D1.1: Project management handbook

The project management handbook is a comprehensive guide that provides structured information, processes, procedures, and best practices related to managing TRIAD within the three participating organizations. It serves as a go-to resource for team members, stakeholders, and anyone involved in TRIAD execution. The content of a project management handbook includes:

1. Roles and Responsibilities:

To ensure the program's effectiveness, impact, and long-term sustainability, TRIAD will be organized into the following committee structure to facilitate rapid communication and allow efficient points of access:

Program Management Structure
Coordinator (CO)
The program as a whole will be managed by the Coordinator (CO), Prof. George A. Garinis, who will be assisted by the Office of Management and Support. Prof. Garinis has extensive experience managing large EU research and training consortia, including EPAnEK Panther, H2020-aDDRess, and H2020-HealthAge. The CO will serve as the principal link between the consortium and the EU and will be responsible for all financial and legal provisions, overseeing the financial plan and payments.

Responsibilities of the Coordinator:
Communication: Represent TRIAD in all communications with the Program Officer (PO) and the Research Executive Agency.
Leadership: Advise and lead the participants on all developments needed for the project's execution.
Information Exchange: Ensure effective exchange of information between the participants.
Reporting: Compile and issue periodic and final scientific reports, as well as administrative and financial reports.
Implementation: Oversee the efficient implementation of program activities.
Day-to-Day Assistance: Supported by an administrator with prior experience in research and training networks.

Committees
i. TRIAD Participating Teams (UC, iMM, MU)
The ultimate decision-making body for all training, transfer of knowledge, and research activities. Responsibilities include supervising outreach activities and managing dissemination, exploitation, and transfer of knowledge procedures.

ii. International Advisory Board (IAB)
Provides strategic advice on scientific developments and directions. Composed of four external experts, the IAB will oversee the progress and development of TRIAD, critically analyze project results, review key deliverables, and participate in TRIAD meetings upon invitation. The IAB members are independent with no conflict of interest:

Prof. Agnel Sfeir, Memorial Sloan Kettering Cancer Center (USA) - Expert on telomere maintenance and DNA repair.
Prof. Jan Vijg, Albert Einstein College of Medicine (USA) - Expert on animal models, genomics, and ageing.
Prof. Julie Promisel Cooper, University of Colorado - Expert on the biology of telomeres.
Prof. Joachim Lingner, École Polytechnique Fédérale de Lausanne (Switzerland) - Expert on the biology of telomeres.

iii. Ethical Committee
Comprised of representatives from UC, iMM, and MU participating teams. Collaborates with the bioethics committees at UC, iMM, and MU to ensure transparency in TRIAD research involving animal models and human cell lines. Develops consistent guidelines, standards, and regulatory frameworks for research within TRIAD.

iv. Career Development Committee
Comprised of supporting staff from UC, iMM, and MU career advisory offices. Provides strategic guidance to TRIAD team members, empowering individuals to make informed career choices, develop essential skills, and achieve professional goals. Promotes diversity, equity, and inclusion in career development and supports underrepresented groups.

v. Office of Management and Support
Assists the CO at IMBB with administrative and financial responsibilities. Ensures gender equality within the project.

vi. Lab Managers (UC, iMM, MU)
Responsible for coordinating activities related to the exchange of data, methodologies, and experimental models.

Objectives of the Structure
Coordination: Ensure coordinated actions in the research program.
Milestones: Achieve project milestones.
Deliverables: Complete deliverables on schedule.
Quality Standards: Maintain quality standards in scientific and training procedures.
Ethical Practice: Ensure ethical practice is upheld.
Regulations: Meet EU regulations.
Gender Equality: Promote gender equality within the project.

This structured approach guarantees efficient management and oversight of TRIAD, ensuring its goals are met while maintaining high standards of quality, ethical practice, and inclusivity.

