Digital Trend #2: Everything & Everybody Connected

Digital Trends – Everything & Everybody Connected

In this chapter, we explore how multifaceted this topic is, from zero touch IT maintenance and virtual reality collaboration, through to the Internet of Things, connecting devices and data in ways that only a few years ago were a pipe dream.

Cloud-native devices and application management

A key consideration in ensuring your Digital Workplace has a strong and resilient foundation is the ability to avoid incidents, problems & frustration before they happen. A variety of approaches can be used for this, some of which are further explored in detail in our chapters on Digital Trend #1 (Personalised Experience) and Digital Trend #5 (War for Talent).

In the context of this chapter, we consider how moving to the cloud permits the ability for the platform to manage identities and devices. This effectively removes the dependency on office networks on-premise infrastructure to manage an increasingly agile and remote workforce, scattered across geographies and time zones in a global organisation. This in turn provides a platform to innovate on. By helping our customers transform their workplace landscape we enable a 'connect and work from anywhere' possibility while maintaining a satisfactory security posture.

Companies like Atos have invested in considerable levels of engineering skills to smooth the transition away from on-premise control and management tooling – at Atos, we have more than 2,000 Microsoft certificates – and have developed our 'Atos Move to Modern' framework to map out and execute migrations in a proven and repeatable way. The benefits are numerous - true zero-touch onboarding, SSO or even passwordless authentication, and the ability of offer attractive and cost-effective BYOD device policies.

Atos: We consider ourselves as Customer Zero and apply learning key lessons to help our clients on a smoother journey. Atos, with its global footprint, has successfully connected its workforce through

modern management practices, ensuring seamless integration and efficiency across all regions. By leveraging cloud collaboration tools, we have enabled our teams to work harmoniously and productively from anywhere in the world. Furthermore, our AI-augmented solutions have revolutionised our operations, fostering innovation and driving unparalleled business outcomes on a global scale.

SIEMENS

At Siemens, Atos facilitated an 83,000 user transition to modern management by consolidating their IT infrastructure and applications, which streamlined global IT operations and created a standardised, integrated platform for core business processes. This transformation reduced operational costs, enhanced agility and scalability, and improved data quality and security. The collaboration enabled Siemens to harness the full potential of modern technologies, driving efficiency and innovation.

Augmented business productivity and mixed reality workspace collaboration

Employers now embrace three generations of accomplished IT users: Gen X, who have experienced the advent of the PC and the Internet early in their working lives, and Millennials and Gen Z who have never experienced a time in their working lives without personal computers, mobile devices and the Internet.

Remote collaboration systems have become increasingly important in today's digital workplace, recently accelerated by the need to be physically distant from one another during the COVID pandemic. During this time, the business community was forced to adopt virtual ways to network and communicate. Technology has provided the means to effectively collaborate over long distances and between time zones. While video and teleconferencing has been around for many years, the ability to seamlessly work on the same documents simultaneously rather than in serial has been a relatively recent innovation, but it is now standard in office tools such as Sharepoint and Teams. Virtual platforms for team work also provide the ability to naturalistically share knowledge and work on projects in real time, with whiteboards, sticky notes, and imported models. These tools are increasingly augmented by AI products such as Copilot for recording minutes and actions, thereby freeing up employees to immerse themselves in the creative process rather than dealing with low-value administrative tasks.

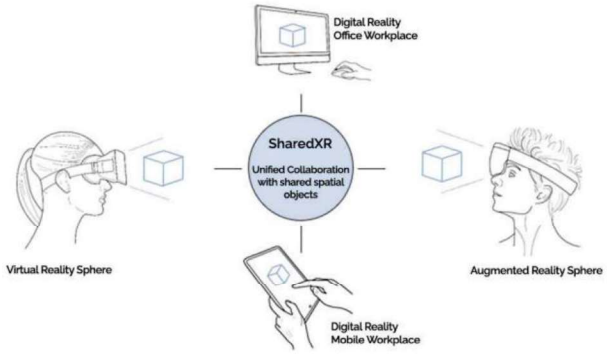
Mixed reality technologies like augmented reality (AR), virtual reality (VR) and augmented virtual reality (AV) have now achieved product maturity, resulting in growing adoption for business use. Following early adoption in industries such as media and entertainment — where the immersive qualities of these technologies are highly valued — they are now featured in a growing range of applications across many industries.

