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R&D Innovation & Consulting Hub's Operational Guide

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[UNIVERSITY NAME] R&D Innovation & Consulting Hub Operational Guide

Creation of the ASTRA Research & Development, Innovation & Consulting Hub

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1. Introduction

University R&D Innovation Hubs are dedicated to fostering a culture of research excellence, agile thinking, and innovation by creating a collaborative environment that promotes the development of cutting-edge ideas and technologies, while offering training and consulting. Typically, such Hubs offer a wide range of services, including market research, product development, technology transfer, intellectual property management, and funding assistance. They may also provide access to specialized equipment and facilities, as well as expertise in various fields. Overall, these unique University entities can play a critical role in driving innovation, economic development, and job creation, both locally and globally, and are focal points of the local innovation and entrepreneurship ecosystem.

The guide stems from the ASTRA Erasmus+ EU-funded project. This project aims to reinforce, inform and assist academic staff and researchers in the ICT sector and social sciences. Modernization and accessibility is promoted, by enhancing universities' sustainability through expanding available resources for funding, research and development services, through the utilization of funding from international donors and also from consulting, research and development services in the private sector and NGOs. The ultimate goal of this project is to introduce an innovative, comprehensive mechanism to the higher education systems of Asian countries such as Laos and Thailand, utilizing additional and sustainable revenue streams for research and development, in line with European good practices and standards. In the framework of the project four R&D Hubs are created in each of the following four universities in the partner countries:

- National University of Laos
- Savannakhet University, Laos
- Prince Songla University, Thailand
- Chiang Mai University, Thailand

This guide has been created to provide a comprehensive overview of the operational framework of the UNIVERSITY NAME's R&D Hub, including its mission, goals, and objectives, its organizational structure, the roles and responsibilities of key personnel within the Hub, key elements of the R&D process etc. It also outlines the policies, procedures, and best practices that should be followed to ensure that the R&D hub is operating efficiently and effectively. It is designed to offer guidance and serve as a reference tool for all members of the Hub, including faculty, staff, and students, as well as external partners and stakeholders.

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2. Operational Guide Purpose & Overview

This guide will cover the following areas:

1.Mission and goals of the Hub: The mission and goals of the R&D center will be explained.
2.Organisational structure of the Hub: The organizational structure of the R&D center, including the responsibilities and roles of each team member.
3.Research and Development processes: The R&D process, including experimentation, ideation, evaluation and testing.
4.Funding and resource allocation: The guide underlines the financial and resource management policies and procedures necessary for the Hub to operate within its allocated budget.
5.Intellectual property management of the Hub: The protection of intellectual property, including patents, copyrights and trademarks is further explained
6.Development of partnerships: The procedures for working with other organizations.
7.Performance and evaluation of the R&D Hub: The metrics that will be used to evaluate the performance of the R&D center.
8.Ethics and compliance of the Hub: The code of conduct its regulations and use are analyzed.
9.Risk management of the Hub: The procedures for the identification, assessment and mitigation of risks associated with the operations of the hub will be explained.
10.Crisis management of the Hub: Guidelines for responding to crises that may affect the operations of the hub.

3. Mission and Goals

The [UNIVERSITY NAME] R&D Centre is committed to supporting the research activity produced. Its aims and objectives are to promote innovation and strengthen research capabilities by providing a comprehensive range of services that foster the growth and development of both internal and external stakeholders. These activities involve institutional fundraising and private fundraising. In terms of institutional fundraising, it is necessary to initiate the exploitation of available funds from national, regional and/or international funding sources, both public and private. For private funding, the Hub's consultancy services to the ICT and social science industries, both separately and jointly, will be recognized and built upon. More specifically, the objectives of the Hub include:

1. The provision of internal services which support the [UNIVERSITY NAME]'s research portfolio in ICT and social sciences.
2. The creation of a comprehensive range of consultancy services to meet the needs of ICT and social science related industries, government and other stakeholders.
3. The generation and development of a strong network of associates, partners and clients.

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4. Promotion a culture of innovation and entrepreneurship by offering training and mentoring to internal (e.g. students, professors, faculty staff) and external (e.g. professors from other academic organizations, companies) stakeholders.
5. The monitoring and evaluation of the Hub in terms of its ICT and social science services and make necessary adjustments to ensure that they meet the evolving needs of both internal and external stakeholders.
6. The dissemination of knowledge through various channels such as seminars, workshops and publications.
7. The translation of research results into tangible products and services that benefit the local society and economy.

The remainder of this operational guide provides a step-by-step process for the successful implementation of policies and procedures to achieve the above objectives throughout the operation of the Hub.

3.1 Institutional Fundraising & Private Funding Mission

The role of an ICT and social sciences R&D hub in terms of institutional fundraising is to attract funding to support its research activities and collaborations with industry partners, to develop a strong network of institutional investors and to increase knowledge in the field. The specific roles can vary but may include securing funding for research projects that can help cover the costs of research equipment, data analysis and personnel; engaging with industry partners; creating a strong network of institutional investors; building sustainable funding models, including establishing partnerships with private sector organizations or securing government grants; expanding knowledge in the ICT and social sciences, including research on emerging technologies, data analysis and social trends that affect the use of ICT in society.

With regard to private funding, the overall objective of an R&D hub is to create new products and services, recruit talent, protect intellectual property, build partnerships and expand into new markets. This can include Funding for the development of new products or services; Finding talent, in terms of funding to attract staff through competitive salaries and benefits, and to establish a stimulating research environment; Securing intellectual property; Building partnerships; and Extending into new markets, such as funding to cover the costs of market research, localization and business development.

4. Organizational structure

The organizational team of the [UNIVERSITY NAME] R&D Hub should be comprised by different sets of teams that will be responsible for managing the Hub whilst striving to

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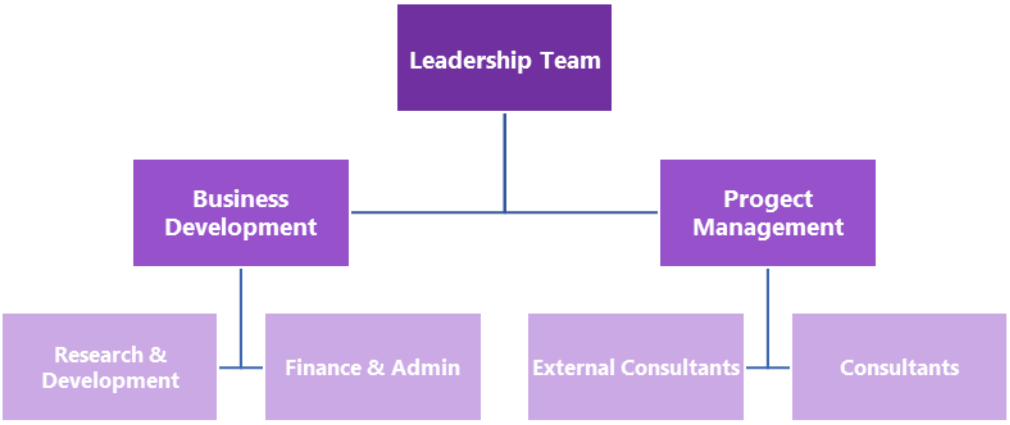
fulfill its goals and missions. The Organizational structure is depicted in Figure 1 and explained below.



4.1 Teams of Hub's Organizational Structure

The Hub's Organizational Structure as depicted in Figure 1, includes a clear hierarchy as it should be followed by all Hub's members. It is comprised of the following teams, which, in general, is best to consist of academics, researchers from various faculties, and experts when and where available and applicable:

- **Leadership team:** The leadership team consists of the upper level executives. It is often comprised by five individuals, one of each should be responsible for the key pillars of work of the Hub. Members of this team are experienced individuals who are able to provide strategic direction and manage day-to-day operations of the Hub. The Leadership team oversees all aspects of the R&D Hub, including business development, project management, and financial management, often in regards to each member's specific set of responsibilities and activities. For an R&D Hub specializing in ICT and Social Sciences, the following roles should be appointed to the proper individuals:
    - **Managing Director:** The Managing Director of the Hub is the individual who is in charge and under responsibility of all operations of the Hub. This individual should have the following qualifications:
        - Proven professional experience working as a manager in the field of ICT & Social Sciences as it is important for them to understand all processes, missions and goals that are to be undertaken by the Hub.
        - Proven professional experience in both the academic and private industry, if possible (ex. having funded their own start-up and/or spin-off).

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- Masters or PhD degree in business management or administration, finance, accounting, marketing, or related field and/or an academic position in the [university name] will be of favor.
- Proven fluency in English and other European languages and they should be able to present the Hub's work and achievements, therefore, be an experienced presenter.
- Proven experience in EU or other funded projects, so that they are able to understand all processes and needs.
- Proficient in all Microsoft Office applications.
- Excellent analytical, problem-solving and management skills.
- Exceptional negotiation and decision-making skills.