2. Communication and Stakeholder Management:
To disseminate, exploit and communicate project activities: The project results will be shared with the scientific community through various channels. These include direct exchanges between scientists, work group discussions, and dissemination efforts such as publication in scientific journals, posting of methods and procedures on the TRIAD website, participation in specialized courses, presentation at Annual Meetings and concurrent workshops, organization of a scientific conference coinciding with the closing meeting of TRIAD. PhD students and postdoctoral scientists are expected to publish at least one first-author paper in a peer-reviewed scientific journal. They will also be encouraged to contribute to mainstream articles, such as those in New Scientist, newspapers, and press releases. Senior researchers at UC, iMM and MU will collaborate with the PhD students to write review papers that address topics relevant to TRIAD, incorporating research results generated during the project. UC members will present their work through oral or poster presentations, and senior scientists involved will deliver talks. Additionally, presentations, lecture notes, and materials from the summer schools and workshops will be made available on the TRIAD website for unrestricted use.

To target communication activities to distinct target audiences: The TRIAD communication strategy targets three main stakeholder groups: Academic Sector: This group includes academic staff, students, and collaborators. Private Sector: This involves industry researchers, technical staff, and organizations. Public Sector: This encompasses the general public, patients, NGOs, and policymakers. To ensure widespread information dissemination, we will employ various methods: TRIAD Website: This comprehensive platform will feature project details, articles, blogs, animations, and videos. PhD Student Training: Renowned specialists will train PhD students in public engagement, enabling them to give talks and lectures. Open Lab Days: Annual public events will be held in collaboration with UC's "Open Doors" days, allowing the public to visit the lab and engage with TRIAD team members. TRIAD Ambassadors: Younger scientists will conduct presentations and seminars for high-school students, elderly care units, and broader audiences, promoting science among non-scientific audiences. Annual TRIAD Newsletter: This newsletter will target undergraduate university students and the wider public, featuring articles on scientific results, technical developments, interviews with project members, and highlights of TRIAD activities. It will be distributed both in print and electronically. Media Coverage: Scientific achievements of TRIAD will be popularized through articles in popular science and daily press, providing regular updates on advancements in the field. Early-stage researchers (ESRs) will contribute popular-science articles to engage the general public. Podcasts and Video Content: Public lectures, lab demonstrations, and interviews with program members will be recorded and made available online through the TRIAD website, Facebook group, and platforms like YouTube. Social Media Presence: We will maintain open Facebook, TikTok, and/or Instagram groups and a Twitter (X) account to facilitate communication among team members and the general public. These platforms will showcase research projects and work environments, enabling online engagement with the project's social media accounts.

3. Training and Onboarding
Effective project management facilitates training and onboarding of new team members by providing structured guidance and resources. Training will be achieved through the following activities:
Scheduled training seminars on Horizon Europe program: The Garinis, Azzalin, and Krejčí labs will collaborate with their national contact points to stay updated on the calls and requirements within the Horizon Europe framework.

The TRIAD research teams will receive extensive training (online and in hybrid mode) covering proposal preparation, evaluation procedures, and requirements for both Pillar 1 (MSCA and ERC calls) and Pillar 2 (Health missions). This training will also encompass essential aspects such as ethics, gender balance, open sciences, and legal and financial considerations. Furthermore, the ERDF labs will participate in online training sessions conducted by EU academy and EU key events into specific RIA calls, including EIC pathfinder, transition, and accelerator programs, along with expert guidance on topics such as data management, intellectual property rights, and entrepreneurship.

Training on methodologies and tools on telomere structure and function: iMM and MU, in collaboration with UC, will host a focused summer school on telomere structure and function. This school will delve into the latest advancements in telomere biology, including its role in organism homeostasis, disease, and evolution. Participants will explore topics such as telomere organization, chromatin and transcription, telomerase regulation, replication stress management, consequences of telomere dysfunction, and therapeutic perspectives for telomeropathies. Moreover, iMM and MU will assist UC in providing a course on advanced cell and animal models used to study aging mechanisms and associated diseases. The course aims to develop rational intervention strategies against chronic illnesses. UC will offer a bioethics course incorporating lectures on topics related to stem cells and cloning research, genetic testing, and ethical regulations in biomedicine.

