

Automotive Accessibility – R&D Feasibility Study

Driving Inclusive Mobility for drivers with disabilities: Assessing Feasibility of Integration of Advanced Vehicle Adaptations on Mass-Productionline

The Challenge

The client's mandate was to rigorously assess the technical and industrial feasibility of integrating vehicle adaptations for drivers with disabilities directly into standard automotive production lines. This presented a multi-faceted challenge, requiring a deep dive into engineering complexities, manufacturing scalability, cost implications, and regulatory compliance. The goal was to transition from bespoke, after-market modifications to seamlessly integrated, factory-fitted solutions, ensuring enhanced safety, reliability, and user experience. A technical key hurdle involved maintaining the production speed. A market related key hurdle is today's value chain based on individual adaptation production for adaptation to drivers&passengers with disabilities, which relies on a 2-times more expensive vehicle price for persons with disabilities.

My Contribution

I led and orchestrated a comprehensive R&D feasibility study, bringing together a consortium of leading academic researchers in human-computer interaction and biomechanics, alongside key industrial partners renowned for their advanced production engineering capabilities. My role involved defining the scope of the study, coordinating interdisciplinary expert collaboration, and establishing rigorous methodologies for technical evaluation. I facilitated the development of first integration roadmaps and conducted risk assessments. This involved close collaboration with design, R&D engineering, and manufacturing departments to ensure that proposed adaptations met both functional requirements and production efficiencies.

Impact & Outcomes



Industrial Scalability Demonstrated

Successfully demonstrated the industrial scalability of integrating vehicle adaptations for drivers and passengers with disabilities, providing a clear pathway for the client to move beyond expensive niche modifications towards mass-production of inclusive vehicle solutions.



Regulatory Compliance Achieved

Identified key design and engineering principles that ensure full compliance with international automotive safety standards and accessibility regulations, mitigating legal and operational risks.



Enhanced Product Portfolio

The study enabled the client to envision an expanded product portfolio, positioning them as a leader in accessible mobility and opening new market segments for their standard vehicle lines.



Optimised Production Costs

Provided actionable insights into production process optimisation, projecting significant cost efficiencies compared to traditional after-market adaptation methods, making inclusive solutions more affordable.



Thinking Quality in CI & Innovation

Leveraging Social Neurology for Superior Competitive Intelligence and Breakthrough Innovation

The Challenge

The core mandate was to elevate the thinking quality within both Competitive Intelligence (CI) and broader innovation processes. This involved moving beyond conventional data analysis to incorporate the sophisticated insights offered by social neurology. The client sought to understand and mitigate cognitive biases, enhance collaborative decision-making, and foster genuinely novel ideas by leveraging how the human brain processes information and interacts within groups. The goal was to build a more resilient, adaptive, and predictive strategic framework that was fundamentally human-centric.

My Contribution

I initiated and led empirical research exploring the critical intersection of Competitive Intelligence, thinking methods as critical thinking and creative thinking, cognitive neuroscience, and fact-based decision-making. My work comprises a literature research and empirical studies on collective human intelligence.

First empirical study results indicate how neuroscientific principles, particularly those related to social cognition and expert intuition, could be practically applied to CI methodologies, innovation workshops. Also as a starting point for sustainable strategy development, expert intuition seems to be a timely mean to connect the knowledge in an organization with an extrapolation of its strengths and expertises into a sustainable strategy.

Impact & Outcomes



Strengthened Methodological Foundations

The study shows how thinking methods can be used as a lever of quality and sustainability in CI and strategy development.

Thinking methods are deeply rooted in neuroscientific understanding, leading to higher quality of analysis, reduced cognitive biases, and enhanced foresight in competitive landscapes.



Optimized Innovation Processes

Successfully applied social neurology insights into teaching methods in innovation and competitive intelligence, fostering a precise approach to systemic understanding of complex contexts as well as the emergence of genuinely breakthrough concepts.



Time-Efficient Strategic Decision-Making

Developed and validated empirical studies demonstrating how to effectively apply expert intuition, enabling leadership teams to make critical strategic decisions with greater speed, confidence and sustainable orientation, while maximizing fact-based decision making.