- **Chief Financial Officer:** This individual will be responsible for all financial processes and other financial aspects of the Hub.
  - Bachelor's or/and Master's degree in Financial Management, Economics or other similar fields.
  - Hands-on proven professional experience with real-world financials (ex. be a former member of the Financial Office of the University, run their own Accountant office etc.).
  - Proven fluency in English.
  - Proven experience in EU or other funded projects.
  - Proficient in all Microsoft Office applications.
  - Excellent analytical, problem-solving and management skills.
  - Exceptional negotiation and decision-making skills.
- **Chief Education Officer:** This individual will be responsible for any educational projects that the Hub may undertake, no matter the field of education (ex. entrepreneurship-related, ICT related, Social Sciences related etc.) or the essence of the project (ex. EU – Funded educational project, in – house trainings, competitions, workshops etc.).
  - Masters or PhD degree in business management or administration, education, human studies, or related field and/or an academic position in the [university name] will be of favor.
  - Proven fluency in English.
  - Proven experience in EU or other funded – or not - projects, related to education.
  - Proficient in all Microsoft Office applications.
  - Excellent analytical, problem-solving and management skills.
  - Exceptional negotiation and decision-making skills.
- **Chief Technology Transfer Officer:** As an R&D Hub, a TT Officer is necessary for all aspects of its goals and overall mission in regards to all research related activities.

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- Bachelor's or Master's degree, or equivalent qualification, in science, technology or business.
- Proven professional commercial and/or Technology transfer experience, demonstrating development through involvement in a series of progressively more demanding work/roles.
- Understanding of the role of R&D Hubs and their contributions to society and a keen interest in its relationships both internal (in the University) and external.
- Proven fluency in English.
- Proficient in all Microsoft Office applications.
- Excellent analytical, problem-solving and management skills.
- Exceptional negotiation and decision-making skills.

- **Chief Internationalization and Business Development Officer:** This individual is responsible for identifying the existing and possibly new R&D Hub's products and services, developing an in-depth knowledge of offerings, pricing, and policies, and improving existing proposals. This individual is the one that takes care of the Hub's expansion into international markets. They find opportunities by researching market trends and developing partnerships with key international partners.
  - Bachelor's or Master's degree in business management or administration, finance, accounting, marketing, or related field.
  - Proven professional experience working as a business development officer or similar role.
  - Proven fluency in English.
  - Proficient in all Microsoft Office applications.
  - Excellent analytical, problem-solving and management skills.
  - Exceptional negotiation and decision-making skills.

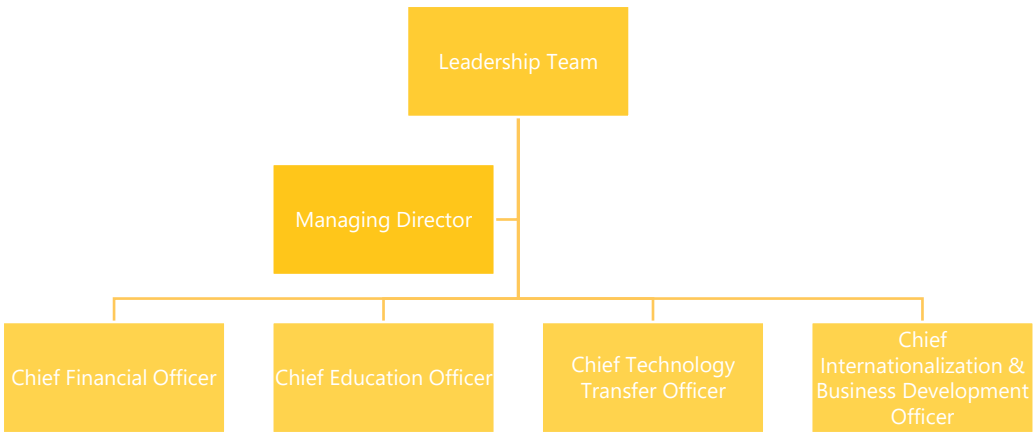

Figure 2: Leadership Team Breakdown

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- **Business Development Team:** This team is responsible for identifying potential partners and clients, managing relationships with existing clients and stakeholders, and expanding the client and stakeholder database. This team works under the Chief Internationalization and Business Development Manager in order to develop strategies for attracting new clients and stakeholders and expanding the service portfolio. Here, three basic roles are needed and should be assigned whilst trying to assembly this team:
    - **Social Media Specialist:** This is an individual who specializes in and develops the social media presence of the Hub. They are responsible for creating and managing professional social media accounts on a variety of platforms in order to promote products and/or services and engage with stakeholders. They complete daily tasks like designing and posting content through different channels, monitoring engagement and feedback and answering comments and messages. They should have a Bachelor's or Master's degree in Marketing, Business Management or related fields, be fluent in English and have proven professional experience in similar positions either in the academic or the industry field.
    - **Market Researcher:** This is an individual who examines information about stakeholder behavior, patterns, industry advancements and achievements and other areas to predict future occurrences and strategize plans. They help the Hub manage risk and implement feasible product and service ideas. These professionals may gather data on subjects like demographics, projects, ICT and Social Sciences advancements and preferences. They should have a Bachelor's or Master's degree in Marketing, Business Administration or similar fields. Proven research experience in similar projects should be a plus. They should be fluent in English and have excellent analytical skills.
    - **Data Analyst:** This individual is the one responsible for collecting, synthesizing, organizing and interpreting data and data sets from various sources to solve possible upcoming issues and to extract valuable information. They should have a Bachelor's or Master's degree on Data analytics, Informatics or similar field. They must have proven strong Information Technology and data collection skills, as well as proven knowledge of programming languages, a skill that will be used to adjust and develop computer programs for data analysis. Additionally, they should have proven professional experience in similar positions either in the

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academic or the industry field, while they must be fluent in English to be able to interpret and translate data.

Figure 3: Business Development Team Breakdown

- **Project Management Team:** This team will be the one responsible for overseeing the delivery of services to projects, clients and stakeholders, managing timelines, and ensuring that projects are completed on time and to the funder's /client's/stakeholders' s satisfaction. This team works closely with the Business Development Team as well as with the Chief Education Manager and the Chief Technology Transfer Manager, depending on the project in hand, to ensure that projects are aligned with the needs of the project/clients/stakeholders. This team should be comprised of three basic roles presented below, but as the Hub advances, more should be added accordingly. These roles are:
    - **Project manager:** This individual (or individuals in case the Hub has a plethora of projects/services that need to be offered simultaneously) will be receiving information from the Chiefs and from the Business Development Team when a new project/client/stakeholder is at hand. They will be the ones responsible for the successful implementation of the project or service offering. They are the ones that have to plan and finalize the project/service, develop a schedule, assemble a project team if needed and manage their workload throughout the project's life cycle. They should have a Bachelor's or Master's degree in Business Administration, Engineering, Financials or other similar fields. Proven professional experience in project management is needed here with good knowledge of the English language, proven experience in all Microsoft Office applications, excellent analytical, problem-solving time management skills.
    - **Project Team Member (Members):** More than one individual can be assigned this role, but as a start one project team member is considered sufficient. A project team member is an individual responsible for executing

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the tasks assigned by the Project Manager. There can be a team lead, who manages the team, who the team reports to and who in turn reports their progress to the project manager. In general, all team members are and should be on equal footing. They should have skills relevant to the project at hand or to the service that is to be developed and offered. While initiating the Hub, such a role could be overtaken by an individual with professional experience or academic degree in ICT and Social Sciences. As this individual will be responsible for executing tasks and updating their status to the Project Manager for overall project process, they should have very good analytical and management skills. Additionally, they should have proven experience in Microsoft Office applications while very good fluency in English is also needed.

- **Project Administrator:** This individual supports the project manager and project team member(s). They are in charge of administrative tasks such as replying to e-mails and handling communications in general, making reports, planning meetings and facilitating team collaboration activities, produce and distribute meeting minutes, memos, letters and forms, develop and maintain a filling system and maintain documentation. They should have excellent communication and management skills while having at least a Bachelor's degree in Business Administration, Management Science, Engineering or similar fields. Finally, very good fluency in English is needed with proven experience in Microsoft Office applications.

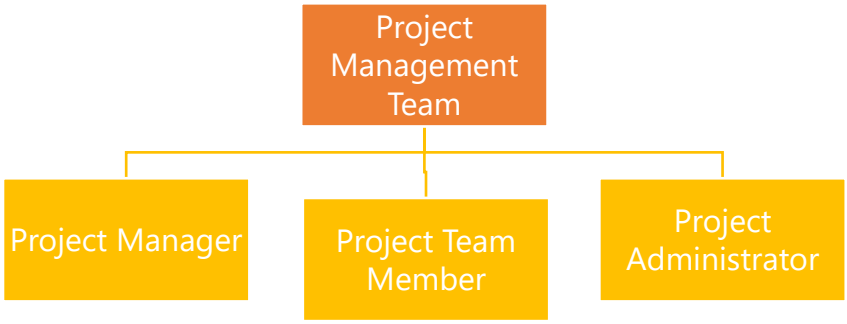

Figure 4: Project Management Team Breakdown

Research and Development Team: This team's role is to keep the R&D Hub competitive by providing insights into the market and developing new services/products or improving existing ones accordingly. This team has a range of responsibilities included, but not limited to, understanding the market/client/stakeholders/researchers etc. needs, looking at new services/products for quality control, developing new products and services,

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assisting researchers etc. In general, this team conducts research on best practices and industry trends and works closely with the Project Management Team to ensure that new services are delivered effectively. The Chief Technology Transfer Officer is the one responsible for this team. The personnel of such a team consists of individuals employed directly in the field of research and development, including persons providing direct services, such as managers, administrators, and clerical staff. This team can be comprised be the following three basic roles but should be enriched later on:

