
Users in Digital Innovation: The Case of Autonomous Vehicles

Thomas Abrell

University of St.Gallen
Institute of Information
Management
Unterer Graben 21
CH-9000 St.Gallen
Switzerland
Thomas.abrell@unisg.ch

Abstract

One approach to digital innovation is to involve users early in the process. In this research, my interest is to understand the role customers and users play in the development of autonomous vehicles, where the role of the user is radically transformed and what are related challenges concerning involvement of users to define the future role in development.

Author Keywords

Digital Innovation; User; Autonomous Vehicles

Users and Autonomous Vehicles

Digital innovation is transforming the world. We can observe digital innovation in various aspects of the world, ranging from smart homes to digitized production environments. While technological enablers are one important part, the user component is equally important. Recent research has shown the role of users in setting directions for digital innovations in the B2B manufacturing industry. Digital innovation has the potential to radically transform the user experience, such as in the case of autonomous vehicles. This digital innovation impacts the role of users directly, as traditional roles of a driver and passengers might transform, and in a wider scope, individual and public mobility may be redefined. In fully autonomous vehicles, users may utilize their time entirely different.

Despite the promises of fully autonomous vehicles, incremental introduction of features of autonomy is likely, and the interaction of users with the system is of utmost importance.

My interest is to seek the role users play in the development of such vehicles. Questions such as the following (but not limited to) are interesting:

- How are users involved in shaping autonomous vehicles?
- In which areas (such as HCI, business modeling) are users involved?
- What are challenges in user involvement related to autonomous vehicles?
- How are users involved once the autonomous vehicles are used?

In addition, the customer and user perspective may be different in autonomous vehicles. While currently the predominant business model is related to car ownership, developments such as car sharing and public transport offerings are impacting the industry. Autonomous vehicles may have a large influence on the questions "*Who is the customer?*" and "*Who is the user?*" from a manufacturer perspective. Entirely new business models around mobility are possible, and this may influence the patterns of user and customer involvement from a manufacturer perspective.

Manufacturing companies are experimenting in digital innovation, seeking suitable approaches. As digital innovation has been largely focused on internal processes, digital innovation of products and services are a novel ground to explore for manufacturers. On

the other hand, companies focused on digital innovation may have expertise in the digital perimeter, but lack perspective of the physical side. As autonomous vehicles draw on aspects of both, it is a challenging field for both manufacturers as well as digital companies.

The progress of digital technologies is vital for autonomous vehicles to cope for example with the complexity offered by changing weather and road conditions, traffic behavior, positioning and machine learning. On the other hand, the user component is crucial in the interaction of the car with the environment, the interaction inside the car, as well as how the vehicle is used.

While a large part of research is focused on specific challenges of autonomous vehicles such as the user interface and handover situations from autonomous to manual driving, my research interest is rooted in the approaches used to tackle the changing role of users in digital innovation in the case of autonomous vehicles. Therefore, of interest are the practices, processes and role of customers and users as well as challenges related to autonomous vehicles development.