



Twin-Safe: Advancing Road Safety Through Twinning

Summary of Deliverable 6.2

## **Technology transfer strategy**

<https://twin-safe.com>



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## Project identification

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## Document summary

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## Glossary and abbreviations

| Word / Abbreviation | Description                                                        |
|---------------------|--------------------------------------------------------------------|
| BD                  | Business Development                                               |
| COI                 | Conflict Of Interest                                               |
| CRM                 | Customer Relationship Management (software tool)                   |
| EU                  | European Union                                                     |
| FTE                 | Fulltime Equivalent                                                |
| FTTS                | University of Zagreb, Faculty of Transport and Traffic Sciences    |
| IOF                 | The Flemish Industrial Research Fund                               |
| IP (IPR)            | Intellectual Property (Rights)                                     |
| KT                  | Knowledge Transfer                                                 |
| MTA                 | Material Transfer Agreement                                        |
| NDA                 | Non-Disclosure Agreement                                           |
| PI                  | Principal Investigator (Academic lead)                             |
| PoC / POC           | Proof of Concept                                                   |
| TRL                 | Technology Readiness Level                                         |
| TT                  | Tech(nology) Transfer                                              |
| TTO                 | Tech(nology) Transfer Office                                       |
| TWIN-SAFE           | The project on the topic of Advancing Road Safety Through Twinning |

## Summary

Deliverable 6.2, Technology Transfer Strategy, is part of Work Package 6 of the TWIN-SAFE project, which focuses on dissemination, outreach and sustainability. The deliverable provides a practical and context-sensitive basis for translating Faculty of Transport and Traffic Sciences (FTTS) research, expertise and collaboration potential into real use and impact. In line with the civic university mission of FTTS, it considers both economic valorisation and broader societal valorisation. The deliverable clarifies the concept of technology transfer within current European thinking on knowledge valorisation, examines relevant transfer processes, models and financing mechanisms, and compares valorisation practices across FTTS, LU and HU in order to identify realistic and transferable recommendations for FTTS.

Technology transfer is the process of moving research-based knowledge into use beyond the original research setting. In the university context, it includes identifying, protecting, managing and exploiting research results, as well as enabling knowledge exchange with companies, public authorities and society. In line with the EU concept of knowledge valorisation, technology transfer aims to create social and economic value by transforming research results, data and know-how into practical outputs such as products, services, software, datasets, methods, standards, policy tools and other solutions that benefit society. For this deliverable, technology transfer is understood as a broad and practical process that covers the identification of valuable research results, clarification of ownership and rights, assessment of protection needs, selection of suitable valorisation routes, development of external partnerships and support for implementation. This broader perspective is particularly relevant for transport and road safety research, where impact is often achieved not only through patents or commercial products, but also through cooperation with public authorities, road operators, mobility actors, companies, civil society and end users. The technology transfer process can be understood as a structured but flexible pathway through which research results move from academic generation to practical use. It usually begins with the recognition of a potentially transferable result, such as a method, software tool, dataset, protocol, prototype, service concept, training package or other form of expertise with value for professional users, public bodies, companies or society. This is followed by internal disclosure and assessment, including technical robustness, application potential, intellectual assets, legal obligations, market or user demand, ethical and regulatory aspects, and implementation feasibility. Based on this assessment, the most suitable valorisation route can be selected, such as collaborative research, contract research, consultancy, licensing, spin-off or start-up creation, standardisation, open dissemination, policy uptake, procurement or direct implementation in practice.

Technology and knowledge transfer may take different forms depending on the type and maturity of the research result, ownership structure, market or societal relevance, and the actors needed for implementation. While technology transfer often refers to the transfer of a specific invention, prototype, software solution or protected intellectual property, knowledge transfer is broader and includes the exchange of scientific findings, expertise, methods and know-how. In practice, both processes are closely connected and are often supported by a Technology Transfer Office, which helps researchers identify promising results, assess intellectual assets, define protection and valorisation strategies, negotiate agreements and monitor implementation and impact. The main transfer models include contract research, collaborative research, licensing and spin-off or spin-out company creation. Contract research involves clearly defined research or technical services provided by the university to an external client, while collaborative research involves shared contributions, joint work and closer alignment of research objectives. Licensing enables a third party to use protected intellectual property under defined conditions, while ownership remains with the university or research organisation. Spin-

offs or spin-outs are new companies created around university-generated technology, intellectual property or know-how, especially when a dedicated company structure is needed for market entry, scaling, fundraising and further development. Successful technology transfer does not end with signing an agreement, filing a patent or creating a spin-off. It depends on whether the result is implemented, used, tested, adapted and sustained in practice. A strong FTTS technology transfer strategy should therefore combine economic, societal and policy-oriented valorisation, supported by clear internal procedures, legal and contractual capacity, intellectual asset management, business development support and strong links with the wider innovation ecosystem.