- **R&D Manager:** This individual will be the one responsible for overseeing the entire development process of new products and programs within an organization, from the initial planning phase to implementation or production, and will report directly to the Chief Technology Transfer Officer. They oversee research activities and develop knowledge-based products and specifically in the ICT and Social Sciences sector. They will be developing research programs incorporating current developments to improve existing services/products and study the potential of new services/products. They must always stay informed on what is happening in the research and development field at large in order to make sure the Hub is up-to-date and current with the most advanced R&D developments. This individual must be a highly experienced researcher/professional with proven professional experience in other R&D Hubs or similar organizations (ex. R&D Department of an organization). They should be fluent in English and have a Master's or PhD degree in the ICT or/and Social Sciences or similar field. They should have excellent analytical and management skills and be good at handling Microsoft Office applications. Finally, they should be able to work under pressure and with no or little guidance and must be able to give directions to a group of professional or nonprofessional personnel if needed.
- **Senior Researcher/Researcher:** This individual works closely with the R&D Manager and has similar skills. What differentiates them is that the Senior Researcher follows guidelines given by the R&D Manager while concentrating in the technical or specific specialty at hand. They are the ones that plan and execute R&D related projects and services within their of specialty and are sometimes expected to initiate new projects. They must have a PhD in ICT, Social Sciences or similar field, be fluent in English, have proven professional experience in similar R&D Hubs or/and R&D Projects, and have high analytical and time management skills.
- **R&D Administrator:** The R&D Administrator will be the one monitoring and managing R&D projects in regards to schedule to ensure project deliverables are met. They will manage the administrative part of the Hub patent and R&D services portfolio, organize and schedule meetings, produce and

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distribute meeting minutes, memos, letters and forms, develop and maintain a filling system and maintain documentation. This individual should have a Bachelor's or Master's degree in Engineering, Business Administration, Economics or relevant fields. They should have proven relevant professional experience in R&D, Laboratory Management, Admin position. They should have excellent time management skills and ability to multi-task and prioritize work, whilst being able to pay attention to detail and problem solve.

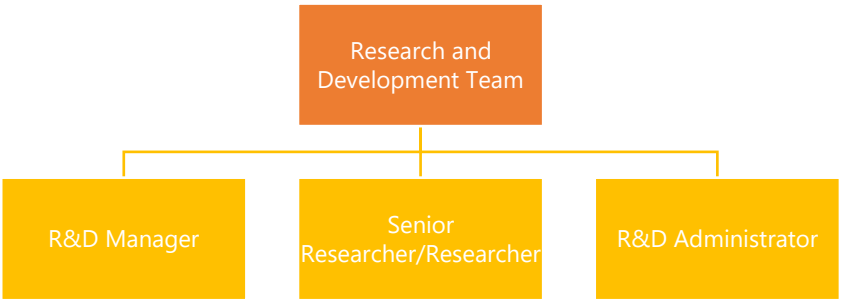

Figure 6: Research and Development Team Breakdown

- **Finance and Administration Team:** This team is the one responsible for managing the financial and administrative aspects of the Hub, including budgeting, accounting, and Human Resources management. This team works closely with the Leadership Team to ensure that the Hub operates efficiently and effectively while it reports directly to the Chief Financial Officer. This team should be comprised by two basic roles which should be enhanced when possible:
    - **Financial Manager:** This individual is the one that will perform data analysis and advise the Chief Financial Officer on profit-maximizing ideas. They will provide financial reports and interpret financial information to managerial staff while recommending further courses of action, advice on investment activities and provide strategies that the Hub should take. They will analyze costs, pricing, variable contributions, sales results and the Hub's actual performance compared to the overall missions and goals, develop trends and projections, conduct reviews and evaluations for cost-reduction opportunities, oversee operations, set financial goals and objectives, and design a framework for these to be met, and finally manage the Hub's budget in terms of preparation, dissemination towards various directions – such as salaries, office utilities etc. – and handling. They must have a

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Bachelor's or Master's Degree in Finance, Accounting or Economics, be fluent in English, have proven professional experience as a Financial Manager, or general proven professional experience in the financial sector with previous possible roles such as financial analyst, have extensive understanding of financial trends and, finally, have strong interpersonal, communication and presentation skills.

- **Human Resources Manager:** This individual is responsible for coordinating all administrative activities related to the Hub's personnel and stakeholders' acquisition. Their duties include developing recruitment strategies, implementing systems for managing staff benefits, payroll and behavior and onboarding new employees. They are the ones implementing the full hiring process of employees, including recruitment, interviews, verifying work-history and references, and tracking of new possible candidates, while also handling termination processes. They will be completing special human resources projects including setting timetables and schedules, conducting research, developing and organizing information, analyzing time and cost issues and preparing reports. They will work closely with the Leadership Team in performance management procedures, provide guidance and support on performance management with the aim of preventing employee concerns, and, along with the Chief Education Officer, will develop employee training and development programs. They must have a Bachelor's or Master's degree in Human Resources, Management, Business Administration or similar fields, be fluent in English, have proven professional experience as an HR coordinator or relevant human resources/administrative position, have knowledge of human resources processes and best practices, have excellent communication and interpersonal skills, and have good organizational and time management skills.

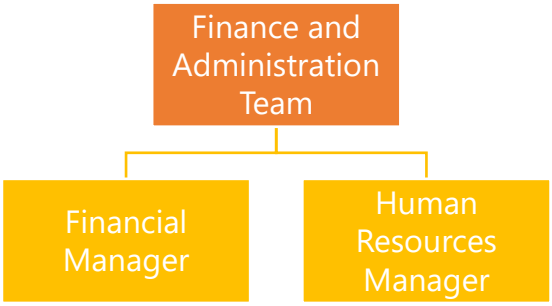

Figure 7: Finance and Administration Team Breakdown

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- **External Consultants/ Consultants:** The R&D hub may also engage internal and external consultants to provide specialized expertise or support on specific projects. These consultants will work closely with all aforementioned teams based on the project/service at hand to ensure that their contributions are aligned with the needs of the Hub and the stakeholders/clients. Consultants may be internal or external. The difference is that internal consultants work exclusively for the Hub for a prolonged period of time, while external consultants may be hired for a short period of time depending on the Hub's needs. Both of these consultant categories may be divided into: Corporate consultants, which are consultants who focus their expertise on business-to-business services or corporate programs and policies and can perform Business, Sales or IT consulting; Public relations consultants, who consider all aspects of the Hub's public image and can perform Social Media, Marketing, Image consulting, and; Management consultants who deliver guidance on improving management techniques, operations, methods and strategies, and can perform HR, Operations and Financial consulting services. They should be always be picked in regards to their proven professional expertise, previous work and accomplishments.

5. R&D process

The R&D process is repetitive, i.e. the R&D center goes through the different stages described below several times in order to refine and improve the new services. In addition, the R&D process can be tailored to each new service offering, according to specific demands and requirements.

The ASTRA Hub's R&D process is sequential in the sense that it starts with Ideation, progresses through Experimentation and Testing, and concludes with Evaluation. The Experimentation stage is the stage where the new service is created and trialed, while the testing stage is the stage where the service is piloted and refined before moving on to the Assessment stage. Each stage contains specific activities, such as developing prototypes, carrying out user research and analyzing data, which are aimed at furthering the overall objectives of the R&D process.

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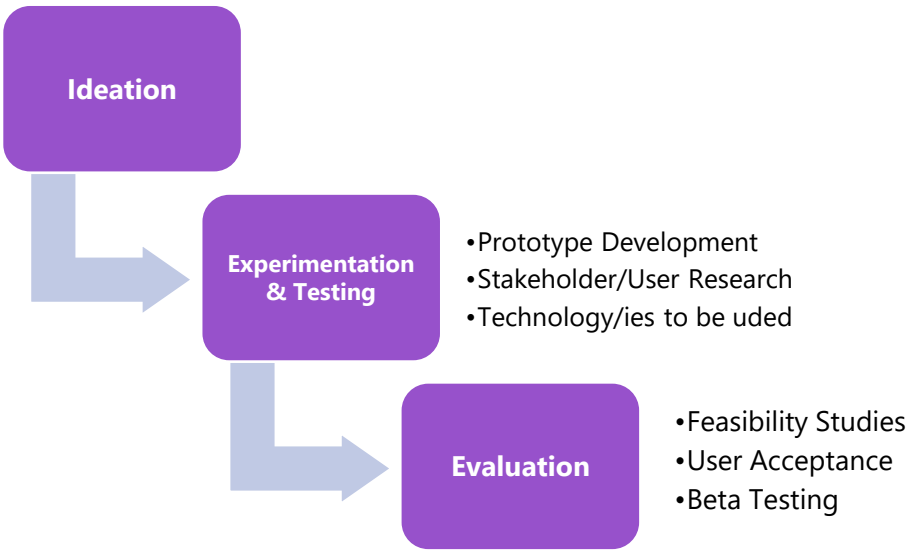

Figure 8: R&D Process Outline

In general, the R&D process aims to develop new services that meet the needs of the audience, that are financially viable and that can be effectively delivered by the R&D center. The process is supported by a culture of innovation and collaboration, with team members from different disciplines coming together to create new ideas and generate new services.

