



Future Disrupted: 2021 technology trends

Disruptive technologies

5 Key trends for 2021

A look at new and emerging technologies that have the potential to disrupt existing business models and help us realize safety and security, support sustainable growth and reduce environmental loads in the future.

1 All-photonics networks (APNs) will power global communications

A next-generation communications platform that supports a smart, sustainable and energy-efficient society

Using optical and hybrid cabling, APNs enable end-to-end information transmission between the terminal and the server.

APNs can transfer large volumes of traffic, while keeping quality high and latency low.

Transmission capacity could be increased to the extent that you could download 10,000 2-hour movies, in a fraction of a second.

Steps to take in 2021

Consider how APNs could contribute to your organization's sustainability goals as they allow you to operate an ultra-low power communications system, using just 1/100th of the power consumption required by today's networks.

While this may sound complex, these networks will be intuitive to use, allowing people to connect from any location or environment.

2 Cognitive Foundation (CF) technology will connect and control everything

Centralized management and agile allocation of ICT resources

CF creates an information processing platform capable of analysis and forecasting that isn't constrained by the format of systems or data.

CF has already been implemented in a smart city project in Las Vegas, that began in 2019, utilizing orchestration capabilities to analyze video, voice and other sensor information for incident response and prediction.

[Read more](#)

Steps to take in 2021

Consider the benefits to your operations of using CF to link virtualized ICT resources and integrating them with diverse systems and networks.

CF provides orchestration capabilities that allow you to integrate various interfaces, whether they be voice, video or other kinds of sensor information that support the Internet of Things initiatives.

3 Digital twin computing (DTC) will enable predictive analytics by integrating the real and virtual worlds

The ability to test different environments through previously impossible real-world-scale reproductions

Digital twins are virtual representations of real-world environments, products or assets.

We foresee DTC making it possible to integrate people's minds, thinking, habits and attitudes into their digital twins.

Allowing a person's digital twin to perform certain tasks and make decisions in cyberspace in place of the actual person.

Steps to take in 2021

Consider how prediction systems can benefit your organizational ecosystem, from traffic congestion to disease control. Remember to balance innovation with the matter of ethics and social responsibility.

Organizations like NTT are collaborating proactively with an ecosystem of academic research institutions to ensure adequate and responsible governance.

4 The evolution of the 'citizen developer' and robotic process automation will reshape businesses

Business users create new business applications using no-code or low-code development platforms to build process applications to accomplish their automation goals

The 'citizen developer' approach increasingly utilizes robotic process automation (RPA) which enables businesses to automate certain tasks and processes.

In the coming years, RPA has the potential to transform the future of work, which is why so many organizations are researching how to integrate it into their workflows and systems.

Steps to take in 2021

Understand your business subject matter experts, more than programmers, understand challenges being faced and how to solve them.

Establish the correct data strategy with flexible intelligent infrastructure and open systems to make this breakthrough accessible and safe for all parties.

5 Quantum and edge computing will usher in a new era of computing

The rise of powerful processing capability as well as enabling processing at or near the source of data

Quantum computers can solve problems that are computationally too difficult for a traditional computer to do via special algorithms making them more powerful than anything built to date.

Edge computing, which is closer to becoming mainstream than quantum computing, allows for computational work to be done locally, without the latency of cloud communication, especially for mission-critical applications.

Steps to take in 2021

Be mindful that edge computing will be the foundation for additional technology areas especially when it comes to near real-time applications and artificial intelligence at the edge.

Within the next decade, there could be as many as 50 billion devices online generating enormous amounts of data. Edge computing is closely tied to the Internet of Things and 5G connectivity.