

# SMART ENTERPRISE DRIVERS 2023

Strategic Realities Reshaping the Smart Enterprise

TOP 10  
STRATEGIC  
DRIVERS

An abstract graphic featuring a central black circle, resembling a CD or DVD, with vibrant, multi-colored light trails (red, orange, yellow, green, blue) radiating outwards. The background is dark with numerous bokeh light spots in various colors, creating a sense of depth and motion.



# SMART ENTERPRISE DRIVERS 2023

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# NEC'S TOP 10 STRATEGIC **SMART ENTERPRISE DRIVERS 2023**

Digital Transformation is recreating business models, changing the way customers and employees interact and altering whole industries. Social and business values surge when people, devices, and resources are meaningfully connected.

With the COVID-19 pandemic a further catalyst, organizations worldwide are embracing digital transformation to manage rapid organization-wide changes in support of business continuity, remote working, and dynamic service delivery.

Meanwhile economies are now facing the threat of recession and businesses are weighing the impact of inflation and higher interest rates, as well as having to deal with crises in supply chains, energy sourcing and the acquisition of digital skills. Making sense of such disruptive changes has never been so important in order to transform smartly instead of being left behind.

As an Information and Communications Technology (ICT) leader with over 120 years of expertise and experience, NEC is sharing its views on leading and emerging trends and technologies to help your Smart Enterprise anchor its strategic investments. Explore NEC's Top 10 Strategic Drivers and discover how to navigate through the developments to simplify your organization, realize workforce efficiencies, deliver superior customer services, and gain a competitive advantage.

By embracing Digital Transformation and enabling advanced approaches to how Communications and IT services are delivered and managed, NEC provides new ways for Smart Enterprises to thrive and grow.

**Ronald Schapendonk**  
Global Marketing Director  
NEC Enterprise Solutions

**DIGITAL TRANSFORMATION**

INTEGRATION OF  
DIGITAL TECHNOLOGIES  
FUNDAMENTALLY CHANGES  
HOW ORGANIZATIONS  
OPERATE AND DELIVER  
VALUE TO CUSTOMERS

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# DIGITAL TRANSFORMATION



## LET'S GET DIGITAL

The integration of digital technologies into all areas of an enterprise is fundamentally changing how organizations operate and deliver value to their customers. It requires flexibility and creativity in revisiting business models and operational processes and the willingness to embrace cultural change.

Digital Transformation is key for enterprises to enrich their operations with innovative solutions that optimize business practices, drive workforce engagement, and create a competitive edge. It involves using technologies like smart collaboration, cloud computing, Internet of Things (IoT), data analytics, biometrics, and artificial intelligence to make workflows more efficient, smooth, rich, effective, and secure. With seamless and efficient interaction being critical to organizations, instant communications need to be an integral part of these workflows.



## EMPOWERING A DATA-DRIVEN ENTERPRISE

The power of capturing, processing, and analyzing data offers enterprises tremendous opportunity to digitally transform every aspect of business, spanning how they engage with customers, empower their employees, optimize their operations, and design their products.

As enterprises rely more and more on data, the reliability of that data increasingly becomes crucial. To ensure the integrity of their data, organizations will need to validate it, manage processes to protect critical data, ensure it is safely stored as well as swiftly retrievable.



## AUTOMATED, COMPOSABLE AND CONVERGED

### The keys to operational excellence

Digital adoption and automation are key to operational excellence and become indispensable for organizations to survive. Hyper automation is the approach to identify and automate as many tasks and business processes as possible to support scalability, remote operation, and resilient business. Technologies include data science and machine learning platforms, Artificial Intelligence, and robotic process automation.

Equipment, functions and processes becoming more and more software driven, makes them programmable to dynamically respond to changing requirements. Composable Infrastructures enable IT departments to provision workloads quickly and efficiently, while Programmable Communications enable companies to embed voice, messaging, video, and authentication capabilities into business applications and workflows via simple-to-use APIs.

Application convergence finally integrates multiple applications into one system, storing data in one database and presenting all through a single user interface.



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# UBIQUITOUS CONNECTEDNESS



## ANYWHERE OPERATIONS FOR AN OMNIPRESENT WORKFORCE

Making staff omnipresent and 'always on' is key for enterprises to operate efficiently and effectively in today's business environment. Organizations are capitalizing on mobility solutions that enable employees to work from just about anywhere, at any given time, whether on-site, at home, between appointments, or while traveling. Technology ensures they remain fully integrated with their organizations, colleagues and customers, as well as with their social networks.

Work/life balance is enriched by the power of the smart-phone, serving both business and private communications and making it the favorite tool - not only for today's workforce but across all generations and across all nations.



