

Presentations from previous winning projects under Twinning Calls

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Reinforcing the Scientific Excellence of Selcuk University in Engineered Surfaesc and Films for Emerging Technologies (EngSurf-Twin)

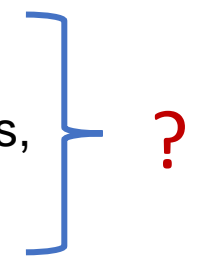
Participant No.	Participant organization name	Country
1 Coordinator	Selcuk University	TURKEY
2 Partner	AMBER-TCD: Advanced Materials and BioEngineering Research Centre / Trinity College Dublin	IRELAND
3 Partner	Fondazione Bruno Kessler (FBK)	ITALY

Previous Proposals;

Proposal; Strengthening of Scientific Excellence of the Advanced Technology Research and Application Center in Material Science (SEMST) [H2020-WIDESPREAD-05-2017-Twinning](#)

Excellence: The main aim of the project is to strengthen scientific and research capacity, narrow networking gaps and deficiencies of Selcuk University, Advanced Technology Research and Application Center (ILTEK), Turkey by creating a network with the high quality and leading institutions in the field of material science and technology.

To boost their scientific excellence and innovation capacity in the trans-disciplinary area of “*SEMST*”, the partners will implement a research and innovation strategy focused on the following complementary subtopics:

- 2D and emerging materials,
 - Synthesis and device fabrication to molecular design
 - Materials for (Information and communications technology) ICT and devices, medical technologies, sensors, industrial and sustainable materials
 - Biomaterials (natural and synthetics), nanofibers
- 

The outcome of the project will lead to;

Outcome	Benefits to ILTEK
Increased research excellence and enhanced the reputation	International visibility, integration of ILTEK in the ERA as a whole and contribution to regional economic and social development.
Improved attractiveness and networking channels of ILTEK	Increased competitiveness on materials science and biomaterials research to be established, this will be competed successfully for national, EU and internationally competitive research funding
Reinforce positive indicators	Future publications in peer reviewed journals, participation to the H2020 consortiums with the leading research organisation in EU, collaboration agreements with businesses, intellectual property, new innovative products or services will improve ILTEK academic status
Enhance the S&T capacity of ILTEK	By linking <u>AMBER, ITENE and ARTES</u> institutions is to stimulate the realization of the full research potential of ILTEK and to strengthen the capacities of their researchers to successfully participate in research activities at EU level and serve for growing demand of research in Turkey.
Raising research profile	Stepping up scientific excellence of ILTEK's researchers throughout trainings, schools, study visits and workshops in close collaboration with project partners. This will be increased publication in highly impacted journals, cited references, involvement of researchers to international activities and projects

Overall objectives

The overall aim of SEMST project is to boost the scientific excellence and technology-transfer capacity in material science and technology of ILTEK by creating a network with the high-quality Twinning partners: AMBER, ITENE and ARTES. The project address the main topics of the call, namely

General

- Strengthen the scientific research capacity of ILTEK by linking with leading international partner institutions AMBER, ITENE and ARTES in the fields of material science and technology
- Enhance the S&T capacity of ILTEK in material science and technology
- Raise the research profile of ILTEK as well as the research profile of its staff;
- Provide services and open access to the European academic and industrial communities.

Operational

- Reinforcement of scientific and technological human potential of ILTEK's staff.
- Promote the cross-fertilization, i.e., interaction between people not only from different institutions but also with expertise in different topics related with the scopes of the twinning
- Bring together groups of national and international research staff and world top experts, discussing advanced topics in ERA research strategies related to material science and technologies.
- Ensure the dissemination of project results to scientific, industry and investment communities, as well as to the public.
- Promote the exploitation of project results.

Functional

More specifically, within the selected priority areas, the research and innovation activities of SEMST will primarily focus on:

- Self assembly techniques to fabricate functional systems by design, e.g. nanoarrays for devices, transistors or blockcopolymer membranes.
- 2D and emerging materials are at the core of ever-growing research efforts due to the combination of their unique mechanical, optical, electrical and thermal properties. Because of their exclusive physical and chemical properties, 2D materials hold potential for breakthrough innovation in numerous technologically relevant areas: electronics, catalysis, membrane technology, sensing as well as energy storage and conversion (e.g. water splitting).
- Synthesis and fabrication area will be span the range of material generation strategies from device fabrication to molecular design.
- Materials for ICT will be focused on providing disruptive advances in science across new devices, magnetic functionality and novel materials for plasmonic systems.



Excellence:

The proposal embraces the spirit of the Twinning Work Programme. The objectives are clear, realistic and achievable, with partners from 4 countries supporting the research excellence and capability building within the materials science and technology fields in the Widening country. **However, the extensive range of activities proposed is not sufficiently justified, (the Call stipulates a well-focused S&T scope), and this leads to a lack of focus. This is a weakness of the proposal.**

The overall concept is promising with a focus on knowledge sharing. However it is weakened by the generic phraseology used in the description. The credibility of the range of joint activities on materials science is good and will promote a synergistic effect on the consortium partners, while also facilitating a multidisciplinary approach. The proposed methodology is supported by a sound **SWOT analysis** that gives credibility and structure to the proposal. **However the research topics and methodology are not sufficiently precisely defined.**

Impact:

The dissemination actions proposed are appropriate in terms of the planned publications in various peer-reviewed journals and other actions targeting both the scientific community, as well as the general public. Measures to communicate the project activities and its results to a wider audience post project completion are described in the proposal. However, the **industry involvement in the dissemination of the project results is not satisfactorily outlined. In addition, insufficient information is provided on the enhancement of the S&T relevant environment, the target market, potential end-users, and current and target positioning of the partners post project completion. Research data management, exploitation of results and IPR issues are poorly described**

Criterion 3 - Quality and efficiency of the implementation

Score: **3.00** (Threshold: 3/5.00 , Weight: -)

The following aspects will be taken into account:

Quality and effectiveness of the work plan, including extent to which the resources assigned to work packages are in line with their objectives and deliverables

Appropriateness of the management structures and procedures, including risk and innovation management

Complementarity of the participants and extent to which the consortium as a whole brings together the necessary expertise

Appropriateness of the allocation of tasks, ensuring that all participants have a valid role and adequate resources in the project to fulfil that role

The quality of the work plan is detailed at task level and is supported in a professional way by a well-balanced combination of complementary activities which, apart from the standard staff exchanges, conferences, summer courses, etc., includes an ambitious activity of networking with external third parties. The milestones and deliverables are adequately defined to permit effective tracking of the project.