Social Art & Inclusion – EU Project

Fostering Innovation and Integration through Creative Methodologies Across Europe

The Challenge

The European Union project **Social Art** aimed to address two significant societal needs: enhancing innovation processes within organisations and facilitating the social and economic integration of individuals distant from the labour market. The core mandate was to develop a practical handbook of art-based methods that could serve as a valuable resource across diverse European contexts. This presented a complex challenge, requiring methods to be adaptable to various cultural backgrounds, skill levels, and socioeconomical barriers, while simultaneously proving effective in fostering creativity, collaboration, and personal development to bridge the gap to employment and value creation.

My Contribution

I initiated and co-led this ambitious EU project, working closely with project partners from Germany, France, Italy, and Hungary. My role involved orchestrating the multi-national collaboration, ensuring methodological coherence, and driving the conceptualisation and development of the handbook. I was responsible for designing the research framework, coordinating pilot programmes across partner countries, and facilitating workshops to gather and refine art-based methodologies. This encompassed everything from stakeholder engagement and budget management to content curation and editorial oversight, culminating in a robust and practical guide for practitioners across Europe.

Impact & Outcomes



Comprehensive Methodological Handbook Published

Co-edited and published a pioneering handbook of art-based methods, providing practitioners, innovation workshop trainers, educators, and social workers with actionable tools to stimulate innovation and support vulnerable groups as well as social impact innovation across the EU, establishing a new benchmark in social art methodology.



Enhanced Social and Economic Inclusion

The project developed and validated creative approaches that demonstrably released collective intelligence, ideation as well as creativity. They also improved participants' confidence, communication skills, and readiness for value creation, contributing directly to the social and economic integration objectives of the European Union.



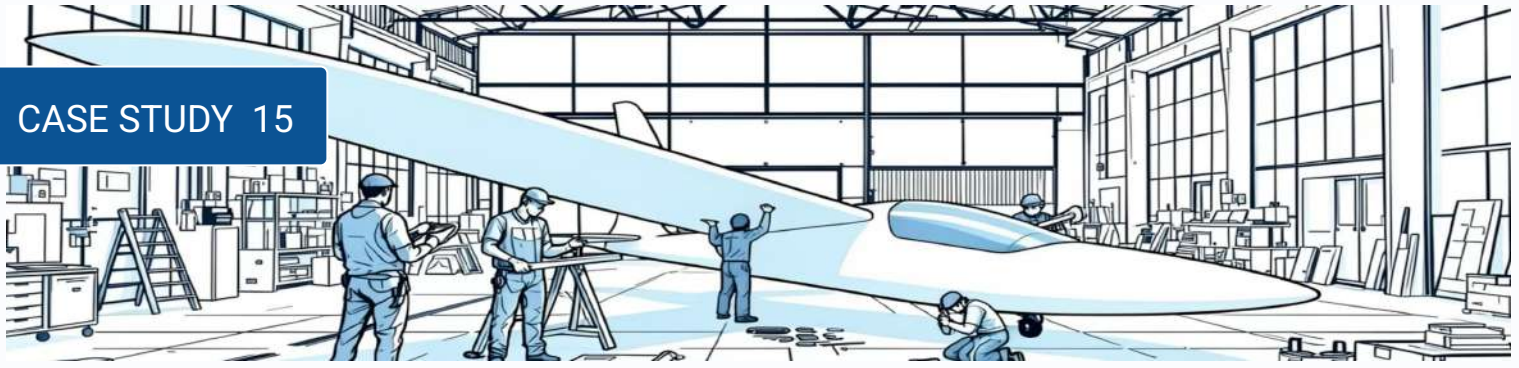
Strengthened European Partnership Network

Successfully fostered a vibrant, cross-cultural collaboration among partner organisations, leading to a sustainable network for future initiatives in social innovation and providing a model for effective multi-national project delivery within the EU framework.



Fostered Innovative Thinking

The art-based methods introduced provided novel ways for organisations to approach solution-finding as well as problem-solving: fostering creativity, moving beyond traditional innovation paradigms to unlock untapped potential within teams and communities.