## MOBILE FIRST - THE DIGITAL INNOVATION PLATFORM

Wireless has moved from a communications technology to become a digital innovation platform with smartphones and tablets the standard form factor for developing portals and business apps.

Mobile technologies continue to drive innovation and new services, extending communications, data, and business

applications to all mobile devices. Voice recognition and activation are increasingly deployed because of their ease of use, speed, and safety for people on the go.

LTE and 5G connectivity will transform laptops into ACPCs (Always Connected PCs) to ensure the more processing power consuming tasks can be performed anywhere on the go. Embedded technology that senses and interacts with their environment - such as in autonomous drones and driverless vehicles - will all be facilitated by these advances in wireless technologies.



## MULTIPLE WIRELESS TECHNOLOGY INTEGRATION

Instead of basing a company's mobile infrastructure on one specific technology, the integration of multiple wireless technologies will spread and provide a more cost-efficient, and flexible foundation that reduces capital expenditure and extends application areas.

5G and Wi-Fi 6/7 technology will drive factors in wireless growth, bringing increased bandwidth and higher internet speeds along with more reliable networks. It will change the way we use the internet. Besides a further stimulus for the growing need and demand for the use of video, it will also open doors for complex applications that rely on real-time access to Big Data conducted in the field and new opportunities found in the Metaverse.

**UBIQUITOUS CONNECTEDNESS**

MOBILE TECHNOLOGIES  
CONTINUE TO DRIVE  
INNOVATION FOR  
THE OMNIPRESENT  
AND 'ALWAYS ON'  
GENERATION

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# SMART COLLABORATIVE WORKSPACE



## HYBRID WORKING IS HERE TO STAY

The pandemic has made companies abandon the 9-to-5 workplace and discover how flexible the workplace can be. The traditional office is shrinking and working from home is fully accepted. This is further spurred by the need for office premises cost optimization driven by higher interest rates and energy costs.

With hybrid work being the new normal workstyle, tools that support a flexible, open and agile way of working, like Unified Communications & Collaboration (UC&C), are a mandatory part of running a successful business. They are not only more safe, convenient, and cost-effective, but also much more productive.

They are dynamic, flexible, and user-centric, and provide easy access to tools such as click-to-call and conference capabilities, file sharing, and digital white-boarding, driving productivity and reducing latencies across organizations.

Hybrid working urges distributed enterprises to keep remote workers engaged, motivated, and included in the company culture. Using instant video conferencing for daily check-ins strengthens the feeling of being part of the office community and of being a valued member of a team working to achieve the company's goals.

Smart Workspaces embed all these capabilities within business workflows to form an open and flexible workflow platform with application integration that goes far beyond communications.



## DRIVING PRODUCTIVE INTERACTION

Connected workspaces allow disparate teams to work together in real time and enable individuals to interact efficiently and effectively with colleagues, clients, and suppliers, eliminating the need to travel.



## BOOSTING OFFICE SPACE EFFICIENCY & SAFETY

Smart enterprises adopt digital workplace strategies to create environments that maximize not only the employee productivity and well-being, but also the safety, efficiency and resilience of organizations.

Workplace Management solutions facilitate the employee's journey and orchestrate a visitor's stay through office space optimization and workplace efficiency, automated reservation and touchless check-in, fully automated and secure visitor management and surveillance, sanitization monitoring, and social distancing compliance.

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## DRIVING ENGAGEMENT



### ENHANCING THE TOTAL USER EXPERIENCE

The battle among enterprises for tomorrow's customers is fought and won on customer experience. Companies are pushing hard to deliver connected Customer Experiences (CX) across media, channels, processes, and departments – making contact easy and pleasant, lowering thresholds, presenting options most relevant to the customer, and ensuring swift response to queries.

Within an organization as well new formats are introduced to enhance the Employee Experience (EX) for better business outcomes. Applications and workflows become user-centric instead of device-centric, tools become intuitive, and interactions swift and simple.



### REINVENTING ENGAGEMENT MODELS

Smart enterprises reinvent their customer engagement models to deliver customers a distinctive, personalized experience and ensure a long-lasting relationship.

The power of social networking is driving organizations to integrate social media into their business processes. Realizing that CX includes every touchpoint a customer has with an organization, makes collecting and logging

all customer data across all sources essential in order to present a customer's track record during e.g., a conversation with an agent.

Workflows with access to contextual information provide smarter employee experiences and productivity. The future revolving around hybrid work, makes companies also look for ways to fuel team engagement, with tools for creative collaboration and instant video to bring context and depth to interactions.