A key benefit of mixed reality is that it provides users with a more intuitive understanding of digital information, including photorealistic renderings of virtual objects within real scenes, and with 3D representations that are spatially correct. As a result, these technologies are now collectively referred to as 'Spatial Computing'.

To achieve business adoption, the challenge for any new technology is to prove its value over existing and well-established technologies. This is especially true for technologies like Shared Cross-Reality collaboration (SharedXR) because they disrupt the current unified communication and collaboration norms. The ubiquity and comfort people have for video conferencing serves as a catalyst, and we believe that SharedXR has the potential to break the constraints of current flat-screen display technologies for unified collaboration within the next three to six years. We see parallels with

previous IT disruptions like multi-touch display technologies, which have replaced keypad / keyboard interaction for mobile devices over the last decade.

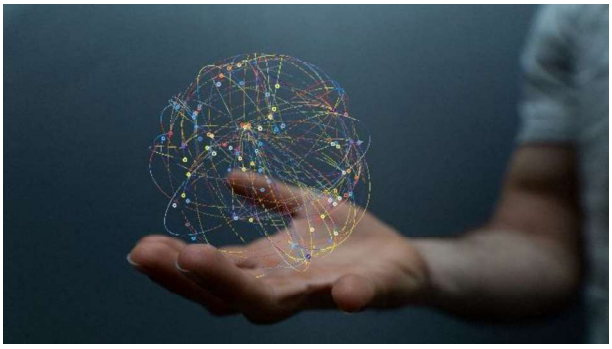
SharedXR will bring a spatial dimension to human-digital interaction, enabling people to engage with content in entirely new ways. Just as today we share our computer screens with other participants during video conference sessions, we will soon be able to share a mixed reality environment (AR/VR) with multiple collaborators.



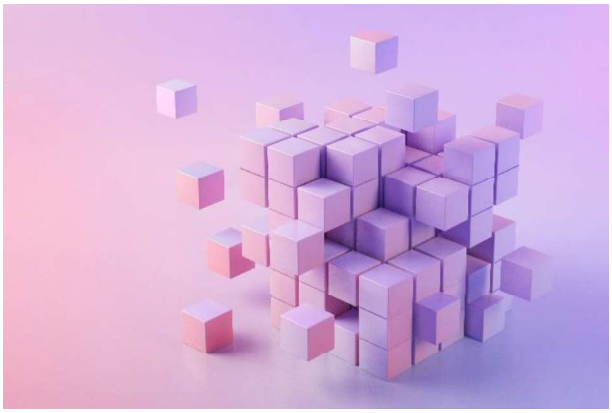
Shared elements can be virtual objects seamlessly placed and embedded into an augmented reality experience, or even entirely virtual experiences of virtual reality scenes. We will acquire the ability to visualise and share virtual objects, or even avatars that represent remote participants, in a cross-reality collaboration session, supporting a new level of immersive connection and collaboration. When provisioned through low-latency data channels, virtual objects, avatars, or entire virtual scenes can be synchronised in real time, replicating the experience of co-locating physically.

The visualisation and sharing of digital content in a cross-reality space provides a spatial extension of users' augmented fields of view. This extends the ability for businesses to not only remotely collaborate on concepts and documentation development as they do today, but also meaningfully remotely create three dimensional outputs, evaluating suitability from countless angles without having to observe or interact with physical objects.

Virtual objects will be developed with photorealistic texture mapping and dynamic adaption of levels of detail. Additionally, immersive user experiences will also place objects in a variety of detailed and realistic situational contexts to aid evaluation of suitability for assigned tasks.



With the ability to animate virtual models, a simulated process and its outcomes can be visualised in a collaboration session using powerful back-end simulation engines. Inside a SharedXR collaboration, participants can experiment with what-if scenarios by modifying simulation parameters and constraints. They can jointly observe dynamic outcomes represented by shared virtual objects and even adapt simulation parameters by intuitively manipulating the object. This will push future digital co-engineering scenarios to the next level. This capability will remove the last remaining physical barriers, greatly accelerating object development at a much lower cost than current product design processes.