The planned project meetings and reporting schedule is adequate. The management structure is well described, simple and clear. The project coordinator has wide experience in the management of EU projects and is well supported by the other partners, all of whom bring extensive experience in project management structure and procedures. However, the risk management plan is not sufficiently well-developed and the risk mitigation measures are inadequately outlined. The discrepancy between the assignment of the leadership role in WP5 task description versus that outlined in the WP table introduces ambiguity into the project management structure.

The complementarity between the four partners is evident in terms of their background, skills and competences in their S&T specific fields of endeavour. However, the proposal is undermined by the presence of a partner that does not have appropriate excellence in its designed area of responsibility within the project, which reduces the overall quality of the proposal.

The project management budget (WP1) is significantly over-estimated given the scope and definition of the planned activities, and not sufficiently justified. The appropriateness of the distribution of tasks and resources between the partners is not clearly demonstrated, especially in relation to the allocation of less than 10% of the work load to one member of the consortium. Furthermore, in the section Under Other Direct Costs, the provision of "rental of missing equipment" is insufficiently justified.

To enhance Selcuk University research capacity and improve the academic staff's research profile in the trans-disciplinary area of "SUMS", the partners will implement a strategy defined in 4 pillars that provide a base to impact the research excellence and innovation at the University. These pillars are:

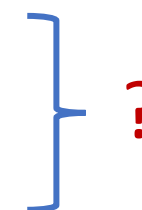
-Science & Technology Pillar: This will develop international leading research in material science and technologies to create a versatile platform for onward development and innovation. These areas build on existing research thrusts.

- 2D and other emerging materials including transition metal dichalcogenide (TMD) heterostructures and their applications in catalysis, sensing, energy recovery and conversion including solar energy
- Biomaterials and nanofibers for active & intelligent, packaging applications

- Education Pillar: This will provide measures to promoting sustainable capacity-building activities for future research excellence particularly at PhD level. These measures will establish opportunities for exchange of expertise and best practices between the partners. The measures will support improvement in education programmes, development of entrepreneurship training and other training to build the professional capacity of students and associated staff. This will ensure Selcuk University's regional leadership as a leading academic institute and provide a platform for students or young researchers to undergo a well-rounded PhD education

- Enhancing industry engagement pillar: An active and proactive programme to promoting the exchange of know-how between industry and the University will be initiated. To do this we will closely work with our academic partners that have well-established university-industry collaborations with high-tech industry and locally implement best practices to improve our industry engagement and promote technology innovation in material science and technology,

- Society pillar: The objective of this pillar is to raise awareness of technological, scientific and innovation issues through the wider society. This will be by developing a range of dissemination methods through public lectures, websites, social media, school outreach and entertainment channels. We will also promote organisational practices to involve SMEs in aspects of R&D capacity improvement, standardisation, technology transfer and their competitiveness.



Excellence-ESRs

The outlined objectives are realistic and clearly described in line with the work programme, with a focus on enhancing scientific and technological capacity of research institution from Widening country in the area of 2D and nanostructured materials. The measurable quantitative parameters of outlined objectives are not clearly demonstrated. Therefore it would be difficult to verify if the objectives are achieved at the end of the Project.

The research and innovation activities are sufficiently detailed to ensure that they will adequately contribute to achieving the goals of the project. The potential increased research performance of promising research institution from the Widening country is clearly emphasised.

The proposed methodology for twinning activities is credible, well structured, appropriate and is supported by a well elaborated SWOT analysis. All topics planned in the proposal are connected to the described operational and functional objectives, and in line with the trends the scientific research. The concept is supported by different scientific activities (staff, exchange, workshops, training, multidisciplinary collaboration). However, the area of the planned research is too broad, for example TMDs, graphene, 2D-polymers, biofunctionalisation.

The quality of the coordinator and partners is sound. The pre-existing synergies and networking interactions between partners are well presented, but these are not completely in line with the proposed scientific objectives. The links to the EU and international R&I activities and to the future industrial collaborations are not adequately demonstrated. Interactions with relevant stakeholders and decision makers to promote the project are outlined just in a general manner and not in details.

Impact

The impact on the development of new skills, S&T capacity, reputation and attractiveness of institution from Widening country in the area of material science is credible. The expected impact is convincingly described and in a good corroboration with work programme. The increased attractiveness and the enhancement of the research profile of the widening institution is clearly presented and very convincing. The contribution of the project to the regional R&D capacity is relevant, but the improvement of the participation in national, EU and international competitive research funding is not properly substantiated and concrete. The proposal does not acknowledge enough possible barriers and obstacles that might limit the impact.

The overall dissemination scheme is coherent and pertinent. The dissemination activities towards the scientific community in general are well planned and appropriate (seminars, workshops, publications, etc.), although the specific target groups for dissemination of the project results are not well identified in details, especially in relation to the scale of the objectives. The exploitation of the project's results is not appropriately described. The insufficient focus on "industry engagement pillar" makes the project less attractive to potential industrial partners.

The communication strategy to engage the public is adequately presented. The proposed communication activities that include outreach to schools, industry and the public are appropriate. The quality of the proposed measures to communicate the project activities to different target audiences has been summarised, but the role of the participants in carrying out the communication actions is not sufficiently specified in the proposal.

Decision: Not to submit projects anymore

Thanks, TUBITAK EU Framework Programme Department

Reinforcing the Scientific Excellence of Selcuk University in Engineered Surfaesc and Films for Emerging Technologies H2020-WIDESPREAD-2020-5

etc. are critical in improving materials responses in many disciplines including material chemistry, energy, catalysis, electronics including biological environments and medicine. Considering the relationships between functional properties and engineering technologies, engineered nanostructure assemblies on the surfaces have been attracted much research attention due to their unique chemical and functional characteristics collectively. Conversely, many functional properties can be the core of a specific technology. A clear distinction between the set of applications, functional properties, and engineering technologies must be made in order to establish a sound framework for the scientific development of new applications and/or processes.

