INDUSTRY 5.0 AND COMMUNITY OF PRACTICE

The concept of **Industry 5.0** is gaining momentum within the European Commission. What is the fundamental purpose of Industry 5.0? What challenges does it face? Furthermore, how does the FORGING project help address the challenges that Industry 5.0 presents?

The industrial revolution marks a significant milestone in human history, and we can distinguish five distinct stages in the evolution of industrial production systems. The first three stages focused on the production process itself, while the fourth introduced digital technologies. The fifth stage, however, brings the social element into focus. In other words, as we categorize these stages, we see a shift from the emphasis on machines and energy sources (1st to 3rd) to the integration of the Internet, data, and digital technologies that enable smarter machine operations (4th).

In the 5th Industrial Revolution, the **focus shifts to people**.
While people have always played a role in this journey—whether as workers, consumers, users, or individuals—what's evolving is the move from mass production for mass consumption to intelligent production tailored to the specific needs of individuals or groups with clearly defined profiles.

Human-Centricity serves as the ultimate goal for all R&D&I efforts. What is the purpose of the science and technology system? What drives the industrial production system? What is the role of the consumer market and the welfare state? The Human-Centric approach asserts that, throughout the entire value chain, stakeholders must not lose sight of the ultimate goal of their contributions. This perspective encourages every actor in the value chain to consider those who came before them, and those who will follow, and envision how the entire process culminates—reaching the market or society to meet the needs of individuals and society at large.

In essence, **Industry 5.0** advocates for a systemic, complex, and integrative approach.
This change entails several challenges: changing attitudes and values, the knowledge required, strategies and ways of acting in a globalised world with diverging political and geostrategic interests, strongly dependent on media and social networks, and ongoing efforts to maintain a delicate balance between the economic and social forces. Furthermore, the impact of emerging technologies further amplifies the complexity of transitioning to Industry 5.0, as these technologies introduce rapid advancements that require not only swift adaptation but also ethical considerations to ensure their responsible and sustainable uptake.

This shift presents numerous challenges, including the need for changes in attitudes and values, the knowledge required, and strategies for operating in a globalized world marked by divergent political and geostrategic interests. These challenges are compounded by the heavy influence of media and social networks, as well as the ongoing effort to maintain a delicate balance between economic and social forces.

Furthermore, the rise of emerging technologies intensifies the complexity of transitioning to Industry 5.0. These technologies bring rapid advancements that demand not only swift adaptation but also careful ethical considerations to ensure their responsible and sustainable integration.

FORGING stands at a pivotal crossroads: how can it drive the adoption of emerging technologies? Its core mission is to develop a collaborative framework that bridges the gap between R&D and innovation, with a particular focus on the **critical early stages**, where obstacles are most pronounced and progress tends to be slow.
By fostering collaboration and addressing these early hurdles, FORGING aims to ease the path for novel technologies to **move from concept to impactful and responsible innovations.**