Secondments and joint mentorships of PhD students: TRIAD will actively involve ESRs, postdoctoral, and staff scientists through close collaboration among UC, iMM, and MU in joint projects and secondments. This exposure to new ideas and research environments stimulates creativity and fosters innovation, leading to potential breakthroughs. ESRs and postdocs gain valuable experiences and skills, enhancing their resumes and career prospects. Temporary 2-month placements also facilitate collaborations between labs, creating opportunities for future joint research projects and grants. The program will implement a joint mentoring PhD program for the PhD students to integrate new technologies related to telomere study into their research projects. Each PhD student will have a supervisor and co-supervisor from different ERDF labs. They will receive critical feedback on their progress, scientific papers, and research presentations in seminars. To ensure effective training, students will provide annual progress reports through oral presentations at network meetings and are encouraged to present their work at departmental and (inter)national conferences. TRIAD will actively promote team members' participation in workshops, both on-site and in hybrid mode, organized by EMBO, FEBS, and ESFRI meetings. This ensures personnel stay updated on emerging topics in aging research and telomere biology.

Training in Transferrable skills: UC and MU will support iMM in establishing three structured courses in science communication, scientific writing, and presentation skills. The science communication course will enhance researchers' ability to convey complex concepts to diverse audiences using clear narratives and visual aids. The scientific writing course will equip researchers with essential tools for effective communication in peer-reviewed journals. The presentation skills course will empower researchers to deliver compelling presentations at conferences and seminars. Additionally, iMM and UM, with the support of UC's TT and innovation centre PRAXI network, will offer training on IPR, entrepreneurship, and business aspects related to animal models in aging research and modelling age-related diseases. MU will assist iMM in organizing a course on experimental design involving animal models in research, covering appropriate species selection, sample size determination, ethical treatment of animals, and adherence to the 3Rs principles. Furthermore, iMM's Project Office Personnel will provide training on planning, project management, research creativity, group dynamics, networking, self-awareness, and stress management. TRIAD will also invite a representative from the International Project Management Association and feature contributions from successful SMEs focusing on aging research.

4. Risk Management:

In the realm of research projects, whether in scientific endeavors, academic pursuits, or industrial innovations, navigating uncertainties and potential challenges is integral to achieving successful outcomes. Risk management plays a pivotal role in this process by systematically identifying, assessing, and mitigating risks that could impact the project's objectives, timeline, budget, and overall success. Research projects are inherently complex, often involving intricate methodologies, diverse stakeholders, and unpredictable variables. These projects aim not only to expand knowledge but also to contribute practical solutions to real-world problems. However, the path to discovery and innovation is fraught with uncertainties that can derail progress if not effectively managed. The risk managements strategy of TRIAD will adopt the following elements:

Proactive Approach: TRIAD researchers will adopt a proactive stance towards potential challenges. By anticipating risks early in the project lifecycle, strategies can be developed to minimize their impact and likelihood of occurrence.

Resource Optimization: By identifying risks that could lead to cost overruns, delays, or resource shortages, projects can better adhere to budgets and timelines.

1. **Enhanced Decision Making:** By allowing stakeholders to make informed choices about project priorities, resource allocation, and strategic adjustments to ensure project goals are met.

2. **Maintaining Quality and Integrity:** By addressing potential threats to data quality, experimental validity, or ethical considerations, risk management upholds the credibility and reliability of research findings.
3. **Compliance and Ethical Considerations:** By adhering with regulatory standards, ethical guidelines, and institutional policies.

TRIAD will also adopt the following elements of effective risk management:
1. -Systematically identifying potential risks related to project scope, methodology, stakeholders, external factors (such as regulatory changes or market shifts), and operational aspects.
2. -Evaluating identified risks based on their likelihood of occurrence, potential impact on the project's objectives, and the effectiveness of existing controls or mitigation strategies.
3. -Developing and implementing strategies to reduce the probability and impact of identified risks. This may involve contingency planning, establishing fallback options, or modifying project plans to address vulnerabilities.
4. -Continuously monitoring identified risks throughout the project lifecycle, reassessing their status, and adjusting mitigation strategies as necessary to maintain proactive risk management.
5. Ensuring open communication channels with stakeholders about identified risks, mitigation strategies, and their potential implications on project outcomes.