5.1 Overview of the R&D Proposal Development Training

The training that can be provided by the R&D Hubs covers the basic steps involved in developing a proposal. These are planning, researching and writing a grant. The aim would also be to create best practices that can be followed by potential funders. The different types of funders in a national, regional and European context will be presented. The important elements of the application process will be further explained, as well as what an evaluator is looking for, the financial concerns of funders and the management of the proposal, if successful or not.

Step 1 - Introduction to the different types of funding

This part of the training should explain the different types of funders and how they typically support organizations and HEIs. It is important to emphasize that writing a proposal is not only about achieving your organization's goals, but also about promoting and developing your local community.

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The aim of proposal writing is to convince the funder to fund your proposal. To ensure success, HEIs and organizations should take time to plan and research before starting to write their proposal.

The first step, as explained in the training, is the planning stage. Your organizational structure should be in place to achieve the objectives of this project. Your expectations and contributions, as well as who will benefit from the amount of money you need and how you will use it, are crucial for the funder.

The planning of the proposal includes the assessment of the feasibility in relation to the own contribution, i.e. the amount of money required to participate in the proposal. If the required amount of money is not available, the proposal stage cannot proceed. In this first planning stage, it is important to understand more about your funder. There are different types of funders. These include: individual donors, corporate foundations, government grants and intergovernmental organizations such as the European Union and ASEAN. For more details, see section 7.1 of the present guide.

It is important to remember that each of these funders has its own specificities linked to the budget. A logic model linked to what you want to achieve and by when should be developed. The budget and its clear explanation will help the evaluators to assess the effectiveness of your proposal. Examples of the organization's past performance should also be included. It is necessary to mention the number of people reached by your previous activities. Previous successes related to your proposed topic will increase the chances of the proposal being selected.

Finally, during the planning phase, the people involved in developing the proposal should be clearly identified.

Step 2 - Create an answer sheet

These are the same sample questions that can be distributed to the training participants.

Questions
What internal resources do you need to achieve your goals?
What kind of activities do you plan to perform with these resources?
What will the outcome be of your work?

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How will these outcomes make changes for participants or communities?
What is your organization's budget? What is the amount needed for co-financing of the project?
How is the budget broken down? What amount do you plan to use for staffing?
What examples of past performance does your organization have? What successes do you have in your local community?

Step 3 Research for the proposal

This part of the training should focus on the application guidelines and the evaluation process. Each call for proposals sets out specific objectives and highlights the elements necessary for a proposal to be competitive.

As part of the research associated with the proposal, the following questions may be asked:

- Have they funded projects similar to yours in the past?

- Is the topic of the call relevant to your community and organization?

- What is the focus of the call?

- What are the funder's instructions and requirements for submitting a proposal?

It is important to emphasize during the training that the funder will require several documents from the HEI/organization and that they should be able to provide these before starting the proposal writing phase. Funders do not often transfer money to personal accounts, so an institutional/organizational account is needed. You should also check if you need to be registered in a specific database, as is the case for the Erasmus programs.

For most proposals, the funders carry out a technical and a content check. The technical review will look at whether your proposal has followed the guidelines and requirements set out in the call for proposals. The content review looks at the content of the application and whether it is in line with the mission statement and objectives. The budget will also be looked at carefully, based on what you want to achieve and the management of the funding.

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Knowing how a funder will assess your application is also very important. For most grants, funders will carry out a technical review and a content review. A technical review is where the funder checks that you have followed the guidelines and requirements for submitting the grant. Failure to meet the funder's basic guidelines for the grant application will ensure that your grant application is rejected. A content review by a funder will look at whether the proposal is in line with the funder's mission statement and objectives. It will also look at things like whether you have the right experts on your team and whether your budget is the right amount based on what you plan to do and achieve.

The right research will save your organization time and resources. It will also ensure that all the criteria have been met and that you are taking the next steps associated with the proposal correctly.

Step 4 Writing a grant proposal

This part of the training describes the key elements of the proposal, including the project description, organizational overview, budget and supporting documentation. Writing a funding proposal is an ongoing process and the more proposals someone writes, the more experienced they are.

The proposal is thought of as an action plan, explaining step by step how you will carry out your project. It's a plan that includes how to spend the money, organize the staff and evaluate and measure the success of your proposal. As a good practice, you may want to contact an experienced person to review your proposal before you submit it. The funder's guidelines and call for proposals should be readily available to ensure that you cover all the points mentioned in them in the proposal itself. The narrative section of the proposal provides more information about the organization and its achievements. The narrative section is where you outline your project and what you want to achieve. The focus of the proposal should be on the solution that your proposal offers, not just the problem. Previous funding and achievements will also be mentioned in this section.

The start and end dates should be clearly stated, as should the action steps. The actions associated with the project should have a lasting impact beyond the funding period requested.

Another important part of the application is the way in which the results will be evaluated. Evaluation and measuring impact is really important, both quantitatively with numbers and qualitatively with stories from participants. If a summary is requested, then a compelling overview of the project, with arguments based on your expertise and contributions, will highlight this. Funders tend to read the abstract and it is important to grab the reader's attention. A well-written summary will compel the evaluator to read the full proposal carefully.

Evaluators are also interested in the budget. In the budget section, there should be an income and an expenditure section. What is your own contribution and how much money

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do you expect to spend? Where do you expect to spend the money associated with the proposal? It is common for funders to ask you to clearly state by when you will achieve a specific result. The timeframe should be realistic and over-promising is not recommended.

Finally, it is vital to include a monitoring and evaluation plan. In the plan, the target population, the program objectives should be clearly measurable and there should be a timetable to monitor the success of the program on an ongoing basis.

Step 5 Follow Up with your Funder.

If your application is accepted, you will need to keep in touch with your funder. All information related to the project should be reported on internal platforms, but also communicated to the public. Most funders ask for a dissemination plan in advance. Funders want to ensure that the results of projects are clearly communicated. Newsletters, social media posts and participation in conferences ensure that results are communicated and impact is achieved in a local, regional and international context. Deadlines for reporting and monitoring should be communicated to partners in advance. The consortium leader partner should ensure smooth cooperation between partners and a project manager from the coordinator's team should ensure that reports and activities are completed on time.

Networking opportunities

Networking is also a key factor in the success of your proposal in both ways. Networking will help you identify key stakeholders and possible partners in your area and/or field, while it will also raise the profile of your organization and strengthen its international presence. The R&D Hub and it's board should use their personal and professional network to target possible funders or key people. In most cases, your organization’s board will also sit on other boards and this can facilitate the process.

However, many organizations also have their own databases that you can search for potential partners based on the organization’s research interests.

It is worth noting that most funders will fund proposals that can demonstrate a strong commitment from partners. A project proposal with members who do not have similar research interests or background experience will not be evaluated with a good score.

Another way of networking is to ask the funder to meet one of their staff in person before writing your proposal. The face-to-face meeting will ensure that your organization is more likely and verify during the meeting that your organization is a good fit to apply for this upcoming grant.

Conducting thorough research before you start writing your proposal will save time, ensure that resources are used properly and ensure that you do not make a critical mistake that could create negative impressions between you and potential funders.

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6. Including an Acceleration and Incubation process

The R&D Hub has the additional role and responsibility to support its researchers and their teams and to guide them through and into commercializing their research output. For this to be implemented, the Hub can and may act as an incubator and/or accelerator for such teams to be trained, networked amongst each other, and to be coached and mentored.

Thus, the existing gaps must be identified and actions must be taken towards bridging them. In general, such actions have to address the needs for: The advancement and development of entrepreneurial skills to and for potential researchers aspiring to become entrepreneurs and commercialize their ICT and Social sciences - related research output; Incubation and acceleration services through which such teams are trained and coached and Venture development and Technology Transfer. These gaps and actions to be taken towards closing them, can be seen as a linear process, in terms of interesting parties passing through a funnel of offered services towards commercialization, as can be seen below:

