

# Smart Enterprise Drivers 2018

10 Strategic Realities Reshaping  
the Smart Enterprise



# Smart Enterprise Drivers

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Explore NEC's Top 10 Strategic Drivers and discover how to navigate through these changes to simplify your organization, realize workforce efficiencies and gain competitive advantages. 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 nearly 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. This means building and maintaining a stable yet flexible foundation capable of adapting to support business change, deliver superior customer services and enable an increasingly mobile and secure work environment.

Today Digital Transformation is not just a trend but a movement that is creating alternative business models, altering whole industries and disrupting how employees function. Social and business value surges when people, devices and resources are digitally connected, digitalized knowledge becomes commonly shared assets and artificial intelligence is leveraged to yield new findings.

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.

“Top 10 Smart Enterprise Drivers offer valuable guidance to your organization and your operations shaping the market this year and beyond.”



**Paul Kievit**  
*President*  
*Head of NEC Enterprise Solutions EMEA*

# Ubiquitous Connectedness

“The number of mobile devices exceeds the number of people on earth”



## A Mobile Workforce Accelerates Productivity

Today employees are expecting to be able to work from just about anywhere at any given time whether on-site, at home, between appointments or while traveling. Technology is advancing to ensure they remain fully integrated with their organizations, colleagues and connected with customers - irrespective of where they are.

Location has become unimportant, while availability is crucial in today's 'flat' organizations where access to specific expertise is critical to the business. Making staff omnipresent and 'always on' is key to smart enterprises who want to operate efficiently and effectively in fast-paced business environments.



## Smartly Available - Always, Everywhere

Smartphones and tablets surpass PCs as the most consistently used business tools. As employees and enterprises become deskless, mobile technologies will continue driving technical innovation and new services to handheld devices. Communications, data and business applications need to seamlessly extend to these mobile devices and include functions such as single number reachability, presence and easy routing through the company network. With 'Mobile First', the smartphone and tablets have become the standard form factor for developing portals and business apps.

## The Network is the Organization

Increasingly, a company's coherency is determined by the intelligence of its network. The network becomes the organization, with wireless tentacles serving location-aware services for tracking, tracing, securing and servicing its employees and customers with mechanisms like Near Field Communications.

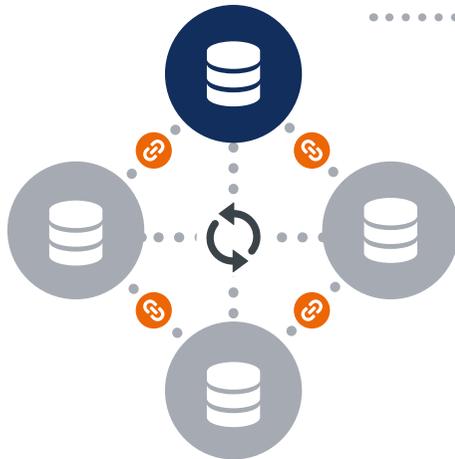


# Holistic Business Continuity

“More interconnected,  
more need to actively protect”

## Assuring Services in our Digitalized Now

Inaccessibility to critical applications can have a wide range of economic, security and legal consequences. This is why an always-on continuously available ecosystem that proactively averts application downtime and data loss is essential. Hardware- and software-based fault tolerance solutions that deliver Five 9s uninterrupted service helps guard against outages without compromising performance.



## Fail-proof Data Security & Blockchain Transactional Exchange

With the rapid growth of quantified and digitalized data and increased volumes of data flowing across networks and between devices, the risk of data leaks and breaches makes fail-proof security essential.

Blockchain technology provides a new model for transactional exchange that allows individuals and institutions to exchange value without traditional intermediaries. This shared, distributed, secure ledger aims to make transactions less riddled with friction, fraud and insecurity. While blockchain is most often considered for financial transactions it is expected to spread to other exchanges, such as content distribution, healthcare and supply chain management.

## Preserving Data in the Face of Disaster

The Smart Enterprise must build security into all organizational processes. Business and IT management must work together to protect data and applications from hardware, OS and application failures due to malicious and natural disasters. End-to-end disaster recovery and readiness for fast data and application recovery must be a top priority regardless of organization size and especially in hybrid IT environments. Choosing the right disaster recovery strategy is a key investment in the future stability of every organization.



# On Demand Resource Matching

“Close the gap between  
business needs and what  
ICT can deliver”



## Instant Gratification

The current 'On-Demand' generation does not expect, want to or have to wait for anything. They acquire information, products and entertainment instantly, on demand. The world is at their fingertips and they engage in real time to get what is needed. Accustomed to immediate accessibility they are forcing businesses to be agile and responsive, changing business dynamics dramatically.