The EngSurf-Twing project aims to overcome some of the main challenges in engineered surfaces and films with adoption of functionalised nanostructured materials, functional metal oxide films and surfaces for technological applications and practices, especially concerning the engineered nano-assemblies, metal oxide nanostructure arrays, for advanced chemical sensors' design and application. The excellence in the field will be achieved by embedding the project coordinator Selcuk University in a network of excellence, which will be provided by the existing strong twinning partners - the Advanced Materials and BioEngineering Research Centre at the Trinity College of Dublin (AMBER) from Ireland and Fondazione Bruno Kessler (FBK) from Italy.

The research team of the **Faculty of Science at Selcuk University** consists of 80 researchers (including 40 PhD students) in interdisciplinary research areas from the Chemistry, Physics, Biochemistry and Biotechnology Departments. Its activities are mainly focused on material science and technologies, smart surfaces, interface chemistry, BCP technology, energy, sensors development (NPs, QDs, biosensors etc), graphene chemistry & applications, magnetic NPs including synthesis, patterning, functionalization and, directed self-assembly of nanostructures for CMOS Technologies₁. **The interdisciplinary nature of surface engineering together with the complementary expertise from Physical Chemistry, Physics, Biochemistry and Biotechnology will create an internationally competitive research team that will form a fertile and stimulation environment for creative science, technological innovation and relevant applications.**

The overarching aim of the project is to enhance Selcuk University's scientific excellence and innovation capacity in engineered surfaces and films for emerging technologies to the European level, by working with leading European institutes: AMBER, an international organization conducting research in materials science through collaboration with partners in industry and FBK, an applied research center that combines scientific excellence with the ability to transfer the results to the business world and operates materials and interfaces, nano-devices and microsystems, nano-technologies, biotech, integrated systems, renewable energy and environmental monitoring.

Some message?

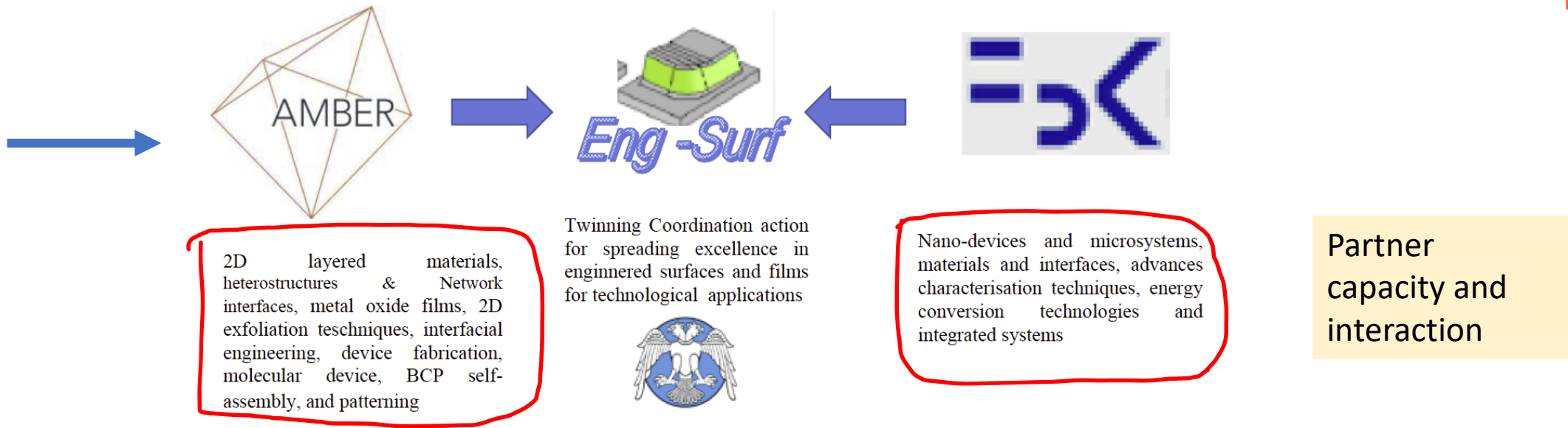


Figure 1.1 The action logic, showing how the project channels knowledge from the internationally leading partners towards strengthening of key areas for strengthening R&D capacity of SU.

To enhance Selcuk University's research capacity and to improve the academic staff's research profile in the trans-disciplinary area of EngSurf-Twin, the partners will implement a strategy defined in 4 pillars providing a base to enhance the research excellence and innovation at the SU.

- **Science & Technology pillar** will develop international leading research in surface science and technologies to create a versatile platform for onward development and innovation. These measures will establish opportunities for long-term science and innovation strategy provided by twinning partners to SU (WP2) and the areas building on existing research thrusts (Engineered surfaces and films for emerging technologies, Functionalised nanostructured materials for device fabrication, Functional metal oxide films and surfaces and Engineered surfaces for sensing).
- **Research & Education pillar** will provide measures to enhance the SU staff's research expertise, promoting scientific excellence and sustainable capacity-building activities for future research excellence particularly at PhD level. These measures will be established through networking, mentoring and jointly writing papers, research management and administration (WP3), increasing the soft skills of the ESR's via increasing project proposal development and project management skills (WP2). This will ensure SU's regional leadership as a

leading academic institute and provide a platform for ESKs to undergo a well rounded PhD education.

- **Enhancing academy industry engagement pillar** will provide an active and proactive program to promoting the exchange of know-how between industry and the University. In order to do so, the leading partners have well-established university-industry collaborations with high-tech industry and will locally implement the best practices to improve the SU's industry engagement and will help to promote technology innovation in engineered surfaces and thin films for practical applications for the industry (WP4).
- **Society pillar** will help to stimulate the visibility, reputation and dissemination capacity of SU. This will be developed through public lectures, websites, social media, public outreach and entertainment channels. Networking activities will promote through extensive visits to stakeholders, participation to industry fairs, innovation management training workshop (WP4).