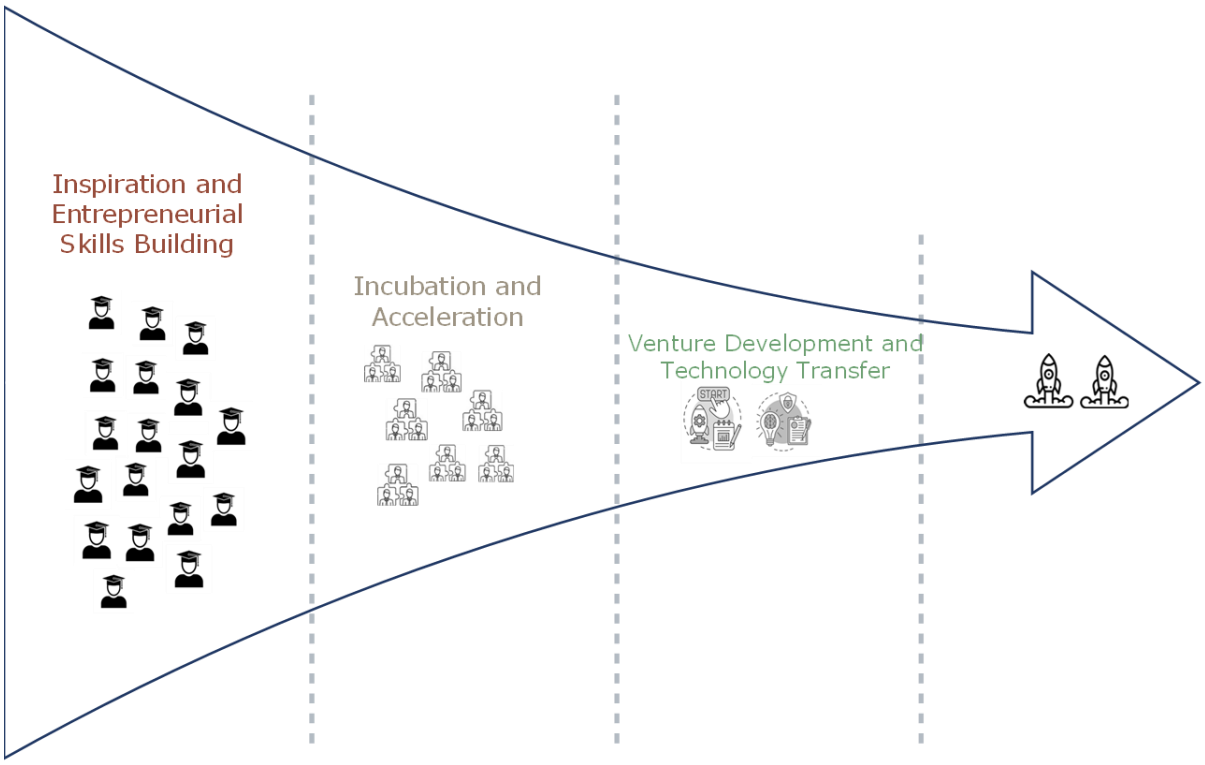

Figure 9: Acceleration and Incubation Support Funnel

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6.1 Inspiration and Entrepreneurial Skills Building Services

As an R&D Hub specialized in ICT and Social Sciences, a range of services to researchers who wish to commercialize their research output and become successful entrepreneurs must be offered. Such services must be designed to provide inspiration and entrepreneurial skills building to help researchers turn their research into marketable products or services. A set of services on inspiration and entrepreneurial skills development is:

1. **Idea validation.** For idea validation services, a team of experts that can help researchers validate their business ideas, conduct market research, and identify potential customers must be present. Idea validation is a crucial step in the process of commercializing research output. It involves gathering feedback and data to determine if a business idea is viable and has potential for success in the market. A set of services that can be used to assist researchers with idea validation are: Market research, in terms of consulting/mentoring services to identify customer needs, market trends, and competitors; Competition analysis, to help research teams recognize direct and indirect related competitors; Customer Acquisition, in terms of assisting research teams to recognize, connect and acquire potential customers to gain insights into their pain points, preferences, and buying behavior; Value proposition, to assist researchers into developing a compelling value proposition that addresses client needs and differentiates their product or service from competitors, and; MVP Services, for creating and testing a Minimum Viable Product to gauge customer interest and gather feedback.
2. **Business planning**, that follows the idea generation process, where researchers are assisted in the process of developing a solid business plan that outlines their value proposition, market opportunity and revenue model. This can be performed through exercises and workshops with the use of tools such as The Business Model Canvas and The Lean Canvas.
3. **Training and workshops** that are essential components of the R&D Hub services for researchers who wish to commercialize their research output. These, help partakers advance and develop their set of entrepreneurial skills which may include, but are not limited to, Sales and marketing, Negotiation skills, Financial management, Leadership and Teamwork, Innovation and Creativity, Pitching and presentation, Opportunity recognition and Risk assessment.

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The aforementioned set of services can be offered through training programs organized and implemented by the Hub. An ideal program would be short, for example one to two weeks long, with a limited set of participants – up to fifty – and with an array of seminars, trainings and workshops that help researchers take their initial step towards commercializing their research output and becoming entrepreneurs. A proposed training program for inspiration and entrepreneurial skills building in terms of the array of seminars, trainings and workshops would be:

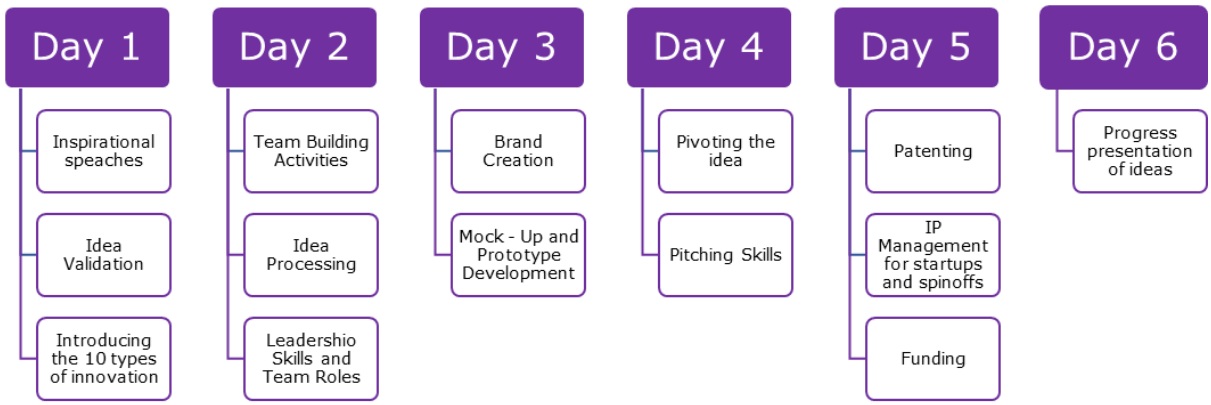

Figure 10: inspiration and entrepreneurial skills building proposed program outline

6.2 Incubation and Acceleration services

Incubation and acceleration services through a structured process should be designed to help researchers turn their research output into successful startups by providing them with the resources and support they need to grow their businesses. The basic assistance that should be offered is through providing workspace. Physical and virtual spaces for researchers to work on their startups that are designed to be collaborative and provide access to resources such as high-speed internet, printing, and meeting rooms, must be provided. Extended mentorship and coaching should be offered to all research teams, for them to be provided with guidance and support on various aspects of entrepreneurship, such as business development, sales, marketing, finance, and leadership. Throughout the acceleration process, networking events and opportunities for researchers to connect with industry leaders, entrepreneurs, and other startups, as well as specialized trainings and workshops on various topics related to entrepreneurship and the commercialization of research should be provided.

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Another important aspect of incubation and acceleration services is the connection the Hub has with the industry and its ability to offer, organize and implement Open Innovation programs to co–create innovation between incumbents and startups/ spin-offs, and for the teams to be able to implement their Proof of Concepts (PoCs) to pilot and test their innovative solutions. A PoC is a demonstration of the feasibility and potential of a new idea, product, or service. It is typically a small-scale and preliminary version of a new product or service that is used to validate key assumptions and test the viability of the concept before investing more resources into its development. Its primary goal is to provide evidence that the proposed concept can work and is worth pursuing further. In summary, it is a small-scale version of a new idea or product that is used to test its feasibility and potential, and to provide evidence to investors that the concept is worth pursuing further.

In general, an Open Innovation program is a collaborative approach to innovation that involves partnering of and with external organizations, such as startups, spinoffs, universities, research centers, and other companies, to generate and develop novel ideas, products, and services. This approach differs from traditional innovation practices, which typically occur within the confines of a company or organization, as Open Innovation leverages the expertise, resources, and viewpoints of external partners to bring innovative concepts to fruition. Open Innovation programs can take various forms, but typically involve: Idea sourcing, as big companies and organizations seek outside of their closed cycle for partners who can provide new ideas, technologies or expertise, and which can be used to develop innovative products and/or services; Collaboration, as companies work together with external partners to co-create/develop/innovate new products and/or services; Commercialization, and; Knowledge sharing. Therefore, the R&D Hub can play the intermediate role, to connect large organizations with research teams, train them and assist them into co-creation towards the implementation of their Proof of Concept.

6.3 Venture Development and Technology Transfer

Venture Development

After a research team has processed through all of the aforementioned, it can move on to Venture Development. Venture development in general, is the process of transforming a new business idea into a sustainable, profitable venture. It involves developing and implementing a business model, raising funds, and launching and growing the business. Here, the team has defined its idea, has finalized the team, has been educated and accelerated and has tested the validity of its product and/or service. The next steps to be taken, and one that an R&D Hub can provide as a service, is to proceed to the final development of the business plan, secure funding – if needed – and launch the business. The business plan at this point, should include details on extended description of the product and/or service including all of its aspects, a marketing, operational and financial

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plan. To raise funds, and especially in cases where the team hasn't acquired any paying customers, it is important to have a clear understanding of the financial needs of the business and to develop a plan for how the funds will be used. Funding can be secured from investors, banks, or other sources of capital. Once funding is secured, or once the team has acquired one or more paying customers, it should proceed to launching the business both legally and practically through executing the aforesaid business plan.

Technology Transfer

In some cases, teams will be in dire need of Technology Transfer services in order for them to be able to transfer their scientific or technological knowledge, intellectual property, and expertise to another organization, such as a private company, an organization or a university for further development. This can take many forms, including licensing agreements, joint ventures, and the formation of spin-off companies. The goal of technology transfer is to bridge the gap between the development of innovative technologies in academic or research settings and their commercialization in the marketplace. Services offered by the R&D Hub specialized in ICT and Social Sciences can include a range of activities including: IP Management, that is explained in detail later on in this operational guide; Technology commercialization, which involves developing and implementing strategies for the commercialization of technologies, such as licensing agreements, joint ventures, and spin-off companies; Industry partnerships, and finally; Entrepreneurship support and training as explained in detail before in this guide.