### SMART PERSONALIZATION

One of the keys to customer engagement lies in closely matching human behavior. This will more and more be supported by applying predictive analytics to gathered customer data and creating personality profiles that match the personality of customers.

Smart personalization engines that recognize a customer's intent will enable digital businesses to flourish. Artificial intelligence tools step in to build profiles of large customer sets and allow computers to understand the true interpretation of voice, including tone, sarcasm, pun, and even deeper context clues like double meanings. They measure behavioral cues, intentions, and emotions to create accurate profiles that can be mapped to individual customers and prospects.

**THE RETURN OF COST CONSCIOUSNESS**

COST REDUCTION AND  
OPTIMIZATION WILL PLAY  
A MORE PROMINENT ROLE  
IN DECISION MAKING

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# THE RETURN OF COST CONSCIOUSNESS



## REVISITING THE BALANCE SHEETS

Persistent inflation, geopolitical tensions, and fear of a global recession make enterprises more cost conscious and risk averse. While until recently businesses were predominantly focused on post-pandemic growth, cost reduction and optimization will play a more prominent role in decision making in 2023.

Businesses face rapidly rising interest rates and price increases around labor, materials and energy. All this slows down investments and makes organizations revisit their balance sheets to cut costs by optimizing out of pocket spendings such as IT infrastructure and office space.



## PAY PER USE

In the present financial tightening times with rising interest rates and energy costs, companies seek models with flexible cost attribution. Modular services, pay per use and flexible deployment models allow businesses to invest in just what is needed now, trimming up-front costs, and leaving options open for future expansion or contraction. Customers benefit from easier financial management and predictable overall monthly costs. Deploying As a Service model dramatically reduces Capex investments in equipment, space and resources.

While early adopters of cloud solutions embraced the innovation, organizational agility, and the new business opportunities brought by the cloud, enterprises now appreciate the cost-effectiveness and scalability of their solutions rather than just the technological merits. The fully integrated platform includes all collaboration and communications needs at one predictable, monthly, per user fee and based on month-to-month contracts with the flexibility to add or remove users at any time.



## ENABLING A SMART TRANSITION

Organizations are nowadays overwhelmed with an increasingly large number of IT and communications solutions. Smart enterprises seek vendors that provide them with full choice of integrating new solutions, such as those based on flexible Opex subscription-based cost attribution models, while simultaneously maintaining existing platforms to the maximum of their lifecycles. Such a non-disruptive path of smart transition offers businesses a cost-effective path to modernize their communications while retaining their existing investments.

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# CLOUD CENTRIC OPTIMIZATION

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## RAPID APPLICATION DELIVERY & INNOVATION

Cloud computing has revolutionized IT and software delivery. Applications running in the cloud make it incredibly easy for users to sign up, access, and draw on solutions available on demand and within minutes.

Cloud-based deployments consequently adopt new functionality much faster and more easily than their on-premises counterparts, with new applications driving rapid innovation.

The rise of industry specific modular components allows businesses to build differentiated offerings without having to fully develop the underlying technology. Organizations in healthcare, hospitality, manufacturing, and finance will increasingly adopt vertical-market clouds optimized for their sector, including industry-specific data sets.



## DRIVING COST OPTIMIZATION

Moving IT & Communications provisioning to cloud platforms – be it in a public, on-premises, or hybrid model – helps organizations increase revenue and customer experience as well as reduce risks and costs.

Cloud solutions not only shift expenditure from capital investments to operational expenses, creating more flexibility and scalability to add or remove users or

functionality as required. Drawing from the cloud also reduces the risks of being tied to a certain investment for the long term and furthermore means less administration, shorter introduction and deployment lead times, and less dependence on scarce and expensive in-house IT resources.



## FREEDOM OF CHOICE

The trend towards hybrid and multi-cloud models continues. While enterprises shift more workloads to the public cloud, other tasks are preferably located at the edge or on-premises, either for more control and security, or for lower latency.

A strong demand remains to leverage existing infrastructures with incremental applications that are compatible and easy to adopt. Smart enterprises will seek vendors that provide the full range of communications and collaboration solutions while offering the freedom of choice to choose between a fully on-premises infrastructure, a 100% public cloud subscription-based solution or a hybrid model.

Providing even more flexibility and a smooth evolution is the capability to add cloud-based solutions to existing on-premises systems, preserving investments and extending functionality with integrated video conferencing, chat, file sharing/backup, smart workspace management and more.



