an important part of this landscape.

All large assets are expensive to run and those that are part of our national infrastructure, such as power stations, bridges and railways are critical both to the economy and to people's health and safety. As a result, they are using real-time data sensing and analytics to pre-empt problems and keep services running smoothly.

The digital space

Digital technologies such as virtual reality, AI, blockchain and digital twins will transform the customer experience. Digital platforms have already taught us to expect highly personalised services and instant responses, 24/7. The speed of digital, its reach, its interactivity and the quantity of data it can handle, will continue to affect customer behaviour. The role of humans in service delivery is also likely to change, as they are supported or, at times, even replaced by digital experts.

The physical space

The digital revolution notwithstanding, services will continue to be delivered in the 'real world', in, for example, bricks-and-mortar shops, hospitals or airports. We know that the right physical environment can positively affect the customer experience. As organisations develop their digital spaces they may borrow aspects of their physical spaces to recreate those positive customer experiences. At the same time, the digital is increasingly invading the physical world through, for example, self-service kiosks to virtual reality simulators.

The social space

Interactions are at the heart of the customer experience, whether in person (in a physical space) or online (in a digital space) and whether they take place between humans or humans and robots. The social space is about creating shared experiences, whether that's between the organisation and its customers or among the customers themselves. As digital technologies become more pervasive, these roles are likely to become blurred. For example, on platforms such as AirBnB users can switch between being a customer and a service provider. We need to understand the implications of having multiple identities in the service context.

Over the next 30 years we see this sector moving from conventional support services to services derived from digital twins. Rolls-Royce, for example, has announced a project to create digital twins of its ships so that their safety and performance can be digitally monitored throughout their lifetime. The UK's National Infrastructure Commission is pushing for the creation of a national digital twin which brings together power, water, communications, weather, demographic and transport data so that managers can see how changes in one asset will affect the others and make better decisions as a result.

Healthcare

Similarly, healthcare has been centred on the schedules and settings of the clinical team and hospital infrastructure, in other words, in its physical and social spaces. However, over the next 30 years we are likely to see more and more healthcare taking place in the digital space.

Patients will be able to make more choices about how and where they receive their care. Treatments will become more personalised with advances in genome pattern sequencing and diagnostic techniques. Healthcare providers will be using AI, 3D printing, sensory technology and real-time data processing to design and deliver services. Robots will help on the wards and in the operating theatre and take on social roles such as companions for the elderly.

B2C, retail and professional services

This has been an area of intense innovation in recent years, with retail often leading the way, moving from a highly physical and social model to a highly digital one. But there is an interesting convergence going on here as some conventional bricks-and-mortar retailers are bringing digital channels instore and some online retailers – like Amazon – are opening bricks-and-mortar shops. Whichever route they take, they recognise the need to create a highly personalised, consistent and integrated shopping experience.

In professional services, the World Economic Forum is predicting a huge shift to online platforms with customers expecting 24/7 access. In the legal profession, virtual courtrooms are already replacing physical ones and we have seen US law firm Baker and Hosteler using an AI lawyer to handle its bankruptcy practice.

In all three sectors, therefore, we anticipate a shift to the digital to exploit the opportunities it brings for creating new value propositions, and the convenience it offers its customers. But what does this mean for organisations and how should they be designing their services to deliver a satisfying customer experience across these different spaces? This needs careful thought as the connections between devices and platforms can quickly create very complex service environments which can cause some unintended consequences. At the same time, one of the major barriers preventing the integration of the three service spaces is the number of different hardware, software, platforms and networks that organisations have within their own businesses, let alone across different organisations.

How can organisations connect across the digital, physical and social spaces?

We have developed a framework that allows us to categorise services according to how digital, physical or social they are and the levels of complexity they have in each space. This allows us to identify areas of opportunity and of potential conflict and to devise ways to resolve them.

At the most complex end of the spectrum, where services are highly physical, digital and social, organisations are going to have to manage the relationships between the spaces very carefully in order to deliver the right service to the right customers. Customers will choose which elements they want from which space: organisations will need the systems in place to cope with that seamlessly.

Where the move is towards a greater social presence in a digital space we anticipate a number of challenges, including arriving at a better understanding of how human customers are going to react to robot assistants. We are used to getting help from Siri or Alexa and researchers are developing robots that can show signs of empathy, recognising someone's emotional state and showing emotion in response. These kinds of robots will affect the customer experience in ways we do not yet understand.

Where do we go from here?

Taking a digital, physical and social perspective changes the way organisations need to think about service design. Here are just some of the issues service providers will need to address:

Connect across the three spaces to meet your customers' needs

Organisations must develop the capabilities and resources to support service innovations across all three spaces, ensuring that the right information is available to the right people at the right time. Better data management is going to be needed to connect the spaces and to understand customers' preferences in order to determine the appropriate mix and sequences of services that will be most effective in creating value for both parties.

Develop good practice around personal information

Organisations can only develop the kind of personalised services that firms such as Disney are pioneering if customers trust them with their data. This is already a serious issue in the B2C world. B2B organisations are also waking up to the fact that they need to get better at securing sensitive data.

Know when to launch

Getting this right is critical but not easy. Microsoft learnt this to its cost with the launch of its chatbot, Tay, which had to be closed down after only 24 hours of activity.

Use our model to address 'base of the 'pyramid' challenges

If all three spaces are at a low level of development, it suggests that all resources are scarce. In this context, our model can help develop innovative solutions such as tapping into local knowledge, resources and capabilities to create alliances or using digital technologies to develop new business models which allow customers to share a service and its costs, to buy smaller packages or to benefit from micro-finance or loan programs.

Co-create a coherent customer experience

Whether in the digital, physical or social spaces, employees (human or digital) play a key part in attracting and retaining customers. Rapport and empathy influence the customer experience and business outcomes. Organisations will need to make sure that their customers receive the same kind of attention whatever the context.

The future of services

Services are about relationships between customers, suppliers, employees and a range of other human (and non-human) participants in increasingly complicated ecosystems. New technologies have the potential to make organisations much more efficient and to improve their customers' experience. But not all technologies will be welcomed by customers. Organisations may have to trade off the efficiency new technologies can bring against their potential for alienating customers. Understanding which ones will work in which situations is going to be critical in a future of multiple technological possibilities. Being clear about the relationships between the digital, the physical and the social will mean you are more likely to make the right choices.

One thing's for sure. In an era where AI, robots and digital twins are part of the service landscape, the customer experience is going to change. We need to make sure it's a change for the better.