Overall, technology transfer services the R&D Hub must help to bridge the gap between research and industry, and facilitate the transfer of innovative technologies and knowledge to society.

7. Fundraising Pipeline and Resource management

Fundraising pipeline and recourse management aims to develop and execute a portfolio of services that includes both internal services provided by the R&D Hub and external services in the form of consultancy. It focuses on maximising the impact of the service portfolio while minimising costs and optimising the use of resources. The R&D Hub should be proactive in identifying funding opportunities and building partnerships, while continuously providing and being open to networking and networking events to draw on additional resources and expertise. Another important factor is the Hub's ability to carefully manage its budget and assess the performance of its portfolio of services to make sure it is meeting its objectives.

Below one can find the operation and activities of R&D Hubs in terms of funding pipeline and resource management in general, while specific steps for institutional fundraising and

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private funding are presented later. The overall funding pipeline process includes three key activities: Funding, Resource Allocation and Budgeting.

- Funding involves securing funding from various sources, such as public grants, private funding and crowdfunding;

- Resource allocation involves allocating resources to assist the different stages of the R&D process, including staff, equipment and training;

- Budgeting involves setting budgets for each project or service offering and closely controlling expenditure to ensure that it is in line with the budget;

There are also three sub-activities for each of the three key activities, providing a set of nine activities in total that the [UNIVERSITY NAME] Hub needs to consider and operate efficiently in order to be sustainable. These include: For funding, government grants and private sector funding. For resource allocation, human resources, training and partnerships. For budgeting, financial forecasting, performance evaluation and data analysis.

Before the above activities are described in more detail, it is important to consider the institutional and private fundraising steps that the R&D Hub must follow during the fundraising pipeline.

7.1 Institutional Fundraising Step – by – Step

Institutional fundraising, as explained above, should include a full cycle of proposal development. This includes: a. Strategic planning and prioritisation of funding opportunities; Conceptualisation of a specific project idea; Partnership building; Proposal preparation; Submission and; Follow-up. This process is outlined below, step by step, in order for an R&D Hub to function in the best possible way in order to attract the maximum amount of institutional funding.

Step 1: Develop a strategic plan and prioritise funding opportunities

Creating a strategic plan for institutional fundraising requires a coordinated effort across the Hub and a deep understanding of the requirements and motivations of the target audience and stakeholders. To be effective, the plan should be developed as follows:

1. Define the targets

The first step is to clearly define the fundraising targets. Some questions to be answered that will help in the process of defining these objectives are

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What specific goals does the R&D Hub want to achieve through institutional fundraising? Is it to fund a specific project or research programme? Is it to build a long-term partnership with donors or investors?
These issues will help focus efforts and develop a strategy that aligns with the overall goals of the organisation. The Hub should also bear in mind from the outset that the focus should always be on ICT and social science related research and projects.

2. Assessing existing resources

An assessment of existing resources should be carried out, including staff, budget and other assets that can be used for fundraising activities. The skills and experience of the team should be considered, as well as identifying gaps that need to be addressed through additional training or recruitment.

3. Identify possible sources of funding

A search must be conducted to identify potential funding sources, including foundations, corporations, government agencies and individual donors. Look for organisations or individuals with a track record of supporting similar ICT and social science initiatives. In general, research has found that there are differences between countries in the importance and level of contribution of different funding sources to research and innovation. With governments still unable to provide sufficient funding for research and innovation, international donors play an important role.1 For Asian countries in particular, there is increased attention from international NGOs, corporate fundraising and social ventures. 2 The following are some of the funding organisations to consider for institutional funding through various open calls and opportunities.Funding Organizations with an international focus:

1. International Development Research Centre (IDRC)
2. Global Challenges Research Fund (GCRF)
3. The World Bank
4. The United Nations Development Programme (UNDP)
5. The European Union's Horizon Europe program
6. The Open Society Foundations

Funding Organizations with a focus on Asian countries:

1. Taiwan Ministry of Science and Technology (MOST)
2. National Science and Technology Development Agency (NSTDA)
3. Asian Development Bank (ADB)

Funding Organizations with a focus on ICT and Social Sciences:

1. Social Science Research Council (SSRC)
2. National Science Foundation (NSF)
3. European Research Council (ERC)
4. The Leverhulme Trust

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5. The National Research Foundation (NRF)
6. The Social Sciences and Humanities Research Council (SSHRC)

Step 2: Conceptualise a specific project idea and prepare a proposal

The conceptualisation of a project idea for institutional fundraising should follow the key elements below. The identification of the needs: Which need or problem will this project address? This may include conducting a need analysis, examining existing research and data, or consultation with stakeholders. Then the definition the project: Once the needs have been identified, the idea must also be identified. This involves developing a project proposal that describes the aims, objectives, activities and outcomes of the project.

Step 3: Drafting the proposal

Once the project has been conceived as explained above, it is time to write a draft proposal. This is done so that the R&D Hub can better communicate the idea in the next step, which is to build the partnership. When drafting the proposal, it is important to first identify the funding organisation and the call for interest. This will help to identify the specific components of the proposal, which will differ depending on the funder and the type of project. Always carefully review the funding guidelines and requirements before developing a project proposal. It is also necessary to prepare and keep in mind a specific budget in accordance with the funder's offer and open call. This budget outlines the costs associated with carrying out the project. It includes a rough estimate of the costs for staff, equipment, consumables and other expenses. With the proposal idea, funding opportunities and budget in hand, it is time to start writing the proposal for submission. The proposal should be well drafted, convincing and targeted to the specific funder. A project proposal typically contains several key components, which are outlined below.

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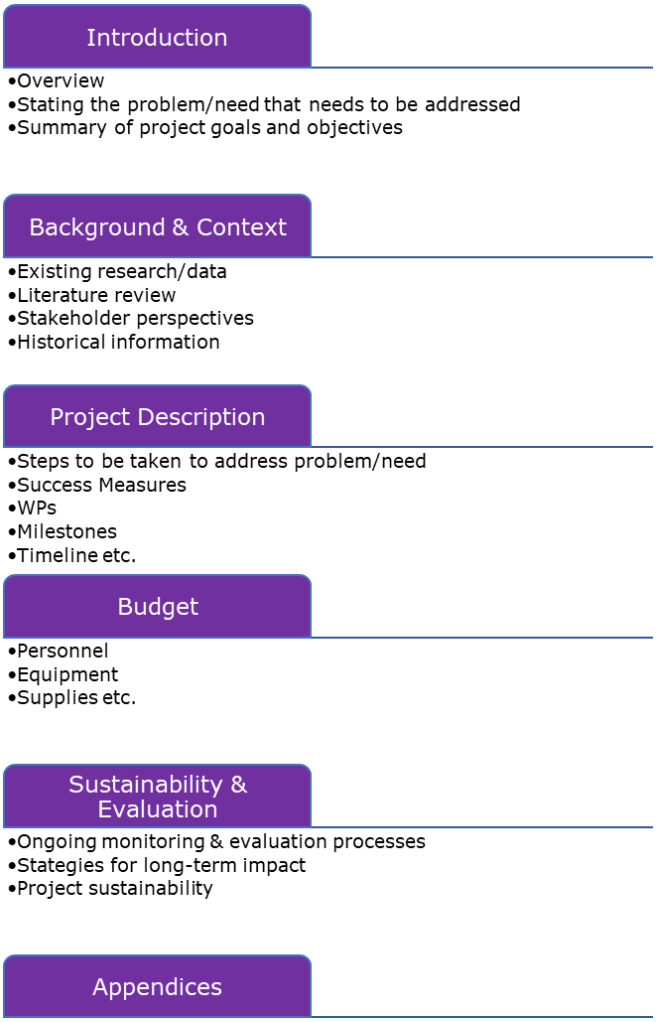

Figure 11: Project Proposal Outline

Step 4: Partnership building

In order to build partnerships for institutional funding proposals, it is essential to have a strategic approach that includes several steps, such as the identification of potential partners, understanding their interests and needs, and promoting a collaborative relationship. Some steps that can be taken to help build partnerships for a proposal in the context of institutional fundraising are identifying potential partners and organisations with similar aims and interests. These could be organisations that the Hub has worked with in the past, or some that are working in the same field. Some online platforms for finding potential partners are:

1. Foundation Directory Online
2. GuideStar
3. GlobalGiving

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4. Candid
5. LinkedIn
6. Europa

Having identified the potential partners, the next step is research. The Hub should research the potential partners in terms of their priorities and values in order to understand what they do and how they approach their work. This can help the Hub to tailor the proposal to the priorities and interests of both itself and the potential partners. Once the most relevant partners have been selected, the next step is to build a working relationship. This can be done by approaching these organisations and engaging in discussions to understand their needs and interests and to explore the opportunities for collaboration. Once an agreement has been reached, you can present the proposal you have developed as outlined above to the partners. The proposal should clearly state the value of the partnership and how it fits with the priorities of both organisations. All partners should work together to finalise and submit the proposal. Communication lines should be open, responding to feedback while working together to address any challenges that may arise. The partnership should be reviewed on a regular basis to ensure that it's meeting its objectives and adding value. This information will be used to adjust and improve the partnership over time.

