Integration of Transportation Systems: A Case Study of a Digital Platform Fostering Sustainable Mobility

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Abstract. *Short-distance Airplane travel, individual cars and car-centric cities lead to various problems like environmental hazards, less space for humans in cities and inefficient transportation. This research paper presents a case study of a digital platform that innovates in the area of individual mobility by integrating various modes of transport into a single, user-centric interface. The platform serves as a single point of access for travellers seeking sustainable and efficient transportation solutions across urban, national, and international environments. By consolidating diverse transportation options, including but not restricted to train tickets, car rentals, carsharing services, urban mass transit like metro, bus and tram systems, city bike rentals, scooter rentals and taxis, or other ride-hailing services, the platform aims to enhance convenience and promote sustainability in all mobility, while incentivising the use of green public transport instead of less environmentally friendly solutions while also facilitating innovation in the sector.*

The scenario and initial details, models and concepts for the case study resulted from discussions and drafts in an international group of four students. The study explores the steps of design and development by means of the DEMO methodology, consisting of tools, techniques and approaches that were conveyed during the Summer School course by the research personnel of the four partner universities taking part in the DEMO project. To illustrate, this methodology uses 6 different views on the domain while in each of them a different aspect concerning the digital platform is developed (Business, Process, Service, Application, Technical, Project). Notable steps involve the creation of the business model and defining key value propositions, Business Processes, Service Design oriented towards future users and Use Case diagrams. Ultimately technical properties of the platform are analysed, for instance the data that the platform uses is modelled and an Enterprise Architecture is proposed, as well as a plan to execute the project.

This case study serves as a valuable educational resource for policymakers, researchers, and stakeholders in the transportation industry, providing insights into the design and implementation of a digital platform that not only simplifies travel planning but also contributes to a more sustainable future. By showcasing the successes and lessons learned from this case study, this research paper aims to inspire and inform future initiatives seeking to transform urban mobility through innovation and sustainability.

Keywords. CECIIS, student conference paper, DEMO project, future mobility, integration of transportation systems, sustainability, user-oriented service design, digital platform

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