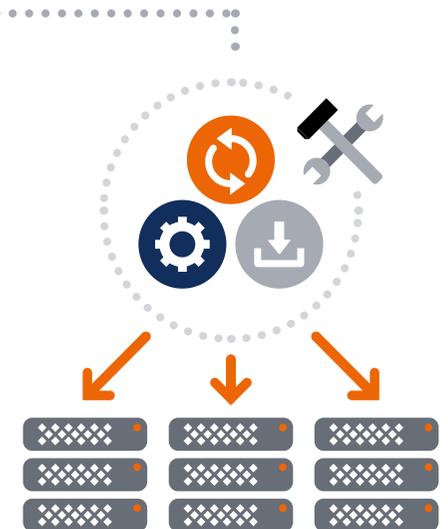
## Pay for What You Use

Modular services, pay per use and flexible deployment models allow businesses to invest in what is needed now, trimming up-front costs and leaving options open for future expansion. Smart enterprises align their resources with business requirements. To remain cost-competitive, many organizations are managing their OPEX and looking to replace, revitalize or outsource their IT infrastructure as cloud computing shapes the market.

## Serving Scalability & Composable Infrastructures

With increased consolidation, virtualization and outsourcing, the traditional data center environment is shifting to the 'hyperscale' data center of tomorrow. Rather than building 'monolithic' platforms, design is implemented around distributed processing frameworks. A composable infrastructure allows an enterprise data center to use its own physical infrastructure in a more cost-effective manner by reducing waste and the amount of time it takes to deploy a new application.

A composable infrastructure is a framework whose physical compute, storage and network resources are treated as services without the need for IT administrators to be concerned with the physical location of infrastructure components. Available services are located through an automated discovery process and resources are allocated on demand. It enables IT departments to provision workloads just as quickly and efficiently as public cloud service providers can, while still maintaining control over the infrastructure that supports mission-critical applications in a private cloud setting.



# Software Defined Anything



"A value shift  
towards software"



## Dealing Effectively with Business Dynamics

Increasingly equipment, functions and processes are becoming software driven. This new reality is commonly referred to as 'Software Defined Anything' or SDx. In 'Software Defined' ecosystems the control plane is abstracted from the underlying hardware and is applied as software to manage most of the environment, such as a data center.

## Smart Enterprises Serve their Customers Better

The ultimate goal of SDx is a more service-focused infrastructure that increases efficiencies and enhances IT service delivery. Smart enterprises see SDx as the differentiator in a more agile IT department and in achieving better user and customer services who expectations are ever evolving.



## Making Enterprise Networking Agile

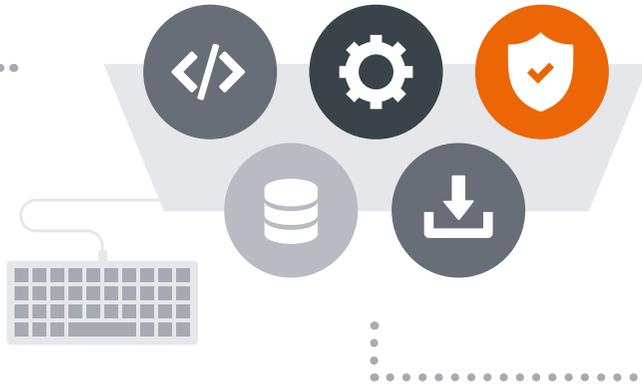
Software-defined infrastructure (SDxI) is the next-generation cloud infrastructure that can connect and manage the growing number of software-defined devices and applications to their networks, each other and ultimately to end users.

Software Defined Networking (SDN) makes network devices programmable and dynamic to respond more quickly to changing business requirements. SDN allows central management of network policies and resources. This operates through a software-based controller that works with hardware independent of vendor. Social media, mobile devices, and cloud computing are all pushing traditional networks to their limits. SDN has the potential to revolutionize legacy data centers by providing a flexible way to control the network so it can function more like the virtualized versions of computers and storage today.

# Smart Workspace

“A bright horizon for  
hybrid clouds”





## The Future is Dynamic Hybrid

As approaches to the virtualization of computers, networks, I/O and storage devices continue to mature, infrastructures become increasingly software-driven and IT management more efficient. This enables services to be provided dynamically according to individual load and function requirements. Applications and cloud computing reduce the need for proprietary systems and free companies from legacy issues.

