TOP 10 STRATEGIC DRIVERS

SMART ENTERPRISE
DRIVERS 2020

STRATEGIC REALITIES RESHAPING THE SMART ENTERPRISE

1
2 3
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7 8 9 10

NEC

DRIVERS 2020

1   Pervasive **Connectedness**
2   Everything as a **Service**
3   Dynamic **Delivery**
4   Smart **Workspace**
5   Unified **Customer Experience**
6   Ensuring Cyber **Security**
7   Holistic Business **Continuity**
8   Smart Data **Analytics**
9   Augmented **Intelligence**
10 Digital **Inclusion**

TOP 10 SMART ENTERPRISE DRIVERS

OFFER VALUABLE GUIDANCE TO YOUR
ORGANIZATION AND OPERATIONS SHAPING
THE MARKET THIS YEAR AND BEYOND

NEC'S TOP 10 STRATEGIC
SMART ENTERPRISE DRIVERS 2020

Digital Transformation today is recreating business models, disrupting how customers and employees function and altering whole industries. Social and business value surges when people, devices and resources are digitally connected, digitalized knowledge becomes a commonly shared asset and artificial intelligence is leveraged to yield new insights.

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 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. This means building and maintaining a solid yet flexible foundation capable of adapting to business change, deliver superior customer services and experiences, and enable an increasingly mobile and secure work environment.

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.

Paul Kievit
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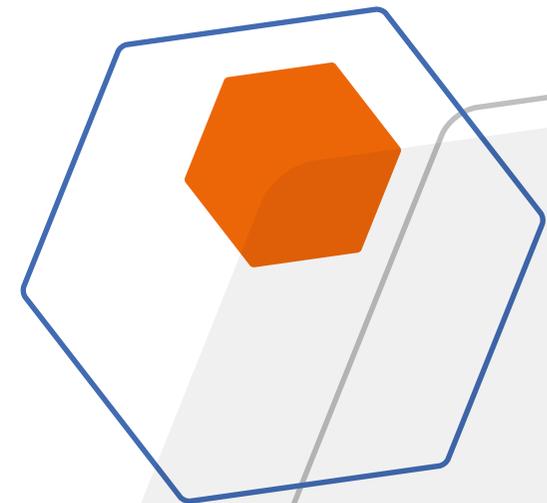
PERVASIVE
CONNECTEDNESS

1

A SMARTLY **AVAILABLE WORKFORCE**

Making staff omnipresent and 'always on' is key to smart enterprises who want to operate efficiently and effectively in today's fast-paced business environments. Employees expect to be able to work from just about anywhere, at any given time whether on-site, at home, between appointments or while traveling. Technology has advanced to ensure they remain fully integrated with their organizations, colleagues and connected with customers - irrespective of where they are.

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 including Near Field Communications.

AT THE CORE OF **IoT STRATEGIES**

Mobile technologies will continue driving innovation and new services, extending communications, data and business applications to all mobile devices. Smartphones and tablets have become the standard form factor for developing portals and business apps, while ACPCs (Always Connected PCs) with embedded 5G and LTE connectivity will transform the laptop market forever.

Connected objects that contain embedded technology that sense and interact with their environment (Internet of Things) enable detailed insights and swift decision making. 5G and Wi-Fi 6 technology will be driving factors in wireless growth, bringing increased bandwidth and higher internet speeds along with more reliable networks. 5G networks will also facilitate autonomous drones and driverless vehicles.

EVERYTHING AS A **SERVICE**

2

CONSUME (ONLY) WHAT YOU NEED – **PAY (ONLY) FOR WHAT YOU USE**

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. Smart enterprises align their resources with business requirements and move from CAPEX (investments) to OPEX (services). In 2020 Everything-as-a-Service (XaaS) will gain even more momentum, in even the most hardware-driven industries and sectors of society.