The overall aim of the Twinning project will be then achieved through following twinning activities:

- **Staff exchange** (min 2 weeks and max 2 months) activities between SU and twinning partners,
- **Experts visits** (at least 1 week) from twinning partners,
- **Short-term on-site trainings** (at least 2 week) in the twinning partners,
- **Workshops organisation**- 3 workshops on following topics will be organised, New Frontiers in Engineered Surfaces and Thin Films: Approaches & Application; Opportunities for Innovative Materials, Surfaces and Nanosystems for Industrial applications and Nanoarray Chemical Sensor Design, and Fabrication Methods.
- **International/Advanced schools organisation** – 3 schools will be organized together with twinning partners,
- **Innovation management training activities**- 2 activity will be organized
- **Dissemination and outreach activities** to academics, industry, SMEs and public.
- **Joint EU and international projects preparation.**

→
Summary;
All activities

Table 1.1. Specific objectives of the EngSurf-Twin connected with respective Twinning activities and their KPIs

Objectives	Description
SO1	<p><u>Strengthen the institutional, scientific and technological research capacity</u> of SU on engineered surfaces and films through short-term and long-term staff visits, extensive on-site training (WP2), workshops, summer schools and seminars (WP2, WP3) by linking with leading partner institutions AMBER and FBK:</p> <ul style="list-style-type: none"> • 12 expert visits from the twinning partners • 3 joint summer schools with 75 participants • 4 on-site trainings • 12 virtual seminars / trainings • 3 workshops with 75 participants • 20 ESRs visits to twinning partners • 10 research staff visits to twinning partners • 8 co-supervised PhD students
SO2	<p><u>Stimulate SU staff's research profile to promote scientific excellence through networking activities, mentoring and strategy development (WP2), jointly writing papers on peer reviewed journals (WP3) and increasing the soft skills of the ESR's via increasing project proposal development and project managements skills (WP2, WP3) and integrate of SU's research staffs to networks of excellence within Europe:</u></p> <ul style="list-style-type: none"> • 10 conferences attended • 6 participation to industry events • 2 special sessions organised • 8 joint papers submitted in high impact journals • 8 national proposals submitted • 6 H2020 / HE proposal submitted • 30% increase of h-index of the research team • 5 R&D projects submitted with industry
SO3	<p><u>Increase the visibility, reputation and dissemination capacity</u> of SU by making it attractive regional hub of attraction through international conference/workshop organisation attendances (WP3), public outreach and awareness meetings (WP5), and smart specialised University (WP4):</p> <ul style="list-style-type: none"> • 4 international conferences attended as keynote or oral presenter • >1000 website visits • 3 press releases about EngSurf-Twin • 1 final conference organised • 20 participations to school, workshops, conferences from widening countries

Table 1.2: Proposal objectives relative to call

WIDESPREAD-05-2020 Challenge	How does EngSurf-Twin address it
Project will address networking gaps and deficiencies between the research institutions of the Widening countries and internationally leading counterparts at EU level.	Dedicated work packages, WP2 and WP3, are foreseen for this purpose by creating a set of activities related to the scientific strategy and network between SU and advanced partners, AMBER and FBK. The knowledge transfer and capacity building will be provided by expert visits, staff exchange, summer schools, mentoring activities, workshops, conferences, on-site/on premise trainings for ESRs as well as dissemination activities will address networking gaps and deficiencies between leading institutions and widening institutions.
Project will enhance the scientific and technological capacity of the linked institutions with a principal focus on the university or research organization from the Widening Country	In terms of boosting scientific and technological capacity of widening institution, in all WPs, a comprehensive set of activities are planned such as training, workshops, staff exchanges, peer reviewed publications, dissemination project results, including project management will be presented. In addition, engagement mentors' activities will also be performed from the project's advisory board. Strengthening SU's S&T capacity, how to adapt and diffuse KETs, and transformation and compete successfully for EU competitive research funding. Particular attention will be devoted to participation to H2020 / HE consortia, FET (Flagship, Open, Proactive) OPEN programmes
Project will help raise the research profile of the institution from the Widening country as well as the research profile of its staff	As outlined in WP2 and WP3, the project will help to raise the research profile of SU via primarily expert visits, joint advanced schools, workshops, publication joint papers in peer reviewed journals, invited speakers at international conferences, intellectual property management. Raising the research profile of the SU, will result in enhancing the reputation and integrating to H2020 consortiums, proposal preparations, publication in highly impacted journals as well as building a well-designed and coherent plan for knowledge transfer and exchange of best practices.
A dedicated focus towards promoting the involvement of early stage researchers (ESR) in the coordinating institution from the widening country is expected	WP2 and WP3 has been designed for training and co-supervision of PhD students from the leading institutions. The training is specifically planned to increase the soft skills of ESRs on proposal writing, development and project management bootcamps, innovation management, patent application, entrepreneurship, improvements in collaboration skills with industry and IPR. In WP2 and WP3, the priority will be given for participation of ESRs to at least 50%. Here, as well, EngSurf-Twin has plan to safeguards the representation of ESRs throughout the project for all activities provided by AMBER and FBK
Project will enhance experience of	In Project management, a special task in WP2 is designed for specific activities, basic management, skills-teamwork, managing people, project planning, prioritizing, building trust, internal communications, financial