## Orchestrating, Managing Data & Services

Businesses will increasingly turn to hybrid clouds to enable scalable business processes. While many embrace the use of the public cloud for less sensitive applications, private cloud is preferred for vital processing tasks.

Hybrid cloud combines the best of both worlds, offering true benefits to smart enterprises aiming to stay ahead in their markets. Hybrid clouds can quickly scale to a company's needs while services can be paid for as needed.



## From Device-centric to User-centric Work beyond Boundaries

The Smart Workspace is dynamic, flexible and user-centric. It allows users to access files, applications and data safely over any network, from the device of their choice. Desktop virtualization eliminates the need for local data storage, minimizes the risk of data loss or information leaks, increases security and enables centralized management of multiple terminals thus reducing operational costs.

Cloud-dependent technologies, such as Internet of Things (IoT), real-time analytics and collaboration will continue to evolve and enrich the end-user's workspace and relationships with colleagues and customers.

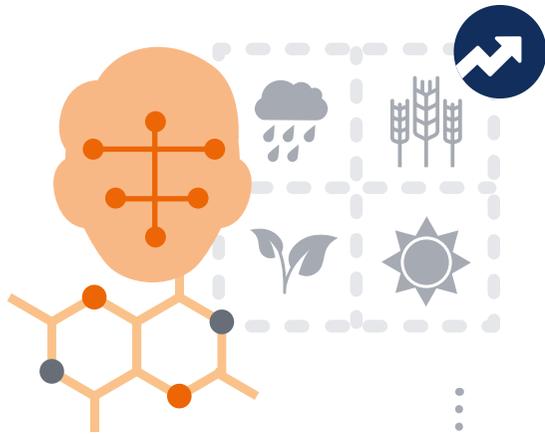
# Intelligent (IoT) Edge

"By 2020, 50 billion devices  
will be connected"



## From Analysis to Context Understanding

Cost reduction of sensors and refinement of networking and processing technologies are spurring great data collection and information extraction due in part to more prevalent use of ultra-compact and intelligent sensors. Connected objects that contain embedded technology that sense and interact with their internal or external environment (Internet of Things) enable greater insight which in turn allows activities to be more thoroughly examined and amended.



## Standing Out from the Crowd

Sensing, location detection, data matching and pattern recognition all aim to empower accurate and swift decision making. Precision farming already uses environmental sensors to maximize yields at reduced cost, minimizing fertilizer, pesticide and water waste.

Biometrics is the fastest, most efficient way of identifying people. Fingerprints, facial definitions, body contours, retinal scans and voice files are composited through software to recognize and identify individuals in high traffic areas in mere seconds.

## Edge Computing

With endpoints constantly gathering and sharing data, connectivity is at the core of any IoT (Internet of Things) strategy. When cloud computing is used for processing all the data in central servers, connectivity, bandwidth and latency can become significant obstacles.

To shorten response times, part of the computing capacity can be moved to the so-called edge of the network. Edge computing processes data as close to the data source as possible. Smart enterprises use edge designed architectures in their infrastructure if their business relies on IoT devices.



# Augmented Intelligence

“Beyond human capacity”



## Dynamic Self Guidance

Artificial Intelligence (AI) and machine learning are seeping into potentially every technology to enable systems that are self-educating, self-healing, dynamic and proactive. Potentially every technology will use AI to create intelligent actions or autonomous, self-guiding processes. By incorporating AI into their applications, platforms and services, smart enterprises can achieve an edge against competition in areas widespread as exploration, development, production and customer relationship management.



## Recognition, Prediction, Optimization

Artificial Intelligence can be applied to enhance many processes, from recognition, prediction and optimization up to and including reasoning. Recognition AI combines data from a wide variety of sensors and includes facial recognition, behavior analysis, object fingerprint as well as speech and emotion recognition. Automated technology achieves complex data analysis that leads to efficient prediction and optimization without the need for experts. Reasoning AI supports decision making by presenting appropriate suggestions and reasons based on fragmented information.