Financing technology and knowledge transfer differs across institutions and depends on legal ownership models, available public instruments, institutional structures and the maturity of the innovation ecosystem. At LU, innovation support is organised through LU Innovation and LU Ventures AB, a structure shaped by the Swedish teacher exemption principle, under which individual researchers own the intellectual property rights to their research results. LU Innovation therefore focuses on early-stage support such as idea development, intellectual property advice, market analysis and proof-of-concept activities, while LU Ventures AB enables the university to participate in commercialisation by supporting spin-out companies formed with researchers. At HU, technology transfer is organised through a central Technology Transfer Office and domain-linked business developers within the Flemish Industrial Research Fund framework. Unlike the Swedish model, HU can directly manage and commercialise university-owned intellectual property generated by its researchers. Its financing model is strongly linked to public valorisation-oriented instruments that support proof-of-concept activities, spin-off preparation, business development, intellectual property management and licensing. Direct business-sector financing of TTO structures is not dominant in either model, although companies may contribute through collaboration, co-development, licence fees, research chairs or strategic partnerships that support longer-term valorisation. Business angels and venture capital can play an important role in spin-out and start-up formation, but investor networks become effective only when supported by a credible pipeline, strong teams and clear market validation. For less mature TTOs, the key lesson is to adopt a lean and selective financing approach: resources should be directed towards cases with realistic uptake potential, clear researcher commitment, sufficient market or societal relevance and an appropriate valorisation route, rather than automatically pursuing patents, licensing or company creation for every research result.

The current state of technology transfer and valorisation differs considerably across the three TWIN-SAFE partner institutions, reflecting their different legal, institutional and organisational contexts. FTTS currently operates mainly through a faculty-level Office for Projects and Technology Transfer, which covers project administration, technology transfer processes, entrepreneurship support, legal aspects and societal engagement, but many activities are still handled on a case-by-case basis. LU has a more mature university-wide innovation support structure combining LU Innovation with LU Ventures, while HU operates through a central Technology Transfer Office and domain-linked business developers within the Flemish IOF framework. These models differ not only in maturity but also in governance. FTTS follows university-level rules but does not yet have a faculty-specific valorisation strategy, LU's system is shaped by the Swedish researcher-ownership model, while HU has a more formalised valorisation strategy and governance structure. Team capacity is also a major differentiating factor. FTTS relies mainly on faculty management and existing administrative, legal and project support, while LU and HU have more specialised business development capacity, structured training and external expert support. Similar differences appear in researcher services, intake and follow-up: FTTS provides support case by case, while LU and HU use more structured service portfolios, intake procedures, lead tracking, regular follow-up meetings and proactive opportunity scouting. IP ownership and management also differ: FTTS and HU operate in institution-owned IP environments, while LU follows

the Swedish inventor-ownership model. Contracting, pricing and financial policies are present in all three institutions, but LU and HU show higher levels of standardisation through templates, differentiated procedures and clearer internal processes. Across all areas, the comparison suggests that FTTS should not try to replicate LU or HU directly, but should develop realistic improvements suited to its faculty-level model.

Based on the comparison of the three partner approaches, FTTS should first focus on building a small but coherent foundation for technology transfer rather than trying to replicate the full range of instruments used by more mature university-wide systems. The first priority should be to establish a faculty-level technology transfer strategy and formal valorisation/exploitation regulation that define FTTS's ambitions, priorities, roles, decision lines, eligible types of valorisation, and internal procedures for handling cases. This framework should also clarify responsibilities for intake, support, contracts, intellectual property, spin-off or spin-out cases and external partnerships, while introducing a clear incentive model for researchers, including possible licence revenue-sharing, recognition of valorisation in career development, and practical support that reduces the burden on individual researchers. In parallel, FTTS should build central support capacity with dedicated staff, budget, skills and tools, even if this initially means only one or more clearly mandated persons who can guide researchers and external stakeholders through opportunity identification, IP management, basic market research, contracting, route selection and early entrepreneurial trajectories. A simple standard intake form should be introduced so that new opportunities enter the system in a structured and comparable way, and this should be complemented by a simple digital case-tracking system to record submitted cases, responsible persons, case status, decisions and follow-up actions. FTTS should also develop a more structured approach to stakeholder mapping and partnership development, including public authorities, companies, innovation networks, accelerators and brokerage events. Another important recommendation is to nurture a technology transfer and valorisation mindset among researchers from an early career stage, for example through basic training on innovation, intellectual property, research use cases and valorisation pathways, as well as by communicating successful examples and involving junior researchers in relevant pilot projects and external collaborations. Finally, FTTS could define a clearer service portfolio and gradually explore a small pilot valorisation fund focused on market research, freedom-to-operate or IP analyses, and later potentially on proof-of-concept or early validation activities. Overall, the recommended approach is phased: FTTS should first create the organisational basics, including strategy, regulation, governance, intake, case tracking and central support capacity, and only then expand towards stronger incentives, a clearer service offer and targeted proof-of-concept funding. This would provide a realistic foundation for gradually developing a more mature and effective technology transfer system at FTTS.