Many organizations look to outsource their IT infrastructure as cloud computing shapes the market. Cloud solutions are scalable and offer a pricing tier that charges only for the resources you use, rather than a flat-fee for services you might potentially use.

NETWORKS FOR A NEW AGE

Customers constantly demand faster, newer and better services and expect to have them available at any time. A composable infrastructure treats physical compute, storage and network resources as services without the need for IT administrators to be concerned with their physical location. 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.

MICROSERVICES AND APIs DEFINE **THE INFRASTRUCTURE**

The rapidly evolving trend towards Microservices as the model to build next-generation, cloud-native applications, urges applications and infrastructure to work closely together. The approach uses application programming interfaces (APIs), containers, and cloud to break applications into simple, discrete services, which benefits their scalability and reliability. Microservices architectures provide a foundation for companies to forge partnerships quickly and easily, seamlessly integrating services, without hindering partners or customers. APIs are the pathways by which businesses make these services and data available to partners.

DYNAMIC
DELIVERY

3

2020
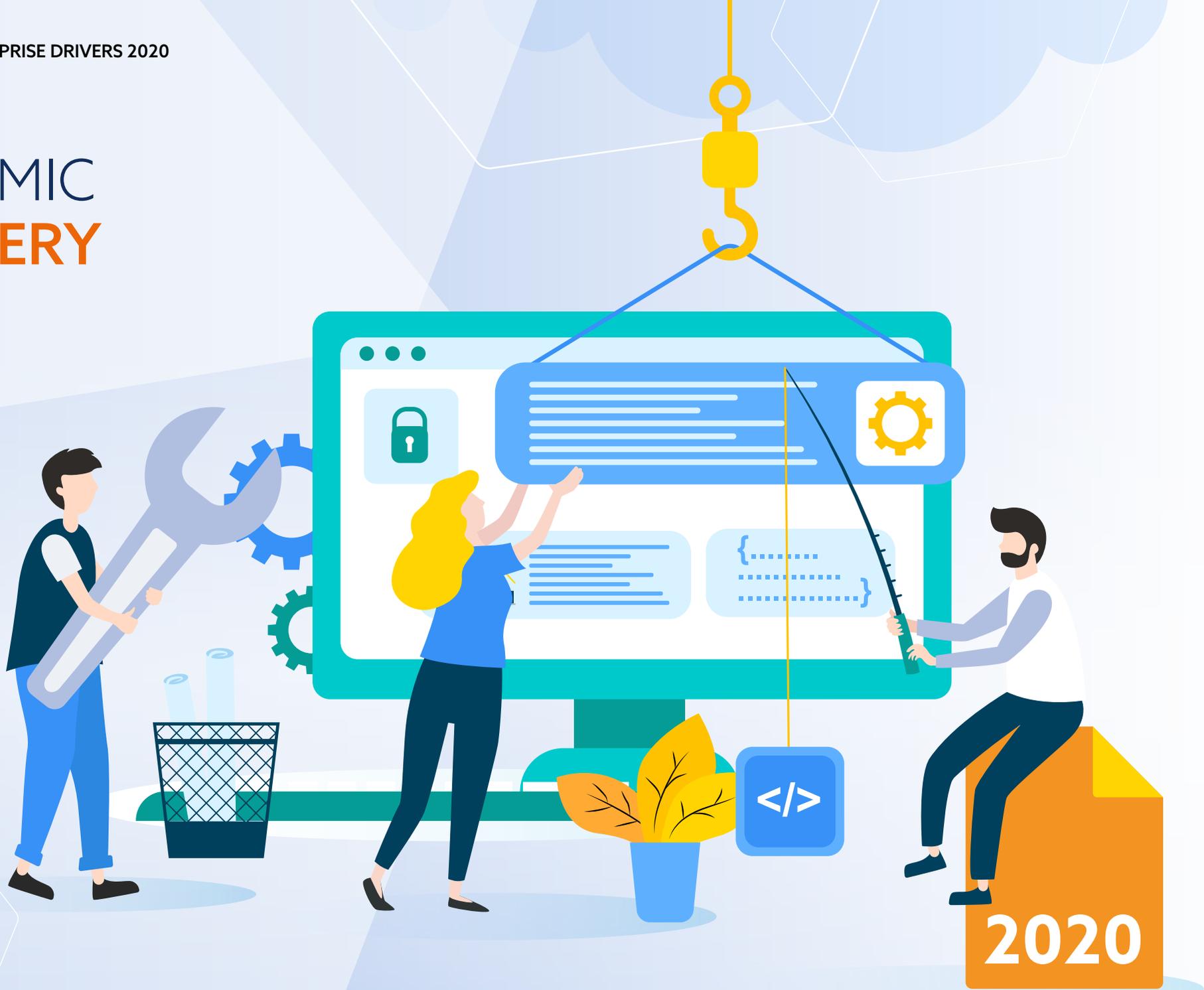
INSTANT **GRATIFICATION**

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.

DEALING EFFECTIVELY WITH **BUSINESS DYNAMICS**

Increasingly equipment, functions and processes are becoming software driven. In 'Software Defined' ecosystems the control plane is abstracted from the underlying hardware and is applied as software to manage most of the environment. Software Defined Networking makes network devices programmable and dynamic to respond more quickly to changing requirements and allows central management of network policies and resources. The ultimate goal of SDx (Software Defined Anything) is a service-focused infrastructure that increases efficiencies and enhances IT service delivery.

EDGE COMPUTING REINVENTS THE CLOUD

Cloud computing has over the last years revolutionized IT and software systems delivery. With many applications running in the cloud it makes it incredibly easy for users to signup, access and draw on solutions available on demand and within minutes.

New technologies including Serverless computing and Edge computing combined with AI and the Internet of Things (IoT) are reimagining the possibilities of the cloud. By sending only the most important information to the cloud, as opposed to raw streams of it, Edge computing will help IoT systems to significantly lower connectivity costs and reduce bandwidth requirements. This in turn will boost the widespread instant availability of services and insights across businesses and society.

