User-experience-focused design roadmapping: Application to a Smart Autonomous Vehicle Cockpit

Ilia IUSKEVICH1,2
Marija JANKOVIC2, Andreas-Makoto HEIN2, Abdelkrim DOUFENE1
1 IRT SystemX, 91127 Palaiseau, France
2 Université Paris-Saclay—CentraleSupelec, 91190 Gif-sur-Yvette, France

CONTEXT

The accelerating technological progress rapidly changes the landscape of available design options in the automotive domain. Constant innovations in the design and functionality of an increasingly autonomous vehicle drive the evolution of the design of a cockpit. New product development (NPD) of Human-Machine Interface (HMI) is an inertial process which, at the same time, rests on technological and user-experience trends. Therefore, these trends need to be forecasted and NPD activities should be planned in advance.

OBJECTIVE

Development of the methodology and tools aiming at the efficient management of the inertial NPD process in the VUCA environment (volatility, uncertainty, complexity and ambiguity) with special focus on user experience. This approach will include following elements:

1. User-experience trend forecasting processes:
   a. user-generated content analysis;
   b. personalized product evaluation;
   c. Technology trend forecasting;
   d. Product feature modeling

CASE STUDIES

- Interior lighting;
- Human-machine Interface of an autonomous car

KEYWORDS

Model-based Systems Engineering, Technology Roadmapping, Human Machine Interfaces, User experience, Autonomous car, New product development

REFERENCES