**CLOUD CENTRIC OPTIMIZATION**

DEPLOYING AS-A-SERVICE  
MODELS REDUCES CAPEX  
INVESTMENTS IN EQUIPMENT,  
SPACE AND RESOURCES

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# SECURING THE DATA-DRIVEN ENTERPRISE



## THE AGE OF DATA DEPENDENCE

The power of capturing, processing, and analyzing data offers tremendous opportunities to drive better business intelligence, product development, and customer service. The ubiquity of IT systems and our dependence on them make cyber security a key topic and cybercrime potentially a more significant risk to society than terrorism.

Organizations can be exposed to digital threats in various ways and need to capitalize on all technologies and practices to protect networks, devices, programs, and data from attack, leakage, damage, or unauthorized access. Inaccurate, manipulated, and biased data that leads to corrupted insights and skewed decisions can have a major impact on business and society. Spendings on cybersecurity and data warehousing will therefore see significant growth in 2023.

An additional threat goes beyond the actual data but comes about through networks and media channels being used to spread disinformation and manipulative influencing. AI platforms are being developed to timely detect, correct and eliminate such misinformation.



## MANAGEABLE STORAGE SOLUTIONS

As data sets grow, organizations face numerous challenges with respect to their storage and backup. Storage solutions need to become more flexible and scalable as organizations find it increasingly complex to store, protect, and manage all collected information.

The need to increase storage footprints is driven by increases in data generation, the need to store sensitive data in secure locations, and increasing desires to run AI- and machine learning-driven applications. Applied observability for instance collects data from decisions made as well as the context in which decisions were made. It then applies analytics to make better value driven decisions. Real-time business processes and workflows also require swift retrieval of data at the moment of need.



## PROTECTING DATA WHILE IN USE

Embedding work from home in company operations, creates a greater need for data security management during online collaboration. Privacy-enhancing computation protects data while it's being used.

Secure access service edge (SASE) is expected to deliver secure end-to-end networking and security services in a consistent and integrated manner to support the needs of digital business transformation, edge computing, and workforce mobility. Quantum cryptography will take advantage of the laws of physics to protect against eavesdropping and preventing malicious acts during data transfer.



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## BUSINESS RESILIENCE & CONTINUITY

### ASSURING SERVICES IN OUR DIGITALIZED NOW

Today's enterprises depend on reliable access to applications, information, and people to persistently operate smartly and compete effectively. The upsurge of remote working makes it all the more urgent for enterprises to ensure IT infrastructure and application security when allowing staff to adapt and integrate collaboration capabilities into their workflows.

This requires a robust communications and IT infrastructure capable of providing always-on availability that can also self-heal should potential service disruptions occur. Hardware- and software-based fault tolerant solutions that deliver five nines (99.999%) uninterrupted service guard against outages without compromising performance. Lock-step fault tolerance and geo-redundancy technology protect critical data and ensure business operations.

### BUILDING SECURITY ACROSS ALL LEVELS

Choosing the right disaster recovery strategy is a key investment in the future stability of every organization. Smart enterprises build security into all organizational processes, with business and IT management working together to protect data and applications from hardware, Operating System (OS), and application failures due to malicious and natural disasters. End-to-end

disaster recovery must be a top priority regardless of organization size.

Businesses also need to physically protect their premises and assets from malicious intrusion. Additionally, they need to keep employees and visitors safe from any threat that may arise during their time on the premises. To achieve this, organizations need to ensure all employees and visitors have been adequately screened and approved for entry. Smart Access systems verify a person's identity when entering a building or specific location and restrict access to those who are pre-registered and authorized,

### COPING WITH DISRUPTION AND SHORTAGES

COVID-19 confronted the world with unprecedented supply chain disruption and shortages. In addition, the worsening geopolitical environment threaten to create new and persistent supply chain bottlenecks.

Navigating these disruptions calls for a more holistic and proactive strategy with respect to sourcing and securing resources across all areas, including energy and other natural resources, materials, components, transportation, and human skills and expertise. This means that to address supply chain risks and reduce transportation energy costs, after many years of globalization and just in time logistics, the tables are turning towards deglobalization and more focus on local sourcing and self-sufficiency. This also calls for closer collaboration between (local) suppliers and customers than in the past.



**EXTENDED REALITY**

VR AND AR PROMISE  
THE END OF DISTANCE  
TO EXPERIENCES

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# EXTENDED REALITY



## INTELLIGIZATION - FROM DESCRIPTIVE TO PROACTIVE

Converting data from real life objects, contexts and people into digital information make patterns emerge in meaningful ways, yielding insights that improve forecasting and signal potential malfunctions. While analytics tools so far focused on descriptive outcomes, their application moves towards predicting future events and behavior, and recommending how to react to outcomes.