SMART
WORKSPACE

4

DRIVING 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 becomes the de facto standard for office communications, eliminating the need to travel to meet in person.

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.

COLLABORATIVE AND HIGHLY INTERACTIVE

Smart workspaces free employees and consumers from conventional constraints and enable humans and systems to interact in increasingly open, connected, coordinated and intelligent ecosystems. Users can securely access their working environment with any device, enjoying a consistent, and rich-media experience. Parking spaces, access control to buildings, meeting rooms and restricted areas, flexible desks, lockers, room temperatures and everything one might need during a working day, will be easily accessible, anytime and anywhere. Smart workspaces create a collaborative and highly interactive environment, which becomes an integrated part of daily life. Advances in voice technology (voice commands, voice assistants, Neuro-linguistic programming) as well as in biometrics will further fuel the Smart Workspace in years to come.

UNIFIED
CUSTOMER
EXPERIENCE

5

BETTER TOGETHER – CONNECTED EXPERIENCES

The battle among enterprises for tomorrow's customers will be fought and won on customer experience. Every company wants to deliver connected Customer Experiences (CX) across channels, processes and departments. Ensuring swift responses to queries requires seamless interaction between team members, customers and suppliers. Smart enterprises pool the best available skills in their organization to ensure the success of projects and by doing so gain an edge over their rivals.

REINVENTING ENGAGEMENT MODELS

Smart enterprises will reinvent their customer engagement models, reshaping their business approach from revenue to customer driven in order to deliver customers a unique, personalized experience. The power of social networking and communications are driving organizations to integrate these into their business processes. Engaged customers are more likely to maintain an active two-way relationship with an organization, returning often and providing valuable feedback.

DATA DRIVEN CX

CX is larger than customer service. Realising that CX includes every touchpoint a customer ever has with your organization, makes collecting and logging all customer data from the various sources essential, in order to present the history and digital track of every single customer at the moment of need, e.g. delivered by screen pops during an agent's conversation.