Read the call

Objectives

How does
address, with
WP

Strategic impact
Your proposal
Long term with
measurable
indicators

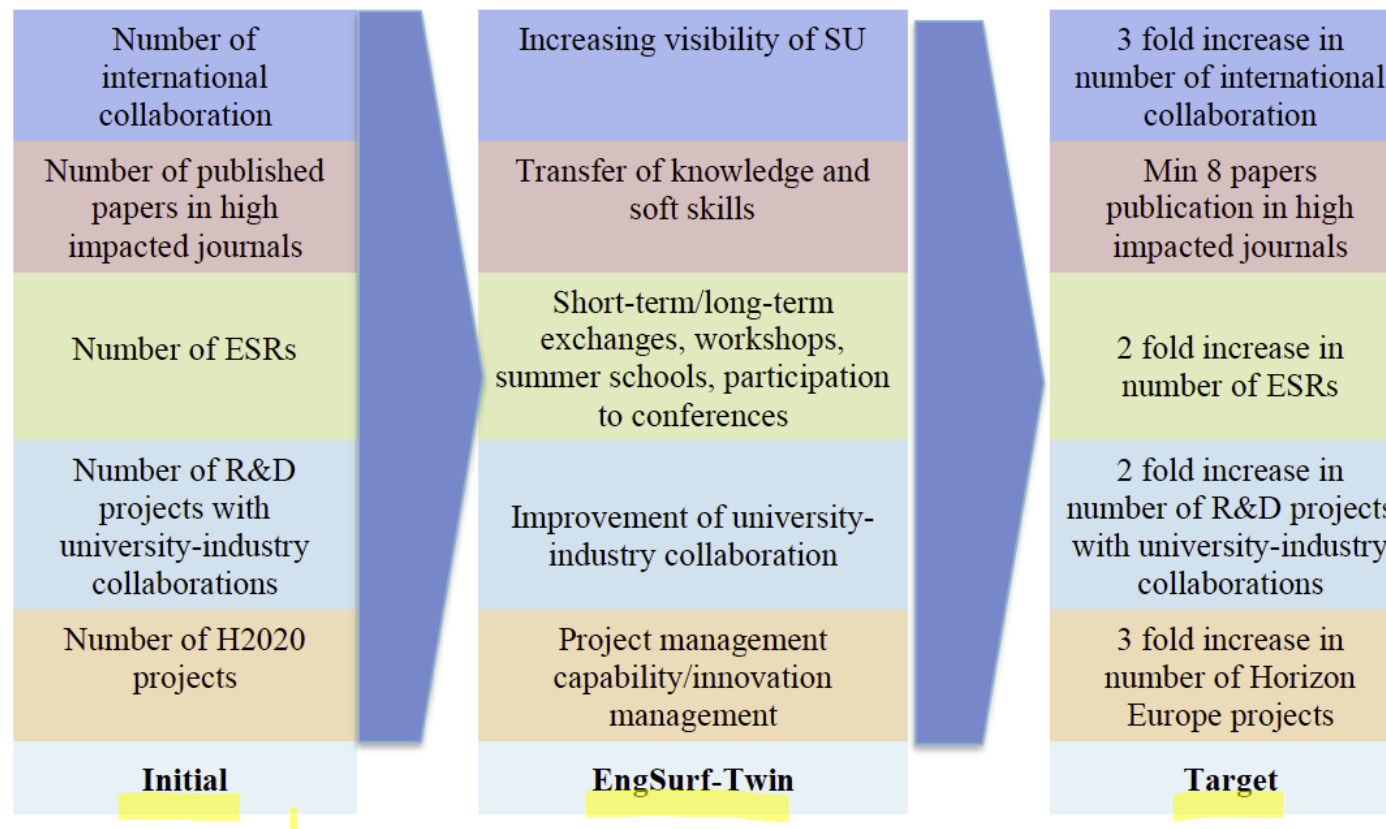


Figure 1.2. Project concept supported by the activities

1.3.3. Scientific strategy

A great number of applications are based on engineered surfaces. From this point, SU is exploring to tackle current and future challenges for technological applications based on engineered surfaces and films in an effort to address the challenges imposed by the Turkish Vision 2023, Europe 2020 strategy:

- Dimension: Engineered surfaces and films for technological applications.
- Depth: Exploration and exploitation of the microfabrication and nanolithography techniques for micro/nanostructured devices based on engineered surfaces and films, that are able to use for catalysis, sensing, electronics, energy harvesting applications.

CONSOLIDATING THE EXPERTISE OF NECMETTİN ERBAKAN UNIVERSITY TOWARDS THE DEVELOPMENT OF BIOFIBERS FOR WOUND HEALING AND TISSUE REGENERATION

“REGENEU”

REGENEU_01/10/2022 (36 months, 1,45M €)



Participant No.	Participant Organization Name	Short Name	Country
1 (Coord)	NECMETTIN ERBAKAN UNIVERSITY	NEU	TÜRKİYE
2	THE PROVOST, FELLOWS, FOUNDATION SCHOLARS & THE OTHER MEMBERS OF BOARD, OF THE COLLEGE OF THE HOLY & UNDIVIDED TRINITY OF QUEEN ELIZABETH NEAR DUBLIN	TCD	IRELAND
3	FRAUNHOFER GESELLSCHAFT ZUR FÖRDERUNG DER ANGEWANDTEN FORSCHUNG EV	Fraunhofer	GERMANY
4	UNIVERSITÄTSKLINIKUM WÜRZBURG - KLINIKUM DER BAYERISCHEN JULIUS-MAXIMILIANS-UNIVERSITÄT	UKW	GERMANY
5	ROYAL COLLEGE OF SURGEONS IN IRELAND	RCSI	IRELAND

Excellence

The objectives of the proposal are clear and pertinent to the work programme.

The project contributes to strengthening the field of biomaterials research in the Widening country, although alignment with relevant regional strategies is unclear. Besides, it is not fully demonstrated how the project specifically raises the profile of the coordinating institution.

The concept is generally sound, although some of the main ideas and assumptions – for example, multidisciplinary - have not been fully explained. Furthermore, there is a lack of a convincing rationale in taking a broad approach in an internationally highly competitive field.

The methodology is generic and does not satisfactorily show how scientific capability and research performance of the coordinator's staff and young researchers will be enhanced. A further shortcoming is the lack of connection between thematic and conceptual strengths and the activities to be delivered through the methodology.

The proposed coordination measures are relevant and enhanced by evidence on how they will contribute to key outputs, such as developing early career researchers and enhancing the international profile of the institution. One shortcoming, however, is the lack of clarity on how these measures will address key weaknesses in the research infrastructure of the Widening country, such as a lack of skilled staff. The presentation of some of the dissemination measures, such as the workshops and summer schools, is too generic.

The outputs of the project are satisfactorily defined and their contribution to the work programme demonstrated in terms of enhancing the international visibility of the coordinator and developing a strong scientific network. However, there is a lack of evidence and KPIs on how impacts will be measured in terms of increasing research excellence and enhancing networking channels of the coordinating institution.

Both the exploitation and dissemination of project results in the proposal are satisfactory. The exploitation and dissemination of project results is enhanced by an appreciation of some relevant IPR issues. However, issues related to IPR created by external parties and collaborations have not been fully explored.

The presentation of a set of measures, such as publication and attending and organising relevant events, support the proposal in a positive way.

The approach to communicating to different audiences, such as the public and industry, is adequate, although the proposal is weakened by the generic nature of the proposed tools to be used.