The UC, iMM and UM program leaders have prior experience with research programs and are aware that creative work involves risks. The Garinis, Azzalin and Krejčí research teams will follow a bottom-up simplified approach of two variables (probability, severity) to pinpoint potential risks, measure their frequency and severity, examine alternative solutions and decide which solution to implement. They will define mitigation measures to prevent risks from materializing and develop contingency plans in case a risk does occur. To ensure the effectiveness of these measures and to identify any necessary contingency or mitigation plans, TRIAD will regularly assess all activities against the project's deliverables and milestones. The following risks and mitigation measures are shown below:

Table 4.1 List of critical risks related to project implementation						
#	**Description of Risk**	**Risk**		**WP**	**Proposed mitigation measures**	**Implementation**
		Probab.	**Severity**			
R1	Delays in setting up methodologies on site	Medium	High	2,3	Use of alternative protocols, planning of additional visits on site and hybrid meetings.	Visits on site and Joint Meeting (SB) and changes in experimental work.
R2	Difficulties in one or more TRIAD teams to attract EU funds	Low	High	2,3	One-to-one mentoring, feedback on proposal aims, diversify funding sources, refine funding strategy.	Joint Meeting (SB); application of new and revised research proposals.
R3	Difficulties to access European R&I networks & communities	Low	High	2,3	Stay Informed on events, attend conferences, use online platforms, join media networks, partner with EU institutions.	Joint Meeting (SB); expression of interest to join new networks.
R4	Financial misappropriation	Low	High	1-6	Freeze financial support, report to the EU	Joint Meeting (SB, PO)
R5	Limited expertise in administration	Low	High	1-6	Discussion with the UC chairman	Joint Meeting (SB, UC Chairman)
R6	IPR infringement	Low	High	4-7	Enforce the TRIAD working conditions.	Meeting (CO, PO)
R7	Opinion conflicts	Medium	Low	3-8	Discussion/voting	Joint Meeting (SB)
R8	Low response to vacancies	Low	Medium	1	Re-announcement of vacancies	CO and management office
R9	Limited commitment from the WP or task leaders	Low	High	1-2	Regular meetings with team leaders and the Public Relations Office	Joint Meeting (SB, UC Chairman)
R10	Stakeholders' expectations not in line with objectives	Low	High	1-6	Effective use of dissemination efforts; expand stakeholders	Joint Meeting (CO, stakeholder representative)

R11	Deviation on Student's portfolio	Medium	High	3-6	Focus on particular scientific problems	Meeting (CO, Training committee)
R12	Scientific failures/dead-ends	Medium	Medium	4-6	Adapt project/Change strategy	Joint Meeting (SB, IAC UC Chairman)
R13	Scientific misconduct	Low	High	4-6	Fraud check, replace researcher	Joint Meeting (SB, IAC, PO)
R14	Private sector's concern on classified information	Low	High	4-8	Signing of non-disclosure agreements	SB and a representative from the private sector
R15	Incompetent Coordination	Low	High	1-6	Change of coordination	Joint Meeting (SB, IAC PO)
R16	Resignation of Project manager	Low	High	1-6	Reactive discussion and replacement	Joint Meeting (SB, UC Chairman)

Recruitment Strategy & Transparency
Project vacancies will be advertised through multiple channels, including EURAXESS, Euro Science Jobs, the homepages of UC, iMM, MU, and TRIAD, as well as in scientific journals and at prominent academic institutions. To ensure transparency and compliance with the Code of Conduct for the Recruitment of Researchers (http://ec.europa.eu/euraxess/index.cfm/rights/codeOfConduct/), a Recruitment Committee (RC) will be formed, consisting of the CO, TRIAD PIs, and qualified team members. The RC will draft the recruitment advertisement, which will clearly outline eligibility criteria and provide a broad overview of expected qualifications without being overly specific.The selection of PhD students and postdoctoral scientists will be based on factors such as motivation, interests, degree, grades, and relevant experience. The RC will collect applications, including letters of intent, CVs, and reference letters. Short-listed applicants will be invited to visit UC for further evaluation. TRIAD is committed to achieving a balanced gender mix, and in cases where two candidates have similar qualifications, preference will be given to the gender in the minority.