One of the keys to customer engagement lies in closely matching human behavior, which will more and more be supported by applying predictive analytics at an aggregated level to gathered customer data. The new edge in customer experience is to create personality profiles that match the personality of the customer and their intent. Artificial intelligence tools step in to build profiles of large customer sets. They measure behavioral cues, intentions and emotions to create accurate profiles that can be mapped to individual customers and prospects.

ENSURING CYBER SECURITY

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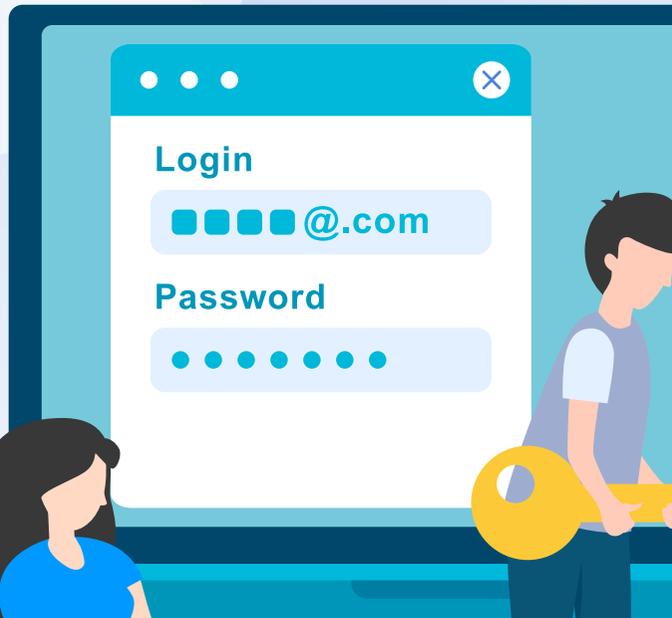
THE AGE OF **IT DEPENDENCE**

The ubiquity of IT systems and our increasing dependence on those systems make cyber security a key topic in board rooms and society at large. Organizations can be exposed to digital threats in various ways: "hard" attacks through the misuse of a backdoor in a system or algorithm (e.g. a DDoS attack), by phishing to obtain sensitive data such as login names, associated passwords or through data leakage of intellectual property, financial data, personal or competitive information. Cyber security includes all technologies, processes, and practices designed to protect networks, devices, programs, and data from attack, damage, or unauthorized access.

BLOCKCHAIN ENABLES **FRICTIONLESS BUSINESS**

Blockchain technology can provide a new model for transactional exchange that allows individuals and institutions to exchange value without traditional intermediaries, preventing malicious acts during data transfer. This shared, distributed, secure ledger aims to make transactions less riddled with fraud and insecurity. It allows companies to trace a transaction and work with unknown parties, which greatly reduces business friction.

QUANTUM **COMMUNICATIONS**

The threat posed by cyberattacks is forcing governments, militaries, and businesses to explore even more secure ways of transmitting information. Quantum communication takes advantage of the laws of quantum physics to protect against eavesdropping by means of quantum cryptography. Quantum Key Distribution (QKD) sends encrypted data as classical bits over networks, while the keys to decrypt the information are encoded and transmitted in a quantum state using qubits.

HOLISTIC BUSINESS
CONTINUITY

7

ASSURING SERVICES IN OUR DIGITALIZED NOW

Today's high performance enterprises depend on reliable access to tools, information and people to persistently operate smartly and compete effectively. 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 tolerance solutions that deliver five nines (99.999%) uninterrupted service guards against outages without compromising performance. Virtualized infrastructures improve business continuity and protect mission critical applications through system-level fault tolerance.

FAIL-PROOF **DATA SECURITY & VERACITY**

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. In addition, inaccurate, manipulated, and biased data that leads to corrupted business insights and skewed decisions can have a major impact on business and society. Unverified data therefore becomes a new type of vulnerability.