Step 5: Submit and follow up

Once all the above has been done and the proposal has been finalised, it should be submitted. If the Hub is acting as the coordinator of this project, it should keep the other partners informed about the proposal process and any issues that may arise, especially if there is a need for corrections or additional paperwork. The project coordinator and the other partners should be in constant communication and follow up with each other throughout the process of the funding agency's evaluation of the proposal.

7.2 Private funding Step – by – Step

To secure private funding, the Hub needs to design consultancy services to be offered either separately or jointly to the ICT and social science industries. These services may cover, but are not limited to, qualitative and quantitative research consultancy, design of innovative tools and services, product evaluation, impact assessment and quality assurance models. A brief overview of each service is provided below to enable the Hub to design each service and offer effectively.

Research consultancy - qualitative and quantitative

Qualitative and quantitative research consultancy involves the provision of guidance and expertise to individuals or organisations wishing to undertake research studies. Here are some of the steps that need to be taken to design and deliver such services. The first step

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is to identify and agree the research question. This should be done with the client to identify the problem they are trying to solve or the question they are trying to answer. Once the question has been identified, the appropriate methodological design should be selected. Qualitative research designs are case studies, ethnographic studies and grounded theory, while quantitative research designs are surveys, experiments and quasi-experiments. For the information to be implemented, a research plan should be prepared. This is a plan that outlines the methodology in terms of data collection methods and data analysis techniques, as well as the timeline for the project. As a consultant, the Hub could either gather the data itself or gather the data from the client. Either way, the data should be evaluated using the methods chosen above. The most important part is the interpretation of the results. Once the data has been analysed, the results should be interpreted and conclusions drawn. Based on the conclusions, implications should be drawn together with the client, with the end result and aim of making recommendations based on these findings. The final step is to present the findings to the client. This involves producing a report or presentation that summarises the research question, methodology, findings and the Hub's recommendations as a consultant.

Designing innovative tools and services

Designing innovative tools involves either providing advice and expertise on the development and implementation of new tools or technologies, or producing them first hand. Before starting the design project, it's important to define the problem that needs to be solved. Identify the pain points, challenges or opportunities that the new tool or technology should address. A needs analysis should then be carried out to understand the requirements of users and stakeholders. This may involve interviewing users, conducting surveys, or observing people using existing tools or technologies. A design brief should then be created based on the needs analysis, outlining the goals, objectives and scope of the project. Identify the target users, the features and functions of the tool, and any technical or budgetary constraints. The next step is to develop a prototype. This involves producing wireframes, user interface designs or physical prototypes. Test and then iterate the prototype with users and stakeholders to get feedback and identify areas for improvement. Finally, the design is completed in preparation for implementation. This may involve writing a detailed design specification, producing technical documentation or creating a marketing plan.

Product & Impact Assessment Services

A product assessment service consists of evaluating a product's design, functionality, usability and overall user experience to provide feedback and recommendations for improvement. In order to deliver this service to a high standard, the Hub should adhere to a specific process. First, identify what aspects of the product will be assessed and what feedback the client is looking for, and collect data from users to gain insight into their experience with the product. Then assess the design, functionality, usability and overall

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user experience of the product using a combination of expert evaluation and user feedback. Assess the product against established best practices, industry standards and user needs. Gather and present information on what aspects of the product are working well and what areas need improvement, and make recommendations. Finally, prepare a report outlining the key findings and recommendations and follow up with the client to ensure that the recommendations have been implemented and to provide further support if required.

Impact assessment consultancy involves assessing the impact of a programme, project or policy on a particular target group, community or sector. In order to provide this service, the Hub should work with the client to define the objectives and scope of the evaluation, conduct literature reviews, develop a theory of change, collect data using quantitative and qualitative methods, and carry out the evaluation.

Impact assessment consultancy services evaluate the impact of a Programme, project or policy on a particular target group, community or sector. To provide this service, the Hub should work with the client to determine the objectives and scope of the evaluation, conduct literature reviews, develop a theory of change, collect data using quantitative and qualitative methods, analyze the data, identify strengths and weaknesses, make recommendations for improvement, and prepare a clear and concise report for the client.

Models of quality assurance

To deliver quality assurance models as a service, it's important to begin by identifying the client's needs and developing a plan that sets out the goals, objectives and tasks of the service. The next step is to select or develop appropriate quality assurance models according to the client's requirements. The service is then delivered through various activities such as quality reviews, audits, process improvement, testing and validation. It's important to track progress and report regularly to the client, making recommendations for improvement where necessary. It is also important to follow up with the client to ensure that the recommendations have been implemented and to provide additional support as required. Effective communication skills, a strong knowledge of quality assurance frameworks and methodologies, and the ability to work collaboratively with clients are critical to the success of delivering quality assurance as a service.

7.3 Fundraising Pipeline

FUNDING MANAGEMENT

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The R&D Hub raises funding from a variety of sources as outlined above, including the university, state grants and the private sector. The R&D Hub continually evaluates opportunities for venture capital and angel investment. The funding raised is used to meet the costs of the R&D process, including salaries, equipment, materials and other expenses. More specifically:

1.University funding: The R&D Hub secures funding from [NAME OF UNIVERSITY]. This includes grant funding or other forms of financial support specifically allocated to R&D activities. R&D will work closely with the University to explore potential sources of funding to help ensure that R&D activities are aligned with the overall strategic objectives of [UNIVERSITY NAME].

2.State Grants: Governments at national, regional and local levels should provide grants to support R&D activities in various areas. The R&D Hub will explore these opportunities and apply for relevant grants. It could also work together with the university to identify appropriate government agencies and programmes and to prepare strong grant proposals.

3.Private funding: The R&D Hub will seek funding from private sector companies interested in working on projects or in developing new products and/or services. It will identify potential partners through networking events, industry associations and other channels, while also using focused marketing and public relations strategies to attract potential investors and partners.

4.Venture capital: Venture capital firms make investments in early stage companies with high growth potential. The R&D Hub will explore opportunities to partner with venture capital firms interested in supporting R&D initiatives in its field. It will prepare strong business plans and investment proposals and identify venture capital firms with experience in its industry.

5.Angel Investment: Angel investors are individuals who provide investment in early stage companies with the potential for high returns. The R&D hub will seek out angel investors who are interested in supporting R&D activities in its field.

RESOURCE ALLOCATION

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Once funding is in place, the R&D centre will allocate resources to its organisational structure teams to assist with the various stages of the R&D process. This includes assigning staff to specific projects, providing access to specialised equipment or software, and investing in training and development programmes for staff. It also forms partnerships with other organisations or experts to leverage additional resources and expertise. The effective allocation of resources is critical to the success of the R&D Hub. Through investment in staff, equipment, partnerships and time management, the R&D Hub builds a strong foundation for ongoing research and development activities and maximises its impact in the field. More specifically:

1. Staffing: Once funding has been secured, the R&D Hub will allocate staff to specific projects and initiatives based on their skills, expertise and interests, as well as the team they are placed in within the Hub's organisation. This includes creating cross-functional teams that bring together people with different backgrounds and perspectives. The R&D Hub also provides professional development and training programmes to help employees develop new skills and stay up to date.
2. Provision of equipment and software: The R&D centre must invest in specialised equipment or software to support its research activities. This may include laboratory equipment, computer hardware and software, or other tools and technologies. Investments should be prioritised based on the specific needs of research projects to ensure that equipment is maintained and upgraded as necessary to support ongoing research activities.
3. Partnerships and collaborations: The Hub will establish partnerships and collaborations with other organisations or experts to leverage additional resources and expertise. This may include partnerships with other universities or research institutions, collaborations with industry partners, or partnerships with government agencies or non-profit organisations. R&D identifies potential partners on the basis of their alignment with its research goals and priorities, and develops strong relationships that can support ongoing research and development activities.
4. Time organisation: Effective time management is critical to the success of R&D projects. The R&D hub allocates sufficient time to each stage of the R&D process, including ideation, experimentation, testing and evaluation. The R&D centre also sets clear deadlines and milestones for each project and ensures that people have the support and resources they need to meet these targets.
5. Risk assessment: The R&D process can be unforeseeable and may involve a degree of risk. The R&D centre should prioritise risk management and set up protocols to identify and mitigate potential risks. This includes conducting thorough risk assessments for each project, developing contingency plans, and closely managing projects to identify and address emerging risks or challenges.