Artificial Intelligence (AI) and machine learning enable systems that are self-educating, self-healing, and proactive, supporting autonomous, self-guiding processes. They learn from their environments and dynamically modify their algorithms to optimize their behavior.



## EXTENDING HUMAN EXPERIENCES

Building on AI, companies are experimenting with virtual reality (VR) and augmented reality (AR) to expand both real-world and virtual surroundings of users and keep customers and employees engaged in a virtual environment. Projecting computer-generated imagery into a user's field of vision, superimposes it over what the user is viewing in the real world. It changes how we perceive the world and delivers on its promise: the end of distance to information and the end of distance to experiences.

Combining these, another world is emerging, the Metaverse. This digital 3D virtual environment driven by AR and VR and supported by avatars, chatbots and the like, provides humans immersive experiences they could not have in the physical world.



## TOWARDS WIDER ADOPTION

In 2023, AI tools become widely available through cloud platforms and open-source software. As a result, also midsize and smaller companies will start using off-the-shelf AI technology with adoption across all industries, i.e., government, healthcare, retail, manufacturing, and finance.

Businesses will ramp up its usage to streamline efficiency for the organization and achieve new levels of engagement, drawing on elements such as emotion recognition and behavior analysis. In retail AR technology will allow customers to try products before purchasing.

In education it will make learning more interactive and engaging. In manufacturing it will facilitate prototyping and support urban planning with creative alternatives and better decisions. The concept of digital twins will enhance healthcare with simulation of a patient's body enabling a doctor to practice before performing an actual operation.



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# SMART SUSTAINABLE SOCIETY



## A WORLD RECREATED

New businesses and social habitats are emerging from the organic linkage of people, physical objects, and processes, spurred by IoT and AI. Important steps are being made towards building smarter societies – where information and communications technologies ensure energy efficiency, sustainable economic development, safety and security, along with wise management of natural resources.

We can expect to see eXtended Reality (XR) assisting in tackling challenges posed by the current world situation with education and healthcare solutions enhancing learning and wellbeing. Medical examinations, diagnosis and even operations can increasingly be carried out remotely, drawing on expertise available at other locations.



## A SUSTAINABLE ECOSYSTEM

As we are confronted with climate change, limited supplies of natural resources and materials and the urgent need for energy transition, technology has an especially important role to play when it comes to environmental sustainability.

With networked ecosystems our environments become more aware, responsive and connected. Smarter storage, distribution and use of energy in buildings, vehicles, and

networks will enhance environmental and economic performance. Connected processes and collaboration will save time and reduce costs, scope, and impact of physical travel and transportation. Digital technologies will support the incorporation of circular economy principles into businesses and society, facilitating the redesign of products and value chains. At an individual level, transcending time and space, people will be able to take on new challenges more freely with education and healthcare solutions enhancing learning and wellbeing.



## A BRIGHTER FUTURE FOR ALL

The COVID-19 pandemic has shown how important digital connectivity is in situations where physical presence is not possible. Virtual and augmented reality technologies are removing the distance between people, information, and experiences, transforming the ways people live and work.

The United Nations has identified the internet as a basic human right for all citizens of the world. This includes affordable, robust broadband internet service, devices and access to online content to enable self-sufficiency, participation, and collaboration. As technology advances, digital inclusion will encourage all people to participate in society and feel more valued, offering more potential for individual abilities to bloom and realizing a brighter future for all.



# ABOUT NEC CORPORATION

NEC Corporation is a leader in the integration of IT and network technologies that benefit businesses and people around the world. By providing a combination of products and solutions that cross utilize the company's experience and global resources, NEC's advanced technologies meet the complex and ever-changing needs of its customers. NEC brings more than 120 years of expertise in technological innovation to empower people, businesses and society.



OVER  
**\$29 BILLION**  
REVENUE



**#1**

SMB & ENTERPRISE  
COMMS **WORLDWIDE**

LEADER IN  
**BIOMETRICS**



**75 MILLION**  
GLOBAL USERS



**TOP 100**  
GLOBAL INNOVATORS  
(THOMSON REUTERS)



**RECOGNIZED  
AS A LEADER**  
BY FROST & SULLIVAN  
IN ENTERPRISE  
COMMUNICATIONS  
TRANSFORMATION



**125+**  
COUNTRIES

**GLOBAL 100**  
MOST SUSTAINABLE  
COMPANIES IN THE WORLD  
(CORPORATE KNIGHTS)



**4,000+**  
CHANNEL  
PARTNERS



107,000  
**TEAM MEMBERS**  
WORLDWIDE



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