PRESERVING DATA IN THE FACE OF DISASTER

The Smart Enterprise needs to 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. Choosing the right disaster recovery strategy is a key investment in the future stability of every organization.

SMART DATA
ANALYTICS

8

INTELLIGIZATION – FROM DESCRIPTIVE TO PRESCRIPTIVE

Converting data from real life objects, 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 insights that for example improve consumption forecasting, resource requirements or predict potential malfunctions.

Augmented analytics identify hidden patterns while removing the personal bias and will increasingly be embedded into enterprise applications. While analytics tools are so far mostly focused on descriptive outcomes, their application will move on towards predictive and prescriptive usage – making predictions about future events and behavior and recommendations on how to take advantage or react with respect to the predicted outcomes.

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. Storage solutions will deliver continued focus on simple manageability as well as ensuring excellent reliability.

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.

As enterprises rely more and more on data, the reliability of the data itself also increasingly becomes a crucial factor. To ensure the integrity of their data, organizations will need to validate it using machine learning, correlate it with blockchain, manage processes to protect critical data, and act only on data from appropriate sources.

AUGMENTED
INTELLIGENCE

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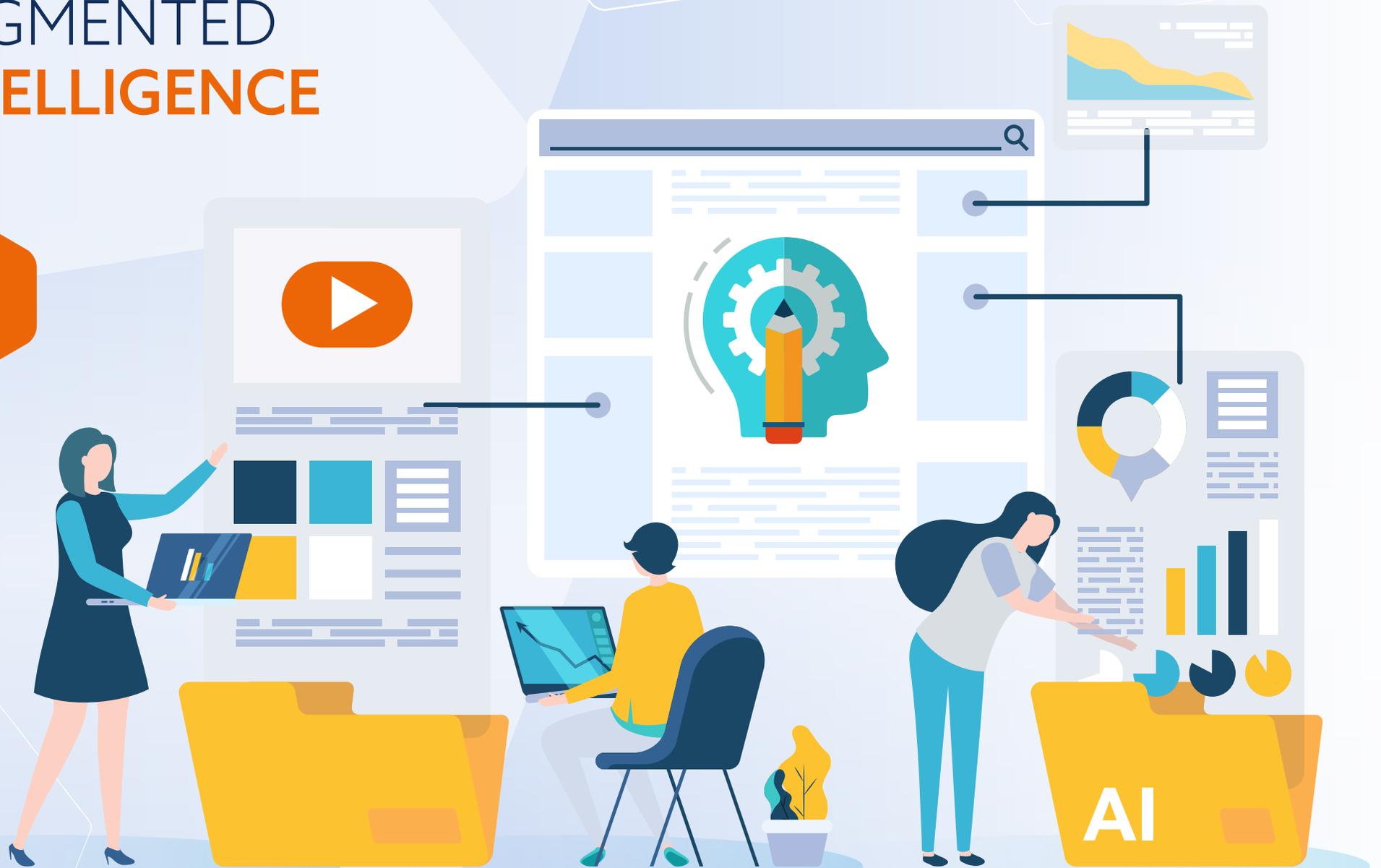
FROM RECOGNITION **TO REASONING**