BIOBOOST-Previous, below threshold, 9 point

An adequate work plan – comprising relevant work packages (WPs) – is presented. Strengths include a comprehensive approach to project management and the support activities outlined in WP2 covering training for researchers and support for early stage researcher (ESRs). However, the work plan is weakened by the generic treatment of some of the activities, such as industrial collaboration and business planning. The role of the BIOBOOST office in following the project activities is also unclear. The allocation of resources to the individual WPs is justified and commensurate with the identifiable deliverables and objectives of the project. However, given the broad research field and large number of tasks, there is some potential for overlap and inefficient allocation of resources, such as with the support for ESRs across the WPs.

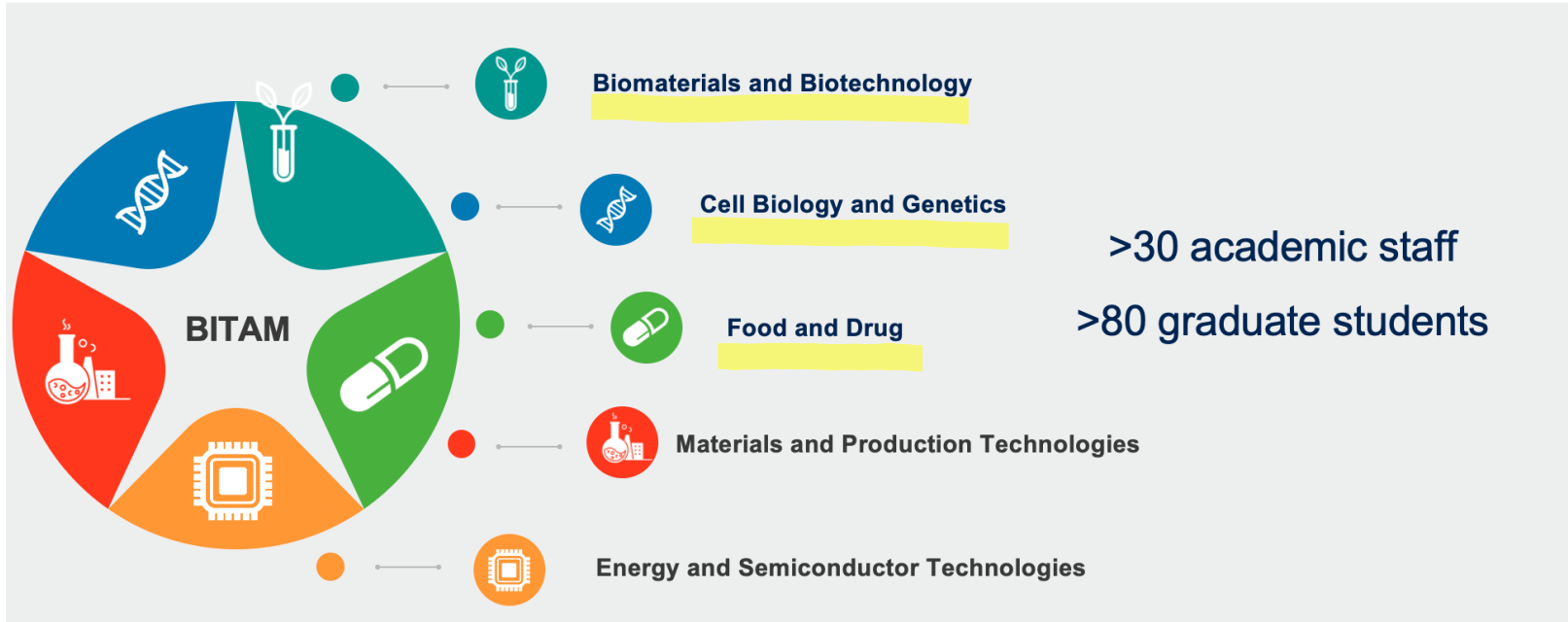
The presentation of the management structures and procedures is adequate and the decision-making process within the consortium is satisfactory. The possible overlap between some of the roles and responsibilities, such as the Project coordinator and Project manager, however, is a minor shortcoming.

Risk management has been satisfactorily considered with relevant mitigation measures provided in the proposal.

Innovation management is adequately addressed in the proposal.

A strong partnership exists in the proposal covering the necessary scientific, research and industrial skills and needed experience for the Twinning project. This is enhanced by the effective contributions made by the participants from the "Advanced" countries. There is a lack of effective clinical and industrial engagement. The allocation of tasks and overall commitment of resources to the participants is justified.

The balance of tasks and funding between the "Advanced" and Widening partners is acceptable. The presentation of information on some other direct costs is adequate and justified.



- ✓ To improve scientific excellence and resources of NEU by transferring knowledge about the state of the art in biofibers research and development for wound healing and tissue regeneration.
- ✓ To improve the talents on research administrative skills and networking capacity of NEU project office staff and REGENEU team.
- ✓ To enhance the visibility, research profile and reputation of the NEU and consortium partners.
- ✓ To open a door to produce innovative biomaterials for medical applications and tissue regeneration in the EU Biomaterials research area by creative approaches.

BIOBOOST-Abstract

Biomaterials comprise a representative fraction of the products used including biomedical devices such as biosensors, blood circulation tubes, implantable materials, bone substitutes, tendons, heart valves, lenses, teeth, devices in the form of films, subdermal implants, particles, artificial organs. Biomaterials sector has not yet been in a good position among the high-value chains in Turkey. It is also the fact that lack of an R&D activities and coordination of academy-industry are the main barriers to develop high technology readiness level and biomaterial products and high value research in Biomaterials field in Turkey.

The proposal-Twinning Coordination BIOBOOST aims to meet the requirements of the WIDESPREAD-05-2020: Twinning Call. In this project the foremost objective is to increase the scientific capabilities and excellence of Necmettin Erbakan University (NEU, Konya-Turkey) by transferring knowledge about the state of art in BioMaterials from professional institutes: The Fraunhofer Translational Centre Regenerative Therapies TLC-RT (Germany) and Advanced Materials BioEngineering Research-AMBER of University of Dublin (Ireland). NEU will import know how about its weak research area Biomaterials, Biofibers for Advanced Therapy Medicinal Products (ATMPs). The sharing of excellence, knowledge and expertise by EU institutes will ensure the increment in capabilities and capacity of widening research institute NEU. NEU will import know how about its weak research area especially on development and production of innovative and GMP level biomaterials and biological scaffolds. As the project completed, NEU will be focused on development of at least one biomaterial product for medical applications to be commercialized. Since the project will be carried out successfully, NEU's research capacity, the number of networked talented researchers and projects will be improved. So, the competitiveness, growth and jobs across Konya, Turkey and Europe will be enhanced.