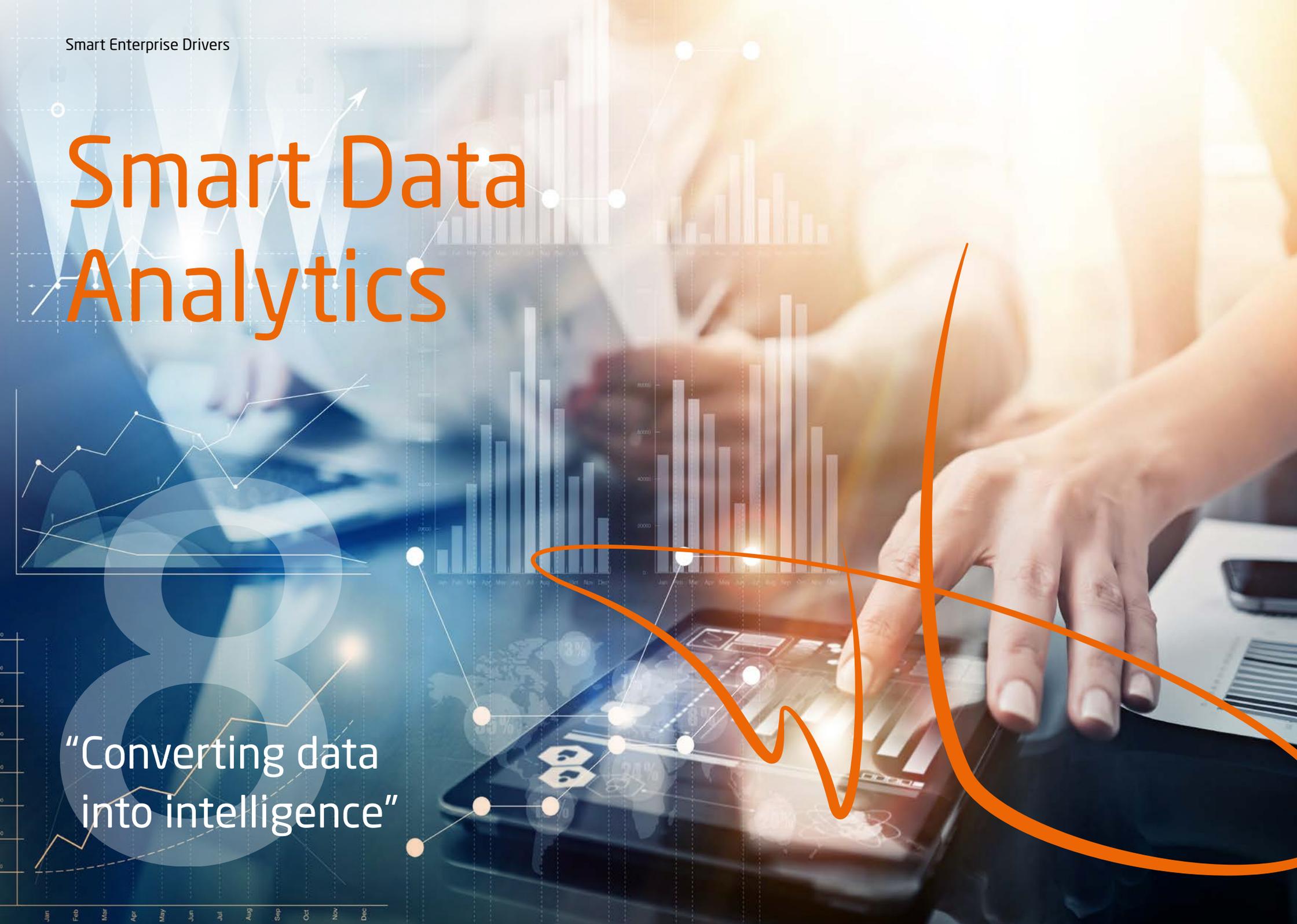
## Artificial versus Augmented

While Artificial Intelligence suggests automation is to fully substitute human involvement, Augmented Intelligence focuses on AI's assistive role, emphasizing the fact that it is designed to enhance human intelligence rather than replace it. Augmented Intelligence enriches human intellect and creativity, as well as the intellect and creativity of an organization at large to have a massive impact on organizations globally.



# Smart Data Analytics

"Converting data into intelligence"



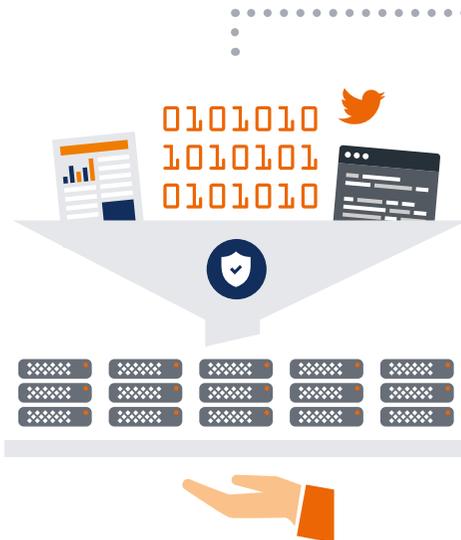


## Big Data = Intelligization

Converting Big Data from real life physical things, contexts and people into digital information can make patterns emerge in meaningful ways. While individually these values mean little, when combined the variety of data can yield significant and valuable insight that for example improve consumption forecasting, resource requirements or predict potential malfunctions. IoT applications require distributed real-time analysis on the edge of a network, particularly in situations where every millisecond counts and no time is to be lost by sending data back and forth across the network to central servers.