Artificial Intelligence will continue to be one of the top strategic drivers in the coming decade and is increasingly being applied to enhance processes without the need to involve experts, from recognition, prediction and optimization up to and including reasoning. It combines data from a wide variety of sensors and includes facial recognition, behavior analysis, object fingerprint as well as speech and emotion recognition. Reasoning AI supports decision making by presenting appropriate suggestions based on fragmented information.

DYNAMIC **SELF-GUIDED AUTOMATION**

Artificial Intelligence and data-driven machine learning enable systems that are self-educating, self-healing, dynamic and proactive and support autonomous, self-guiding processes. While Artificial Intelligence suggests automation is to fully substitute human involvement, Augmented Intelligence focuses on its assistive role, designed to enhance human intelligence rather than replace it. Incorporating these into applications, platforms and services, benefits smart enterprises in areas widespread as exploration, development, production, transport and customer relationship management.

EXTENDING **EXPERIENCES**

Extended reality (XR) combines real and virtual environments with human-machine interaction, extending human experiences relating to the senses of existence and the acquisition of cognition. It will fundamentally change how we perceive the world and lead to a new immersive experience – delivering on its promise: the end of distance to information and the end of distance to experiences.

With voice commands and voice assistants playing an increasingly important role in our daily lives, Neuro-Linguistic Programming (NLP) is at the cutting edge of voice technology and would allow computers and systems to understand the true meaning of voice including tone, sarcasm, pun, and even deeper context clues like double meanings.

DIGITAL
INCLUSION

10

A WORLD **RECREATED**

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.

New businesses and social habitats are emerging from the organic linkage of people, physical things, and processes, all spurred by IoT and Intelligent Automation.

NEXT-GENERATION **ECOSYSTEM**

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. Artificial Intelligence will support real-time prediction and guidance of traffic. Connected processes and collaboration will save time and reduce costs, scope and impact of physical travel and transportation. At an individual level education and healthcare solutions will enhance learning and wellbeing.

A BRIGHTER FUTURE FOR ALL

Virtual and augmented reality technologies are removing the distance between people, information, and experiences, transforming the ways people live and work. Wearable technologies will expand our abilities and enhance memory and judgment. Computing abilities will expand to understand human thought, emotion, and intention, providing natural guidance of user behavior and bringing safer and healthier living.

On an individual and group level, digital inclusion will enable intensified participation in society and make people feel more valued, creating new values, offering more potential and realizing a brighter future for all.

OVER
$26 BILLION REVENUE

#1
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(THOMSON REUTERS)

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GLOBAL 100
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(CORPORATE KNIGHTS)

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