The Human Resource Excellence in Research
The TRIAD research teams aim at better employment and working conditions for researchers. UC, iMM and MU have already earned the **"HR Excellence in Research" award**. As such, the TRIAD participants have aligned their human resource policies with the principles set out in the "Charter & Code" (https://euraxess.ec.europa.eu/jobs/hrs4r). The SB will keep oversight over the implementation of the gender balance policy and encourage minority gender personnel to become representatives in TRIAD committees. The coordinator will monitor that gender equality and equal opportunity policies are promoted during the TRIAD project.

Gender Equality and Minority Plan
UC, iMM and MU have implemented a Gender Equality Plan (GEP) to ensure **equal opportunities** for all employees regardless of gender, and has taken steps to address **disparities** that may lead to indirect **discrimination**. Our data show that in our Institutes, women are overrepresented in administrative positions and as heads of Core Facilities but they remain underrepresented as group leaders. TRIAD will analyse the underlying reasons for gender inequality and create a **Gender Equality and Minority Plan** to encourage a diverse and inclusive workplace, fostering equal opportunities, secular policies, inclusivity, and fairness. The Program will also apply policies for equal salaries, flexible working hours for parents, support for employees with children and incorporate inclusivity practices, including disability employment.

The "do no significant harm" Strategy of TRIAD
The TRIAD teams will prevent myopic activities and consider significant harm to environmental or social objectives. All methods and strategies will be implemented in a manner that does not significantly harm any of the **six environmental objectives of the EU Taxonomy.** Specifically, initiatives will minimize the unnecessary preservation of biological samples in -80^0C freezers to reduce their number and **daily energy use**. UC, iMM and MU have also established rigorous **waste management** policies to reduce the environmental impact of hazardous chemicals (Objective 5 of the Taxonomy Regulation). We will also minimize our **pollution footprint** by **digitizing** TRIAD document workflow and reduce paper consumption.

Appropriateness of Open Science Practices in relation to the expected work and delivery of the objectives
Open science aims to accelerate the pace of scientific discovery, enhance the quality and rigor of research, and increase public trust in the scientific process by promoting transparency, collaboration, and accessibility in the scientific community. The **key principles of TRIAD Open Science Strategy** will involve:
  -**Open Access**: the program will take all provisions to provide free and unrestricted access to research publications, allowing anyone to read, download, and use the research without paywalls or subscription fees.
  -**Open Data**: TRIAD will encompass the creation of a **local open access repository** and the daily management, data organization, storage, preservation, and sharing of data.

-Reproducibility: The TRIAD research teams will ensure that research methodologies and findings are well-documented online and on publications and that are transparent, enabling other researchers to replicate and validate the results. Protocols will be published in STAR Protocols or Jove.

-Collaboration: the program will actively encourage collaboration and cooperation among researchers, both within and across disciplines, to foster innovation and collective problem-solving.

-Crowdsourcing: TRIAD will involve the broader community, including citizen scientists and the general public, in the research process to collect data on bioethics, analyze information, or solve scientific problems.

-Preprints: The TRIAD research teams will share research manuscripts on preprint servers e.g., bioRxiv before formal peer review, allowing for rapid dissemination of findings and feedback from the scientific community.

-Open Source Software: All bioinformatics scripts and algorithms will become available through GitHub to facilitate the reproducibility of analysis parameters with open-source programs like R.

-Open Peer Review: The TRIAD research teams will disclose the reviewers' comments and author responses, to improve transparency and the quality of published research.