For Heineken, a further potential use case is in the area of employee training. This could be applied to a variety of scenarios, using Digital Twins. In a marketing context, SharedXR could be applied to product placement familiarisation, modelling different product maps and competitive comparators to find the best layouts in a variety of retail environments. In a supply chain scenario it could be used for

training engineers and warehouse staff on the correct operating procedures for machinery or load handling tasks, without the risk of injury or damage to the equipment.

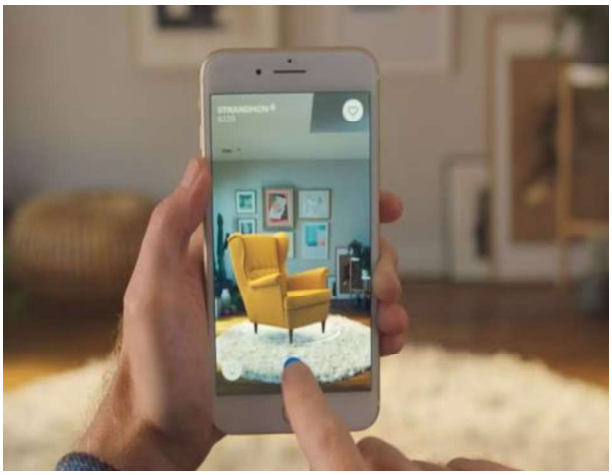
Retail in the Metaverse

A public equivalent of SharedXR is 'metaverses': persistent, immersive three-dimensional virtual spaces where users interact with each other and with digital environments. Combining elements of virtual reality and augmented reality, real and virtual worlds merge, opening endless possibilities for collaboration, exploration and creativity. One of the most populated public metaverses is Roblox, which has evolved past its 2006 creation as a gaming platform and now provides potential marketing and eCommerce opportunities for retailers.

Roblox hosts branded metaverses for fashion labels such as Nike, Gucci and Vans, allowing players to purchase from virtual collections. NIKELAND was visited by over 21 million players in the year following its launch, hosting prize challenges and even offering users the chance to meet brand ambassadors and sports stars like LeBron James. NIKELAND continues to maintain high levels of engagement, paving the way for other brands to capitalise on the metaverse as a marketing tool.

Metaverses aren't just for high profile fashion brands though. In 2019, Ikea released the app IKEA Place, which displays three-dimensional models of their products that customers can position in their home. The products are shown true to scale, allowing customers to experiment with different furniture sizes and styles before purchasing.

IKEA followed it with the Kreativ Scene Scanner app, which lets customers virtually replace their own furniture with virtual replicas of IKEA products.



The food and beverage industry continues to progress with AR technology to bring their products to life.

Wine producers 19 Crimes have partnered with the app 'Living Wine Labels', which uses the camera from a mobile device to animate wine labels and bring consumers face-to-face with the infamous personalities that their wines are named after.

The Internet of Things – the power of converged OT and IT

Operational Technology (OT) and IT domains differ significantly. Unlike today's increasingly standardised IT environments, OT networks utilise proprietary protocols and standards. Manufacturing and logistical environments include critical devices such as Programmable Logic Controllers (PLCs) – part sensors and part IO devices – made by a range of different manufacturers, using differing data structures, languages and hardware interfaces and are used to control and monitor equipment based on custom programming. Regulatory requirements impose additional restrictions on OT networks. Safety, quality and traceability are all defined according to specific use requirements.

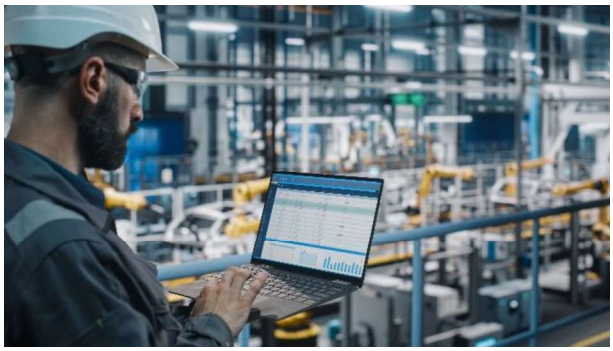
Integration of all these factors into a coherent and functioning ecosystem is challenging, but the ability to combine OT and IT data with applied business logic and processes will

empower businesses, and machine learning, advanced algorithms and generative AI will be able to extract detailed insights and business intelligence.

