



Twin-Safe: Advancing Road Safety Through Twinning

Summary of Deliverable 5.3

Training materials and handbook on grant writing and funding strategies

<https://twin-safe.com>



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Glossary and abbreviations

Word / Abbreviation	Description
FTTS	University of Zagreb, Faculty of Transport and Traffic Sciences
EU	European Union
TWIN-SAFE	The project on the topic of Advancing Road Safety Through Twinning
HU	Hasselt University
LU	Lund University
TRL	Technology Readiness Levels
CFP	Refers to the material released by a funding agency to invite the submission of proposals. The information inside “The Call” explains the requirements for submission.
Co-I	A researcher who leads a particular strand or (sub-) project within a grant.
Cost sharing	Cost sharing refers to an arrangement where an organization other than the funding agency agrees to fund part of the research project. Many funding agencies have industry-relevant programs where some level of cost share is required. When an agency requires partners to the costs of a project equally these are referred to as matching funds.
Direct costs	Direct costs are readily identifiable costs incurred by a specific project. The main categories of direct costs include (but are not always limited to): the salaries (and employment benefits) of research team members, equipment, materials/supplies/consumables, travel (and accommodation).
Funding agency	A funding agency may be a government body funding a range of research domains, a government mission agency funding strategic research priority, or private organization.
Grant officer/program officer	The grant officer is a funding agency’s designated official responsible for managing aspects of a particular grant. The grant officer is responsible for the review, negotiation, award, and administration of a grant.
Indirect costs/Overheads	In contrast with direct costs, indirect costs are those institutional expenses incurred by hosting research institutions and which are difficult to directly attribute to a particular project. Examples of indirect costs include heating and electricity supply to buildings, building security, cleaning and maintenance, institutional administrative services, such as accounting, IT support, payroll, human resources, library expenses, etc.
No cost extension	If there are funds remaining at the end of the grant period, most funding agencies will extend the time over which these funds can be expended. This is referred to as a ‘no cost extension’ since no additional funds are made available.

Preliminary proposal (or 'pre-proposal')	In cases where many proposals for a competition are anticipated or where the amount of the award is large and an extensive review process is required, there may be a preliminary proposal or pre-proposal required. Such pre-proposals are normally much briefer than the full proposal and are therefore easier to review. The aim is to simplify the proposal review process and to avoid having reviewers read large numbers, or large numbers of pages, of full proposals.
Principal investigator (PI)	Strictly the term principal investigator should probably be restricted to the person (or persons) responsible for the administration and leadership of an award. In many cases, however, the term principal investigator is used also to mean the applicant for a grant or the author of a proposal.
Quote for equipment	This refers to the price asked by a seller for a particular piece of equipment or for a service.
Reviewer	A person who reviews or assesses a proposal.
Work package	A work package is a term that is sometimes used to describe a 'sub-project', task, or set of tasks within the overall project. Work packages are used to help manage more complex projects by breaking them down into different 'mini projects' or activities with their own deadlines, deliverables, staff responsibilities, etc. This helps the PI oversee progress and manage the grant more effectively.
ERA	European Research Area
ERC	European Research Council
EIC	European Innovation Council
EIT	European Institute of Innovation and Technology
MSCA	Marie Skłodowska-Curie Actions
EIE	European Innovation Ecosystems
WIDERA	Widening Participation and Strengthening the ERA
COST	European Cooperation in Science and Technology

Summary

This deliverable focuses on strengthening grant writing skills and improving the understanding of funding opportunities among researchers at the Faculty of Transport and Traffic Sciences, University of Zagreb. Developed within Work Package 5 of the TWIN-SAFE project, it builds on the experience and best practices of HU and LU. The handbook provides practical guidance on identifying suitable funding sources, preparing competitive proposals, presenting research ideas and expected impact, planning realistic budgets, and understanding key European funding programmes, particularly Horizon Europe. Although primarily intended for FTTS researchers, it may also support less experienced researchers at partner institutions and serve as a basis for future grant writing training activities.

Understanding European funding opportunities is an important foundation for preparing successful research proposals, especially within projects funded through Horizon Europe. European Framework Programmes represent the main long-term instruments of the European Union for supporting research, development and innovation. Since their introduction in 1984, these programmes have supported scientific excellence, international cooperation, competitiveness, sustainability and the development of the European Research Area. Horizon Europe, is the ninth EU Framework Programme and the central European funding programme for research and innovation for the 2021–2027 period and is structured around three main pillars (Excellent Science, Global Challenges and Industrial Competitiveness, and Innovative Europe). Excellent Science supports frontier research, researcher mobility, career development and research infrastructures through instruments such as the European Research Council, Marie Skłodowska-Curie Actions and Research Infrastructures. Global Challenges and Industrial Competitiveness supports collaborative research and innovation projects within thematic clusters covering health, culture and inclusive society, civil security, digital technologies, industry and space, climate, energy and mobility, food, bioeconomy, natural resources, agriculture and environment. Innovative Europe focuses on breakthrough innovations, innovation ecosystems, entrepreneurship and the market uptake of new ideas through instruments such as the European Innovation Council, European Innovation Ecosystems and the European Institute of Innovation and Technology. In addition, Horizon Europe includes the horizontal component Widening Participation and Strengthening the European Research Area, which aims to reduce differences in research and innovation performance across Europe and support institutions from widening countries, including Croatia.

