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Project Acronym: [BioTrib]

Project title: [Advanced Research Training for the Biotribology of Natural and Artificial Joints in the 21st Century]

Final Conference

Deliverable D2.5

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Project coordinator name	Dr Gregory de Boer
Project coordinator organisation name	UNIVLEEDS
Report prepared by	Prof Rob Hewson Dr Gregory de Boer Review by members of the Supervisory Board

Dissemination Level of Report

PU	Public	X
PP	Restricted to other program participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

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Version	Date	Comment	Modifications made by
D2.5.1	28-11-2024	First Draft circulated to Coordinator to Review	Dr Gregory de Boer
D2.5.2	28-11-24	Review and Amendment	Prof Robert Hewson
D2.5.3	28-11-24	Second Draft circulated to SB	
D2.5	30-12-24	Submitted to Commission	GDB, RJE (UNIVLEEDS)

1) Executive Summary

Deliverable D2.5, the BioTrib project final conference, was successfully held on the 9th of September 2024 at ETH Zurich. This event marked the culmination of the BioTrib training program, bringing together Early Stage Researchers (ESRs) and supervisors to celebrate achievements and showcase research advancements in biotribology. The conference featured multiple sessions, presentations by ESRs, and a well-received Diversity Round Table that fostered engaging discussions on inclusivity and career development. Given the diverse cohort of ESRs, this event was crucial in supporting their transition to careers beyond the network. The event highlighted the progress made by the network and provided valuable insights for ESRs as they transition into their future careers.

2) Network Overview

The BioTrib network comprises academic institutions and industrial partners from across Europe, and comprises of the University of Leeds, ETH Zurich, Uppsala University, Imperial College London, and Lulea Tekniska Universitet. The network was designed to provide high-quality research training and professional development to early-stage researchers (ESRs), preparing them for leadership roles in biotribology and related sectors. The network structure encourages interdisciplinary and inter-sectoral training, with significant emphasis on secondments to provide ESRs with diverse skills and real-world applications.

The primary goal of the network is to provide comprehensive training in biotribology, covering fundamental research, innovative technologies, and practical applications. This is achieved through a structured program of research, secondments, workshops, and training activities. The network's collaborative approach ensures that ESRs are exposed to a wide range of expertise and environments, allowing them to develop technical skills, industry insights, and professional competencies required for future leadership roles.

Secondments play a crucial role in WP2 (Training and Career Development), providing ESRs with exposure to different research environments, including both academic and industrial settings. This inter-sectoral experience is essential for equipping ESRs with the skills needed to address complex challenges in biotribology and contribute to the advancement of joint replacement technologies. The network's structure and the involvement of multiple sectors also foster interdisciplinary collaboration, enhancing the quality and impact of the research conducted.

3) Research Training Vision

The BioTrib project aims to deliver a unique, bioengineering-based, integrated approach to developing early career researchers as future research and innovation leaders across interdisciplinary and inter-sectoral domains. This vision aims to bring a step-change in joint arthroplasty technology and its assessment, as well as the exploitation of the technology and ideas generated within the project.

4) Training Aims and Objectives

The training aims of the BioTrib network are centred on delivering highly skilled and adaptable researchers capable of addressing current and future challenges in biotribology and joint replacement technologies. The original network objectives are:

1. To deliver a specific, interdisciplinary, career-enhancing, innovative training programme, including preparation for further professional qualification (e.g., Eur Ing and Chartership) (WP1 and WP2).
2. To deliver leading cross- and beyond-network training events, including workshops, complementary training, and secondments that reflect the international and mobile nature of a leading engineer (WP2 to WP6).

3. To foster links within the European Research Area (ERA) by supporting the knowledge triangle and developing the leadership potential of doctoral candidates (WP2 and WP7).
4. To contribute to the development, deployment, and harmonization of doctoral degrees through dissemination of best practices to the partners and beyond, including elicitation of requirements from end-users (WP2).
5. To deliver ESRs with enhanced skills that fit the requirements of industry (WP2 and WP7).

The network-wide training events were designed to provide ESRs with a comprehensive learning experience that went beyond their individual research projects. These events included workshops, seminars, and hands-on training sessions, bringing together all ESRs from the consortium to enhance their technical, professional, and transferable skills. By facilitating exposure to a variety of research environments, these events ensured that ESRs benefited from diverse expertise and perspectives, fostering innovation and interdisciplinary collaboration. Network training has also played a key role in community building among ESRs, encouraging knowledge sharing and the formation of strong professional networks that will benefit their future careers.

The final event was the culmination, and also a celebration, of the projects and the hard work undertaken by the ESRs. It served as an opportunity to showcase their achievements, reflect on their learning journey, and highlight the contributions made towards advancing biotribology and joint replacement technologies.