This convergence will enable operational teams to optimise production by leveraging real-time or near-real-time analytics. These can then be visualised, explored and manipulated through new metaverses, combining millions of data points to bring the real and digital worlds closer together. We predict that global factories will generate 175 ZB of data annually by 2025. If organisations cannot bridge the traditional segregation between OT and IT, this will impede progress towards becoming truly data-driven and impact their competitive edge in the market.

To help our clients with this, Atos has developed its integrated 'Convergence Pro' product suite. This combines the powerful operational tooling and automation of Siemens SINEC NMS, with the market-leading service management tooling of ServiceNow, and the systems integration and managed service expertise of Atos.

SINEC NMS gathers data from the plant environment to centrally monitor, manage and configure industrial networks. ServiceNow's service management platform provides end-to-end visibility, service management, and vulnerability response through a single record system.



Atos' longstanding proven expertise in complex system integration and comprehensive managed services brings these technologies together. Through standard APIs, Convergence Pro creates a seamless flow of OT and IT data, while adhering to IEC 62443 standards for securing industrial automation and control systems.

Convergence Pro minimises downtime by accelerating service recovery. It capitalises on a unified OT and IT data repository, automating workflows to enable real-time orchestration of OT visibility, vulnerability management, and service operations. The benefits are numerous. The actionable insights that Convergence Pro can deliver powers effective decision-making and optimised operations. It does this by:

- Permitting the IT department to manage and maintain OT environments using familiar, effective and unified ITIL service management principles
- Simplifying operations by monitoring and supporting IT and OT environments using a single suite of integrated tools
- Instantly generating incident tickets and routing them to expert support team for resolution when industrial device faults occur
- Employing standardised major incident management processes, familiar to global support teams, to address critical faults
- Storing precise OT device details and status alongside IT data in a unified repository, enhancing troubleshooting and expediting issue resolution
- Measuring true business impact against appropriately defined SLAs, leveraging accurate historical data for all recorded incidents
- Empower strategic decision making and process optimisation, based on past and current trends, supported by historical performance data.

Real-time dashboards relay crucial business insights, underpinned by metrics from multiple

sources, including OT data from Siemens via SINEC NMS, ServiceNow data from both Siemens and Atos, environment monitoring, service availability metric data, Business Process Chains, ITSM reports, OS & patching reports, and network availability. This rich tapestry of correlated data provides shopfloor management teams with a holistic view of current production services and potential risks.

We can also connect OT and IT performance with business outcomes. Whatever happens in your OT and IT environment, you need to understand its operational impacts. Unlike other IT management solutions, Atos prioritises your business processes by tracking OT and IT system performance against business KPIs — not simply SLAs. By bringing together service integration and orchestration with application control and monitoring in one centralised location, you can stay in control and fully aligned with the business.

In addition to OT Service Management benefits, Convergence Pro creates a new flow of real-time data to drive ever more predictive, preventative and pre-emptive interventions, strengthening manufacturing operations. Using this growing converged data repository, a digital twin offers new ways to re-imagine, predict and control virtually any aspect of manufacturing, from speeding up production to reducing waste or increasing sustainability. Innovative augmented reality applications can utilise combined real-time data to better inform, train and support employees remotely and at the plant.

Organisations who achieve OT-IT data convergence can utilise this invaluable resource to better deliver their strategic and operational objectives.

The Internet of Things – intelligent connectivity of non-computing business assets

In Ronald's article, he highlighted the great work Heineken has achieved, connecting 4,000 machines in your breweries, generating more than 200 billion data points to provide intelligence on equipment performance and health. These types of data can be used to run predictive maintenance programmes, which we have seen in diverse situations from water utilities providers to manufacturing production lines, for avoiding costly disruption and downtime.

Heineken has connected many thousands of fridges and draft beer pumps to analyse the streams of equipment and consumer data that provides valuable insight into buying habits. This data can be used to understand brand popularity, demand profiles and regional preferences, to inform manufacturing demand and supply chains.

Atos has also been involved in connecting beverage industry consumer equipment in similar ways to provide its own customers with data and intelligence.