Glider Prototyping – Aeronautics R&D

Co-Leading the Design, Construction, and Certification of a High-Performance Glider Prototype (first flight 1993)

The Challenge

The project aimed to design and construct a high-performance glider prototype for 2 pilots sitting one next to each other. But with a gliding performance that was till then only possible with pilots sitting one behind the other. This involved navigating stringent aerodynamic demands, aerodynamic optimization of the wing-fuselage region, a novel design for the cockpit with a huge domeshaped plexiglass cover, ensuring structural integrity for a 20-meter wingspan, and meeting rigorous aircraft certification standards. A unique complexity was leading a diverse team of 25 volunteer engineering students, requiring not only technical guidance but also effective project management and mentorship to transform theoretical knowledge into a tangible, airworthy aircraft under strict timelines and resource constraints.

My Contribution

I joined this ambitious initiative at the beginning of my engineering studies at TU Darmstadt, took over responsibilities and was step-by-step taking responsibility for the team and the project, overseeing everything from the prototype construction in the students' workshop to the different testing activities till final aircraft certification and later flight testing. My role involved technical leadership during the construction of the 20m wingspan glider, ensuring adherence to design specifications and engineering best practices. I led the group of 25 volunteer engineering students, fostering a collaborative environment, delegating tasks, and providing hands-on training that empowered them to contribute significantly to the project's success and gain invaluable practical experience.

Impact & Outcomes



Achieved Best-in-Class Glide Ratio

Successfully delivered a glider prototype that achieved a best-in-class glide ratio, setting a new benchmark for performance in its category and demonstrating significant advancements in aerodynamic efficiency and structural optimization.



Successful Aircraft Certification

Guided the prototype through rigorous regulatory inspections and flight tests, leading to successful aircraft certification, a critical milestone that validated the design's safety, reliability, and adherence to industry standards.



Developed Future Engineering Talent

Provided practical, hands-on experience to a team of volunteer engineering students, fostering their technical skills, project management capabilities, and understanding of real-world aeronautical R&D, preparing them for future industry roles.

IT to Overcome Cultural Bias – Public Schools

Fostering Global Understanding Through Long-Distance Digital Collaboration in Primary School Education

The Challenge

The primary objective was to rigorously test the hypothesis that digital collaboration platforms could effectively reduce cultural bias among primary school children. This represented a complex pedagogical and technological challenge. Cultural biases are often deeply ingrained from a young age, and traditional educational methods sometimes fall short in fostering genuine cross-cultural understanding. The project sought to design an intervention that would expose children to diverse perspectives in a structured, engaging way, transcending geographical and cultural barriers, and crucially, to measure its impact on their perceptions and attitudes during their neurally formative years age 6-7.

My Contribution

I founded and led a pioneering "numerical classroom" initiative, establishing a direct digital link between two public primary schools in France and Cameroon. My role encompassed the entire project lifecycle, from conceptualisation and securing partnerships to implementation and impact assessment. I designed the collaborative curriculum, which integrated interactive digital tools for shared learning experiences in subjects like mathematics, literature, and art. I also oversaw the technical setup, teacher training, and ongoing facilitation of inter-school exchanges, ensuring cultural sensitivity and pedagogical effectiveness throughout the program to create a truly immersive and bias-reducing environment.

Impact & Outcomes



Proof of Concept for Early Bias Reduction

The initiative successfully demonstrated that cross-cultural digital collaboration can significantly reduce cultural bias in children aged 6-7, providing a crucial proof of concept for early intervention strategies during a critical developmental period. Pre- and post-intervention assessments showed a measurable increase in cultural empathy & understanding.



Enhanced Global Citizenship Skills

Participating students developed improved intercultural communication skills and mutual respect, increased empathy towards other cultures, and a broader global perspective. These foundational skills are vital for fostering future generations of globally aware and socially responsible citizens.



Validated Digital Pedagogy Model

The project established a replicable model for leveraging digital technology in cross-cultural primary education. It provided valuable insights into effective curriculum design, teacher training, and the practical implementation of digital tools for fostering mutual understanding across diverse educational settings.



Strengthened International School Partnerships

Beyond the direct impact on students, the initiative forged strong, sustainable partnerships between the participating schools and educational authorities in France and Cameroon, laying the groundwork for future collaborative projects and exchanges.