A strong research proposal begins with a well-developed project concept. The idea should be innovative, timely, clearly needed, and based on the expertise of the researcher or research team. It should address a relevant gap in the field, demonstrate how it builds on existing knowledge, and explain what new contribution the project will make. For this reason, a thorough and up-to-date literature review is an essential foundation of proposal development, as it helps position the research within the international scientific context and shows reviewers that the team understands the current state of the field. When developing the project concept, it is important to balance ambition with feasibility. Funding agencies often seek original and high-impact projects that go beyond the state of the art, but the proposed work must still be realistic in relation to the available expertise, partners, equipment, budget and time. The idea should also be aligned with the objectives and priorities of the specific funding call, since even a strong proposal is unlikely to succeed if it does not match what the funding agency is looking for. Researchers should therefore take time to develop several drafts, collect feedback from mentors, colleagues, peers and potential partners, and refine the concept step by step.

Once the research idea has been clearly defined, the proposal must present it in a structured, convincing and understandable way. Even strong ideas may fail if the objectives, work plan, budget,

impact and implementation strategy are not clearly explained. A successful proposal should respond directly to the objectives, expected outcomes, formatting rules and evaluation criteria defined in the call. It should avoid unnecessary material, respect page and word limits, and demonstrate how the planned research contributes to the priorities of the funding body. Key proposal sections usually include the abstract, introduction, methodology, work plan, risk assessment, budget, CVs and supporting documents. The methodology represents the core of the proposal, as it explains how the research questions will be answered. It should include clear objectives, preferably defined as SMART objectives, as well as a logical work plan with work packages, tasks, responsibilities, timelines, deliverables and milestones. Visual tools, such as diagrams, mind maps and Gantt charts, can help present the structure and interconnections between project activities in a clear and reviewer-friendly way. A strong proposal should also address potential implementation risks and provide mitigation measures, demonstrating that the research team has considered possible challenges and is prepared to manage them. The budget must be realistic, justified and aligned with the planned activities, including personnel, equipment, travel, materials, publications and indirect costs where applicable. The CVs of the principal investigator and team members should be tailored to the proposal and highlight relevant expertise, previous experience and capacity to carry out the project. The drafting process should also include several rounds of review and revision. After the initial internal review by the research team, feedback from colleagues, peers or external reviewers can help identify unclear sections, weaknesses, inconsistencies and areas for improvement. Critical feedback should be treated as a valuable part of proposal development, as it can significantly improve the clarity, quality and competitiveness of the final application.

The impact of a research project refers to the wider contribution that research makes to scientific progress, society and the economy. It includes the creation of new knowledge, improvements in policy and practice, development of innovations, support for public services, and broader benefits for individuals, organisations and communities. Since many research projects are supported through public funding, funding agencies increasingly expect researchers to clearly explain why their work matters and how it can generate value beyond the immediate research results. A well-developed impact section should therefore identify potential beneficiaries and explain how they may use or benefit from the project results. Impact should be described realistically, without overstating expected effects, and should include both academic impact and broader economic or societal impact. To present it convincingly, researchers should describe a clear pathway from project inputs and planned activities to outputs, outcomes and longer-term impacts. Inputs include funding, expertise, partnerships and infrastructure, while activities refer to the work carried out during the project. Outputs may include publications, policy recommendations, tools, datasets, public engagement activities or other tangible results. Outcomes describe the uptake or use of these results by target groups, while impacts refer to broader and longer-term changes in science, society, economy, policy or practice. A strong pathway to impact should also include dissemination, communication and exploitation measures, as well as stakeholder engagement. Researchers should explain who the target groups are, how project results will reach them, and why the consortium is well positioned to achieve the expected outcomes. It is also important to consider how impact will be measured and how project results may remain relevant and useful beyond the project duration.

AI tools can support different stages of proposal writing, particularly in organising ideas, summarising literature and policy documents, drafting initial text, improving clarity, checking grammar and style, and structuring proposal sections according to evaluation criteria. They can be especially useful for researchers who are not native English speakers. However, AI should be used only as a supporting tool, not as a replacement for scientific expertise, critical thinking or the judgement of the research team. AI-generated content may include factual errors, fabricated references or biased perspectives, which

means that all outputs must be carefully checked and contextualised. Core elements of the proposal, such as novelty, methodology, impact and strategic positioning, must remain human-led. Researchers should also avoid entering confidential or sensitive project information into open or unsecured AI platforms and should follow institutional, ethical and policy requirements related to transparency, authorship and responsible AI use.

Reviewer comments should be treated as an important source of learning, even when a proposal is not funded. Although most funding agencies do not allow applicants to respond to reviews, the feedback can help researchers identify weaknesses, clarify unclear sections and strengthen future applications. In cases where a formal response is allowed, the research team should address comments professionally and constructively, correct factual misunderstandings where necessary, and avoid dismissing reviewers' expertise or debating their value judgements.

Grant writing is a skill developed through practice, experience and continuous improvement. A successful proposal requires a strong research idea, a clear understanding of the funding landscape, well-defined objectives, a credible methodology, realistic budgeting, stakeholder engagement, risk mitigation and a convincing pathway to impact. By learning from previous submissions, reviewer feedback and best practices, researchers can improve the quality and competitiveness of their proposals.