REGENEU Abstract Example

European Biomaterials Market represents a market of 7 € billion and the global Biomaterials market is five times the European market.

Biomaterials sector has not yet been in a good position among the high-value chains in Turkey. Turkey imports biomedical devices, instruments and materials, especially Advanced Therapy and Medicinal Products (ATMPs) about 85%. In Turkey, few R&D activities and limited coordination of academy-industry are the main barriers to develop competitive biomaterial products and high value research in biomaterials field in Turkey. Necmettin Erbakan University (NEU) is a young University in Konya-Turkey with well-equipped Faculty of Medicine, Faculty of Dentistry, Institute of Science and the dedicated research center, Science and Technology Research and Application Centre, brings together the scientists researching on medicine, material, energy, biomaterial sciences and focusing on creative answers to today's scientific challenges. NEU has weakness on developing functional biofibers for medicinal applications, specifically to be applied in wound healing and tissue regeneration. [REDACTED]S

The proposal REGENEU aims to meet the requirements of the HORIZON-WIDERA-2021-ACCESS-03-01: Twinning Call. The main focus of this project is to increase the scientific capabilities and excellence of NEU in the field of biofiber research and development for translational application.

This target is supported by European partners Fraunhofer (Germany), UKW (Germany), TCD (Ireland) and RCSI (Ireland). NEU needs to transfer knowledge about its weak side, on the development and production of innovative and GMP conform functionalized biofibers for wound healing.

develop competitive biomaterial products and high value research in the biomaterials field in Turkey. Turkey's strategic goal is to reach the competence to meet the medical sector's needs with 30% domestic production in 2023³. **The achievements of REGENEU will contribute to the competence of biomedical sector in Turkey beyond the 2023 goals.**

When the IDF Diabetes Atlas 2021 report is examined, the number of adults with **diabetes in Turkey** is stated as 9.02 million people in 2021, while this number will reach to 10.82 million people in 2030⁴. The **diabetic wound is one of the common chronic obstacles of diabetes**, affecting quality of life of patients. Today, 18% of people with diabetes have a chronic wound which translates into at least 6 million people in Europe alone. Chronic non-healing wounds constitute clinical, social and economic burdens worldwide. The management of wounds has a significant economic impact on health care. Current surgical procedures show that wound healing in complex soft tissue defects possess major challenges to clinicians and researchers. Regeneration of soft tissues in reconstructive surgeries significantly lags behind the hard tissue. Development of **advanced biomaterials for enhanced wound healing and tissue regeneration** will contribute to meet the need locally in Turkey and in Europe.

Bio-fibers are smart tools to deliver an extensive range of functional proteins or antimicrobial agents to enhance wound healing. Electrospinning, popular technology for fiber formation is widely used for many applications due to its simplicity, efficacy and environmentally friendliness. Electrospun fibers were extensively investigated to understand the influence of material towards manipulating stem cells based on regenerative medicine⁵. Natural polymers used in electrospun technologies are cheap, reliable, strong, easy to process and surface modifiable⁵. **Necmettin Erbakan University-BITAM (Science and Technology Research Center)** (NEU, (Coordinator)) has well-equipped infrastructure and scientists for biomaterial research and development, however, **needs to improve its excellence capacity and resources in the development of functional biofiber products for medicinal applications**, specifically to be applied in wound healing (diabetic wounds) and tissue regeneration. **So, REGENEU will provide solutions for the way of national production of medicinal biofiber materials long term. This will be established by NEU-industry networking capability through the project. Economic income by national production will contribute to the welfare of Turkey and this will be the gain for EU also.**

The proposed project aims to increase the scientific capabilities and excellence of NEU, an institute from widening country, in the field of **biofiber research and development for translational application**, thereby meeting the requirements of the Twinning Call 'HORIZON-WIDERA-2021-ACCESS-03-01'. This will be achieved through the support of the involved top class leading EU partners the AMBER of Research Centre (through its partner institutes Trinity College Dublin and the Royal College of Surgeons) University of Dublin (Ireland), TLC-RT (Germany), and UKW (Germany). **The project will increase the scientific excellence, capacity and resources of NEU in the field of innovative biofiber materials for wound healing and lead to further original, innovative national and international cooperation enabling to close the research and innovation gap in Turkey and EU.** The added value of networking in relation to the challenge will be achieved through a close collaboration between the partners, which will bring together researchers working **in multidisciplinary fields** such as **synthetic chemistry, biochemistry, biotechnology, molecular biology and medicine**, to enable cross-fertilization between research areas, knowledge transfer and technology transfer between partners. The sharing of excellence, knowledge and

The **main goal** of REGENEU is to enhance scientific excellence of NEU on research and development of innovative biofiber materials **beyond the state of art for the application in enhanced wound healing and tissue regeneration applications**. Equipped with these skills, NEU will mediate transfer of technology to industry in the biomaterials sector in Turkey and in the competitive research ecosystem in Europe, in the future. The goal will be achieved through collaboration with highly qualified partners. The consortium will activate their already existing industry partners for realization of future product for commercialization.

The **specific objectives of the REGENEU Twinning project to be implemented in parallel are:**

1. To improve scientific excellence and resources of NEU by **transferring knowledge about the state of the art in biofibers research and development for wound healing and tissue regeneration, GMP level production of biofiber, verification of biofiber activity in 3D wound models**.

This will involve professional institutes, to include Advanced Materials BioEngineering Research-AMBER (Ireland), The Fraunhofer Translational Centre Regenerative Therapies TLC-RT (Germany), and the Department of Tissue Engineering and Regenerative Medicine, University Hospital Würzburg, UKW (Germany). Researchers, to include Early-Stage Researchers (ESRs) and PhD students, will be **trained to meet the S&T capacity needs** with highly dedicated and qualified researchers considering **gender balance**.

