CROSS-SECTIONAL TECHNOLOGIES

2.1 - EDGE COMPUTING AND ENHANCED ARTIFICIAL INTELLIGENCE

2.2 - CONNECTIVITY

2.3 - ARCHITECTURE AND DESIGN METHODS AND TOOLS

2.4 - QUALITY, RELIABILITY, SAFETY AND SECURITY

2.5 - SYSTEM OF SYSTEMS

3.1 - MOBILITY

3.2 - ENERGY

3.3 - HEALTH AND WELLBEING

3.4 - AGROFOOD AND NATURAL RESOURCES

3.5 - DIGITAL SOCIETY

KEY APPLICATION AREAS

3.1 - MOBILITY

Mobility is a classic human need and its mobility industry is a key contributor to - with a significant share of the global market. For instance, the automotive industry alone is estimated at $1.5 trillion globally, and the aviation industry contributes over $2 trillion worldwide. The ongoing digital transformation of the mobility sector is driven by customer demand for seamless, affordable, and sustainable transport solutions. Electric vehicles, autonomous driving, and infotainment systems are among the key technologies shaping the future of mobility. These advancements are revolutionizing the automotive industry, with a focus on reducing carbon emissions, improving road safety, and enhancing driving experiences.

3.2 - ENERGY

The energy landscape is evolving, driven by a set of converging trends. The energy systems are becoming more interconnected, with a growing share of renewable sources such as wind and solar. The increased use of electric vehicles is stimulating the development of smart grid technologies, enabling the integration of distributed energy resources. The transition towards a digital energy ecosystem is also impacting the manufacturing of energy systems and devices, allowing for more efficient and sustainable production.

3.3 - HEALTH AND WELLBEING

Digital health technologies are transforming healthcare systems around the world. These advancements aim to improve patient outcomes, enhance clinical decision-making, and reduce costs. The widespread adoption of digital health solutions has facilitated the development of eHealth applications, telemedicine, and remote monitoring systems. Artificial intelligence and big data play a critical role in these applications, enabling personalized medicine, predictive diagnostics, and targeted therapeutics. The integration of digital health technologies is also driving changes in public health policies and interventions, with a focus on health equity and accessibility.

3.4 - AGROFOOD AND NATURAL RESOURCES

Agrofood and natural resources are critical sectors for ensuring global food security and sustainability. The use of digital technologies and data-driven approaches is transforming these industries. Smart farming techniques, for example, are revolutionizing agriculture by improving crop yields and resource efficiency. Precision agriculture and remote sensing systems are providing farmers with real-time data on soil conditions, crop health, and weather patterns. These technologies are also driving innovations in food processing and distribution, with a focus on reducing waste and improving traceability.

3.5 - DIGITAL SOCIETY

Digital society is driven by the integration of digital technologies and data in all aspects of human life. The digital transformation is characterized by the convergence of physical and digital worlds, enabling new opportunities for innovation and economic growth. Digital technologies are reshaping industries, with a focus on enhancing productivity, improving quality, and reducing costs. The digital society is also characterized by a strong emphasis on ethical considerations, such as privacy, security, and data protection, to ensure a responsible and trustworthy digital future.