## Manageable Storage Solutions

Enterprises increasingly deploy Big Data captured from mobile devices, social media, log files, emails, images and video to drive better business intelligence, product development and customer service. The surge in data requires storage solutions to become more flexible and scalable as organizations find it increasingly complex to store, protect and manage or collected information.



## Empowering a Data-driven Enterprise

The power of capturing, processing and analyzing data offers enterprises a tremendous opportunity to digitally transform every aspect of business, spanning how they engage their customers, empower their employees, optimize their operations and design their products. With an ever-evolving and increasingly complex cyber threat landscape and data becoming the new golden nuggets of any organization, security must be top of mind for any smart enterprise.

# Collaborative Communities

"Smart enterprises pool the best available skills to gain an edge over their rivals"



## Better Together

Ensuring a swift response when an answer is vitally important depends in seamless and productive interaction between team members wherever they may be. Smart enterprises that pool the best available skills in their organization ensure the success of projects and gain an edge over their rivals.

## Productivity & Reducing Latency

Informed and connected workspaces drive productivity and reduce latency, from product development to customer care. Unified Communications and Collaboration tools allow disparate teams to work together in real time and enable individuals to interact efficiently and effectively with co-workers, clients and suppliers. With conferencing and file sharing made easy, collaboration sessions become the de facto standard for office communications, eliminating the need to travel to meet in person.



## Reinventing Engagement Models

Formal and informal groups become collaborative communities that are instrumental in reaching personal, group and organizational goals. Besides synchronous collaboration, asynchronous solutions such as team workspaces keep everyone on the same page, tracking projects, documents and ideas in a central repository that anyone of the community can access in their own time.

The power of social networking and communications are driving organizations to integrate these into their business processes. Smart enterprises will reinvent their customer engagement models, reshaping their business approach from revenue to customer driven to deliver customers a unique, personalized experience.

# Safe and Smart Society

“ICT that supports a safe and enriched life”





## A World Recreated

As a result of people, physical things and contexts becoming constantly connected, large transformations will take place amongst companies and users. On top of this, important steps are being made towards building smarter societies – where Information and Communications Technologies play a vital role in ensuring energy efficiency, sustainable economic development, enhanced safety and security, along with wise management of natural resources.

Industry structures are evolving with new businesses emerging from the organic linkage of people, physical things, and processes with IoT. Rapidly growing digitization of production and sales, diversification of consumption experiences and their corresponding needs are becoming more complex. This evolution will result in a new digital platform.

## Next-generation Ecosystem

With networked ecosystems our environments will become more aware, responsive and connected. Smarter storage, distribution and use of energy in buildings, vehicles and networks will enhance environmental and economic performance. Artificial Intelligence will support real-time prediction and guidance of traffic. At an individual level education and healthcare solutions will enhance learning and wellbeing. Connected processes and collaboration will save time and reduce costs, scope and impact of physical travel and transportation.



## Safe & High Efficiency ICT-based Lifeline

In a smart society where IoT has become commonplace, communication and coordination across locations will realize a safer and more secure daily life. Instead of simply being a product provider, becoming a partner that fully supports consumers will increase the opportunities for business more than ever – with new businesses emerging from the organic linkage of people, things and processes through IoT.

## Valuable Pillars on which to Build the Smart Enterprise

NEC combines its advanced technologies, services and knowledge to help ensure the safety, security, efficiency and equality of society – enabling people to live brighter, more enriched lives.

Combining our capabilities and rich portfolios in Communications and IT, NEC can provide government authorities, individuals and enterprises with solutions that cover the full spectrum of their operations. The level of integration between NEC's network, server, storage and enterprise communications solutions highlights the power of these technologies – and reinforces the benefits our customers receive.

Smart Enterprises leverage these technologies to optimize business practices, drive workforce engagement and create a competitive edge. This is how NEC empowers the Smart Enterprise, and why the Smart Enterprise relies on NEC.



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