By the end of 2018, Coca Cola Hellenic Bottling Company and Atos had connected 300,000 drinks coolers, growing to over 500,000 by the start of 2020.Shortly, CCHBC will have a fully connected base of approx. 1.6 million coolers in operation across 28 countries. This solution enables CCHBC to access huge amounts of point-of-sale data, such as the advantages of different cooler placements in stores, availability, product placement within the cabinets, stock temperature, and customer behaviour, preferences and trends over time. The 'Connected Cooler' service from Atos has allowed CCHBC to develop a fully connected asset ecosystem. As well as enabling CCHBC to easily manage the data from more than a million Connected Coolers, this end-to-end service provides the basis for turning further assets such as shelves and standalone vending machines into IoT devices in a wide range of environments outside of retail stores. CCHBC is able to use the Connected Coolers to engage with customers in real-time on mobile apps and to generate customised offers and near-me promotions.

The global connected vehicle market is poised for significant growth in the coming years. This growth is driven by factors such as increased consumer demand for connected solutions, the need for constant connectivity, dependence on technology, and government policies.

At Atos, under our brand **Eviden** and our Big Data & Security (BDS) business line, we have developed Connected Trucks – an Atos global telematics solution leveraged by leading European truck manufacturer, DAF, providing real-time fleet management and vehicle data to fleet owners.

The system is a scalable, cloud-agnostic, GDPR-compliant platform. It uses advanced sensor technology to collect data on the truck's location, performance, and usage, and then sends this data to the cloud, where it can be analysed and used to improve fleet efficiency, safety, and compliance. Connected Trucks offers a myriad of features that could be useful for companies like Heineken, who rely on vast logistical networks to distribute products to stockists and retailers. The features include:

- Real-time vehicle tracking and monitoring, fuel consumption and performance analysis
- Driver behaviour monitoring
- Maintenance management and alerts
- Alerts for undesirable characteristics such as over-speeding or harsh braking
- Compliance management, including Electronic Logging Device (ELD) compliance and working time directive compliance.

The Connected Trucks vehicle management solution is fully integrated into the trucks, and the data is made available through easy-to-use web-based portals that allow fleet owners to access all the data in one place in real time. It delivers a wide range of reporting and analytics features, enabling fleet owners to improve their fleet efficiency and safety and reduce their operating costs and compliance.

By using this system, fleet owners can proactively identify and address issues and inefficiencies, and make data-driven decisions to improve their bottom line.

Atos – your partner for Connections

Atos is one of the world's largest IT providers, and innovation and expertise is our core business. We have been a Gartner Leader for many years in digital workplace services, hybrid cloud infrastructure and datacentre services. We are also ranked Number 1 worldwide in managed security services by revenue.

Atos could assist Heineken to achieve its goal to become the best-connected brewer in several key ways:

- Digital Ecosystem Integration: Atos can help design and implement strategies for integrating various digital ecosystems, ensuring seamless connectivity and

interoperability across different platforms, devices, and systems.

- IoT Implementation and Management: Atos offers expertise in IoT implementation, helping clients connect and manage diverse IoT devices, enabling the collection and analysis of data from interconnected sources for actionable insights and improved decision-making, plus the security wrapper around it.
- Cybersecurity and Compliance: Atos provides robust cybersecurity solutions to secure interconnected systems, devices, and data, ensuring compliance with industry regulations and safeguarding against potential cyber threats in an interconnected environment.
- Data Management and Analytics: Atos assists clients in managing and analysing interconnected data effectively, leveraging advanced analytics and AI to derive actionable insights from the wealth of data generated by interconnected devices and systems.
- Cloud and Edge Computing Solutions: Atos offers cloud and edge computing solutions to support the scalability and agility needed in interconnected environments, enabling efficient data processing, storage, and analysis at both centralised and distributed locations.
- Digital Workplace and Collaboration Tools: Atos provides digital workplace solutions and collaboration tools to support interconnected workforces, enabling seamless interaction and productivity across distributed teams within the client's interconnected ecosystem.

Our 94,000 skilled individuals bring together agility and ability, designing imaginative, creative solutions that help our clients anticipate what matters most to their customers, stakeholders and employees, and create lasting value in today's world.

Security
Experience
Connection
Innovation