5) Training Overview

The BioTrib training program is structured around three key components: local host training, network-wide training events, and secondments. Together, these components provide a comprehensive and integrated training experience for ESRs, preparing them for successful careers in both academic and industrial sectors.

Local Host Training: Each ESR received individualized training from their host institution, which included participation in doctoral programs, staff development units, and specialized courses. This local training was tailored to the researcher's specific needs and was designed to support their Personal Career Development Plan (PCDP). Areas of focus include ethics, communication skills, and subject-specific technical skills.

Network-Wide Training Events: Network-wide events were a central element of the training program, fostering collaboration among ESRs and providing exposure to diverse research environments. These events included workshops, seminars, and conferences, which covered both scientific topics related to biotribology and transferable skills such as project management, entrepreneurship, and intellectual property rights. ESRs also benefit from networking opportunities with industry professionals, clinicians, and other researchers.

Secondments: Secondments played a critical role in providing ESRs with practical, hands-on experience in different sectors. ESRs were seconded to partner institutions, including industrial companies and clinical units, allowing them to gain insights into non-academic research environments. These secondments were designed to enhance their technical skills, provide interdisciplinary exposure, and foster collaboration across the consortium.

The training program emphasized the acquisition of transferable skills, such as communication, teamwork, and project management, which are essential for success in both academic and non-academic career paths. Through this structured approach, BioTrib created a new generation of researchers who are well-equipped to advance the field of biotribology and make significant contributions to healthcare technologies.

6) Final Network Conference

The final network conference was held at ETH Zurich, in the center of Zurich, on the 9th of September 2024. This event marked the culmination of the BioTrib training activities and provided a platform for ESRs to present their research, reflect on their achievements, and celebrate the overall progress of the project. The conference included sessions where the ESRs presented their work and a Diversity Round Table organised by BioTrib ESR Andre Plath featuring Dr. Dominika Ignasiak (ETH D-HEST, Group leader at the Laboratory for Orthopaedic Technology), and Dr. Luana Sella Motta Maia (Post-doctoral researcher at the University of Basel). The discussion was chaired by ESRs Elisa Bissacco and Marie Moulin, which was well-received by ESRs and fostered discussions on inclusivity and career development. Given the diverse cohort of ESRs, this event was really helpful for supporting their transition to careers beyond the network as well as being important for supervisors to attend.

All ESRs attended the network conference in person with the exception of Dilesh Raj Shrestha who was on secondment in China and attended and presented online.

Future plans were also discussed during the conference, including ensuring that the ESRs have an enduring professional network and how the beneficiary team would continue the collaboration. The ESRs have already established a well-integrated network and means of communication to remain in contact with each other whether they remain in academia or move to industry. The academics also discussed future plans, including follow-on proposals for funding to build on what was agreed to be a very successful network.

7) Final Conference Agenda

The final conference agenda is below, this was sent to all ESRs and supervisors prior to the event.

Title	Speaker	Time (CET)
Welcome and Introduction	Dr Greg de Boer/Prof Stephen Ferguson	09:00
Session I	Chair: Dr Rob Hewson, Imperial College, UK	
Soft Articulations	ESR1 - Elisa Bissacco	09:15
	ESR2 - Alessio Amicone	09:30
	ESR4 - Dilesh Raj Shrestha	09:45
	ESR5 - Benjamin Clegg	10:00
	ESR12 - André Mathias Souza Plath	10:15
Panel Q&A		10:30
BREAK		10:45
Session II	Chair: Dr Greg de Boer, University of Leeds, UK	
Fundamental Tribology	ESR3 - Mahdiah Mosayebi	11:00
	ESR11 - Sallar Ali Qazi	11:15
	ESR15 - Edona Hyla	11:30
Panel Q and A		11:45
Lunch		12:00
Diversity Round Table	Dr. Dominika Ignasiak, ETH D-HEST, Group leader at the Laboratory for Orthopaedic Technology Dr. Luana Sella Motta Maia, Post-doctoral researcher at the University of Basel (Current on a maternity career transition)	13:00
Session III	Chair: Dr Urban Wiklund, Uppsala University, Sweden	
Additive Manufacturing	ESR6 - Marie Moulin	13:45
	ESR7 - Giulio Cavaliere	14:00
	ESR9 - Niccolò De Berardinis	14:15
	ESR10 - Qingyue Shi	14:30
Panel Q and A		14:45
Break		15:00
Session IV	Chair: Prof Stephen Ferguson, ETH Zurich, Switzerland	
Hard Articulations	ESR8 - Vidhiya Leviandhika	15:15
	ESR13 - Pedro Luiz Lima Dos Santos	15:30
Panel Q and A		15:45
Future Plans	Dr Greg de Boer	16:00
Close		16:30