Digital? What does it mean?

by Elena Yndurain

How is this digital era transforming your life and the way we connect?

It may seem evident how digitalization is transforming the way we live and how we interact. It may also seem evident how this era is transforming the way we do business. But do we really know how digitalization occurs? Let me try to explain it through some examples.

Connecting the Dots

The secret lies in the interlacing of different technologies that blur digital and physical boundaries.

Sensor technology captures reality from the objects in our environment. For example, yesterday I received a package, and UPS analyzes its fleet's vehicle data to reduce fuel consumption and improve route efficiency[1]. To transfer the data of those 80000 UPS vehicles requires 4G network speed to send information and reroute as needed. To increase the speed, a 5G network would be ideal, since it would only take 1 millisecond[2].

For unmanned vehicles, this immediate information exchange is crucial. However, 5G will not be launched until 2018, and its penetration will be low, with only 550 million subscriptions expected by 2022[8].

Data need to be exchanged AND used with purpose. This use is achieved through artificial intelligence algorithms, which turn data into patterns, predict behaviors, and make decisions. An example is an app to identify at-risk kidney patients, combining public and personal data to help doctors make diagnoses. This app is used in London's National Health System[3].

Not only do intelligent algorithms analyze data, but they create more data along the way! As the amount of digital data created from people and smart objects increases, the size will reach 44 zettabytes in 2020[4]. This huge number is equivalent to the number of all the stars in the universe[5].

We also need to ensure that the data is shared securely. There is an upcoming technology, quantum encryption, that promises to protect our data. It was tested in the 2007 national elections in Switzerland to secure the connection from ballots to the Government's voting repository[7].

We need to be prepared for this vast amount of data by developing ways to store and process it. The cloud has done a good job in parallel computing, but it will not be enough. We need a new computing paradigm, which Blockchain is introducing with its distributed network ecosystem and Dapps (decentralized Apps) model. The financial industry is already adopting it to speed up settlements[6].

Quantum point-to-point links will allow the secure transmission of highly sensitive data without any risk of interception by 2020[9].

Conclusions

Here, we have a taste of what digitalization means and what it takes to make it happen. Many different innovations from the information, communication and technology fields are evolving and occurring simultaneously to enable digitalization, changing the world and human interaction along the way.

Digitalization is growing and transforming our lives and how we do things. We will need to forget some of our habits and beliefs about how things should work and learn new ways of interacting with our world through technology.

References
[1] UPS Press Room US March 2015
[2] CNET February 2016
[3] ZDNET May 2016
[4] Techradar December 2014
[5] EMC/IDC April 2014
[6] Accenture Research 2016
[7] Scientific American October 2007
[8] Ericsson 5G Forecast November 2016
[9] Quantum Manifesto May 2016