The research that will be conducted beyond the state of art by NEU will target the development of innovative functional (antibacterial) biofiber material for enhanced wound healing and tissue regeneration. Electrospinning technology will be adapted to develop the biofibers **by learning how to optimize manufacturing and functionalization of biofibers using composites** of PHB, PCL, collagen with antimicrobial peptides such as LL-37. PHB is a green, biocompatible, FDA approved, biopolymer that can be produced by

Evaluation Summary Report

Evaluation Result

Total score: 14.00 (Threshold: 10)

Criterion 1 - Excellence

Score: **5.00** (Threshold: 3/5.00 , Weight: -)

The following aspects will be taken into account, to the extent that the proposed work corresponds to the description in the work programme:

- Clarity and pertinence of the project's objectives.
- Quality of the proposed coordination and/or support measures including soundness of methodology.

The long-term vision of the proposal is excellently justified with regards to both the context of the widening coordinator's country, its dependency on biomaterials' imports and its limited research and development activities in this dynamic area. The scientific strategy is very clearly outlined and the biomedical thematic is very well justified with regard to human capital, links to other faculties, and needs in the medical sector, and is in line with national strategy. The objectives are excellently formulated with appropriate measurable indicators. They are pertinent to the work programme and aim to improve the scientific and technical excellence of the coordinating institution by transferring knowledge from three highly skilled professional institutions in the area of biofibers based materials for medical applications. Plans to also demonstrate research through prototyping will raise awareness and give further visibility to the research and attract professional/industrial interest. The proposal includes a comprehensive and complementary set of activities in support of the twinning action as onsite training; summer school; workshop; leveraging of staff competencies; publications and organization of a final congress. Relevant attention is paid to gender equality objectives with planned dedicated research management training for women scientists. The proposal also appropriately aims to improve research administrative skills and networking capacities, visibility, research profile and the reputation of the coordinating institution.

The concept and methodology are very clearly described and soundly elaborated around a pertinent range of complementary actions that are well-articulated, to open both new research lines and exchanges of knowledge and staff. Potential barriers to the methodology are identified and actions to mitigate these barriers are coherently discussed. However, interaction with standardization organizations has not been outlined which is a minor shortcoming. The choice and implementation of open science practices are appropriately considered for the targeted

Criterion 2 - Impact

Score: **4.50** (Threshold: 3/5.00 , Weight: -)

The following aspects will be taken into account, to the extent that the proposed work corresponds to the description in the work programme:

- **Credibility of the pathways to achieve the expected outcomes and impacts specified in the work programme, and the likely scale and significance of the contributions from the project.**
- **Suitability and quality of the measures to maximise expected outcomes and impacts, as set out in the dissemination and exploitation plan, including communication activities.**

The proposal addresses very well the outcomes specified in the WP topic over the medium term regarding the raising up of research excellence, international networking and scientific reputation. The potential of the proposal to deliver impact is very promising and is convincingly presented in both qualitative and quantitative terms. Relevant indicators and metrics, with baseline values, were clearly stated with appropriate KPIs. The proposed project effectively will improve research management and administrative skills, the impacts are of a very relevant scale and the pathways to achieve them are realistic. Creativity, innovation building, and economic impact are visible through the prototyping licensing plan. The expected impacts, over the longer term, are very well specified in the respective destinations in the work programme with relevant indicators such as investments, patent application, a business plan, publications and exchanges. It is particularly convincing that the proposal gives appropriate numbers of women that will be involved in the dedicated activities. The proposal illustrates the benefits of increased numbers of international students and of local students' national and international mobility, however, it has not specified the exact amount of students this will involve. This is a minor shortcoming. Potential barriers affecting outcomes are briefly but appropriately identified.

The dissemination and project communication plans are proportionate to the scale of the project. Communication measures will be appropriately adapted to the various audiences: scientific, policymakers, consortia and end-users. The building of new joint competitive international initiatives to sustain the proposal's activities after the end of the project, is appropriately considered particularly with business. However, a clear timeline for increasing the h-index is not sufficiently supported. This is a minor shortcoming. The exploitation plan of the developed fiber-based biomaterials, knowledge and innovation management actions, including intellectual properties rights protection, are briefly but appropriately described.

Criterion 3 - Quality and efficiency of the implementation

Score: **4.50** (Threshold: 3/5.00 , Weight: -)

The following aspects will be taken into account, to the extent that the proposed work corresponds to the description in the work programme:

- **Quality and effectiveness of the work plan, assessment of risks, and appropriateness of the effort assigned to work packages, and the resources overall.**
- **Capacity and role of each participant, and extent to which the consortium as a whole brings together the necessary expertise.**

The work plan is coherently structured, logical and effective for project implementation with comprehensively described work packages. It includes a very pertinent work package dedicated to sustaining the proposal's activities and securing the targeted objectives. The Gantt chart gives a very clear picture of all work packages, tasks duration and interrelations which is credible. The tasks and deliverables are very well detailed and meaningful. In particular, it is very positive that the proposal determines tasks and deliverables for the "Gender equality plan", "Management plan for data, IPR and innovation" and "Sustainability report". However, the milestone dedicated to scientific achievement is inadequately described to understand how the smooth progress of the targeted work will be ensured. This is a minor shortcoming. Overall critical risks are properly identified and adequate mitigation measures are proposed. Overall, the resources assigned to work packages are coherent with their workload and sufficient to enable each partner to fulfil its role. However, resources and cost distribution related to laboratory research activities are difficult to differentiate as part of the total of person-months in the respective work packages, which is a minor shortcoming.

The participants are very well balanced in terms of their expertise and complementarity. The capacity and interdisciplinarity of the participants are very well documented. The consortium matches very well the project's objectives. The project management structure is clear, and an appropriate advisory board will be supported. The consortium highlights some examples of open science practices in their publications. Each partner has a valid role in the proposal. They all have access to critical infrastructures to implement the proposal's work plan.

- Read the Call
- Guideline, Explanation in the form
- Make sure, **Clear**, **logical** and **simple** for evaluator
- start with a statement of what the project will do and include the **goal** and **key objectives**
- **Concept**, **Schema/diagram for concept**



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