BUDGET MANAGEMENT

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A budget must be established for each project or service offering, and expenditure is closely monitored to ensure that it is in line with the budget. The R&D Hub also uses financial forecasting and budgeting tools to project future expenses and revenues and adjust its funding and resource allocation strategies accordingly. By setting clear budgets, monitoring expenditure, applying financial forecasting and contingency planning tools, and communicating transparently with stakeholders, the R&D Hub makes sure it has the resources it needs to achieve its research goals and deliver high quality services to its customers. More specifically:

1. Setting a budget: R&D prepares a budget for each project or service offering based on its expected costs and potential revenues as outlined above. This budget contains line items for all expenses, including salaries, equipment, materials and other costs. The budget also forecasts revenue based on the expected outcomes of the project or service offering.
2. Monitoring of expenditure: Once the above budget has been established, the R&D centre closely monitors expenditure to ensure that it is in line with the budget. This includes tracking expenses on a regular basis and comparing them with the budget to identify any variances or areas where adjustments may be needed. Clear approval and tracking protocols need to be established to ensure that funds are used appropriately.
3. Financial planning: Financial planning and budgeting tools could be used to project future expenses and revenues and adjust funding and resource allocation strategies accordingly. These tools can help the R&D hub identify potential funding gaps or revenue shortfalls and take proactive measures to address them. Financial projections can also help the R&D centre to plan for future growth and expansion by forecasting future funding needs and revenue potential.
4. Contingency funding: Effective budget management involves contingency planning for unexpected expenses or revenue shortfalls. Contingency plans are established for each project or service to ensure that it has the resources it needs to continue operations should unexpected events occur. This may involve setting aside reserve funds, entering into partnerships or collaborations to obtain additional resources, or adjusting project schedules to reduce costs.
5. Reporting and communication: R&D maintains clear and transparent communication with its stakeholders about its budget handling practices. This includes regular reporting on financial performance and budget status, as well as involving stakeholders in discussions on funding and resource allocation decisions. By keeping lines of communication open, R&D builds trust and support among its stakeholders and helps ensure that its budget management practices are aligned with its broader mission and goals.

PERFORMANCE EVALUATION

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The R&D Hub regularly assesses the performance of its service portfolio and takes data-driven decisions on funding and resource allocation. This involves analysing financial data, feedback from users and other performance indicators to determine which services are most successful and which require further investments. More specifically:

1. Establish performance benchmarks: The R&D Hub sets clear and measurable performance indicators for each of its service offerings. These indicators should be aligned with the overall mission and goals of the Hub, and based on the specific outcomes the Hub aims to achieve with each service offering. For example, for a fundraising service, performance indicators might be the amount of money raised, the amount of successful fundraising campaigns, and client satisfaction with the service.
2. Collect evidence: Data is collected on a regular basis to evaluate the performance of the service. This includes the use of surveys, user feedback, financial data and other relevant metrics to track the effectiveness of each service. The Hub will also establish clear protocols for data collection and analysis to help ensure that the data is accurate and credible.
3. Analyse the performance: Once the data has been collected, the R&D Hub will analyse it to determine which services are most successful and which require further investment. This analysis is data-driven and takes into account the Hub's overall goals and objectives. For example, to expand its consultancy services, it might analyse user feedback and financial data to identify areas of high demand and potential growth opportunities.
4. Make decisions: Based on the performance data analysis, the R&D hub makes informed decisions about funding and resource allocation. This includes increasing investment in successful services, discontinuing services that are not meeting performance targets, or making changes to improve underperforming services. The hub also sets clear protocols for decision making to ensure that decisions are made in a transparent and objective manner.
5. Continuous improvement: Performance evaluation is an ongoing process, with the R&D Hub constantly striving to improve the quality and effectiveness of its service provision. The Hub will use feedback from clients and other stakeholders to identify areas for improvement and will be open to making changes to its service portfolio as necessary to better serve the needs of its clients.

8. Intellectual property management

Intellectual Property management (IPR management) is crucial as it helps protect and promote the valuable innovations that are produced through the R&D process. Effective IPR management allows R&D institutions to safeguard their innovations and prevent others from using, replicating, or commercializing their ideas without permission. Moreover, IPR management allows R&D to attract investments, facilitate collaborations, and obtain additional streams of revenue.

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It is mainly divided into the management of patents, copyrights, trademarks and the overall IP portfolio. You can see the most significant IPRs in the image bellow:

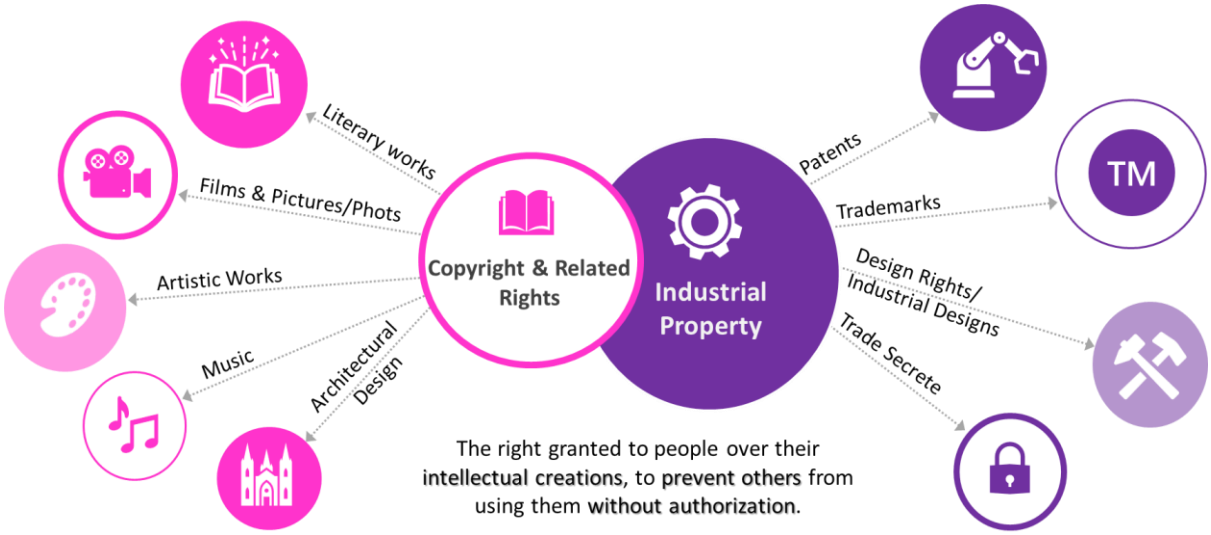

Figure 12: Intellectual Property Rights

8.1 Patent management

A patent strategy for the protection of the Hub's inventions and innovation should be established. This involves filing patent applications for new products, processes, or technologies, and managing the patent prosecution process. Working with patent attorneys or agents is essential to develop and execute a patent strategy, which could involve conducting patent searches, drafting patent applications, and prosecuting patents before the relevant patent offices. Factors such as the scope of protection it seeks, the costs associated with filing and maintaining patents, and the competitive landscape in which its inventions or innovations operate, should be considered here as well. Some examples of patent management are:

1. **Filing patent applications:** Filing patent applications for new products, processes, or technologies that the Hub has developed is included here. This helps protect its inventions and prevent others from using them without permission.
2. **Prior art searches:** Prior art searches are conducted to ensure that the invention is unique and not already patented. This helps reduce the risk of patent infringement and save resources on filing applications that may not be granted.
3. **Patent prosecution:** Management of patent prosecution process, involves communicating with the patent office and responding to any objections or requests

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for clarification. This helps ensure that the patent application is approved and granted.

4. **Patent licensing:** Licensing the patents to other parties for a fee, which can generate revenue and help promote innovation. This helps expand the reach of the invention and bring it to new markets.
5. **Patent enforcement:** Enforcing its patents against third-party infringers, such as by filing a lawsuit. This helps protect intellectual property and prevent others from using it without permission.

8.2 Copyright management

Copyright management ensures the protection of original works of authorship. This involves registering copyrights for software code, written materials, or other works, and managing licensing agreements with third parties. Examples of copyright management include:

1. **Registering copyright:** The R&D hub should register the copyright for any original works of authorship it creates, such as software code, manuals, reports, or other written materials.
2. **Licensing agreements:** Licensing agreements with third parties should be entered to grant them permission to use its copyrighted works. These agreements specify the terms and conditions of use, as well as any royalties or fees that the R&D hub may receive.
3. **Copyright infringement monitoring**: Monitoring the internet and other sources to identify instances of copyright infringement, and take action against infringers as necessary.
4. **Fair use analysis:** Analysing whether its copyrighted works are subject to fair use by third parties, which allows for limited use of copyrighted materials without permission.
5. **Copyright compliance training:** Provision of training to staff and partners on copyright compliance, including the proper use and attribution of copyrighted materials.

8.3 Trademark Management

Trademarks are managed by registering the Hub’s trademarks with the appropriate trademark office. It also needs to enforce its trademarks against potential infringers, such as by sending cease and desist letters or pursuing legal action. There may also be the

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need to monitor the use of trademarks by third parties, such as by conducting periodic searches for potential infringement. More specifically on trademark management actions, we have:

1. Conducting a trademark search to ensure that the proposed trademark is not already in use or registered by another party.
2. Filing a trademark application with the relevant government agency to register the trademark.
3. Monitoring the marketplace for potential infringement of the trademark.
4. Enforcing the trademark against third-party infringers through cease-and-desist letters, litigation, or other legal means.
5. Maintaining and renewing the trademark registration to ensure that it remains in force.
6. Using the trademark consistently and properly to maintain its distinctiveness and avoid losing its legal protection.

8.4 IP Portfolio management

A comprehensive IP strategy must be developed which at the same time aligns with the goals of the R&D hub and the [UNIVERSITY NAME]. This involves identifying potential opportunities for IP protection, managing the filing and maintenance of patents, trademarks, and copyrights, and negotiating IP licensing agreements with third parties. Additionally, the R&D hub needs to monitor the competitive landscape for potential infringement and develop strategies to mitigate IP-related risks. Some examples include:

1. Conducting regular IP audits to identify all of the organization's patents, trademarks, copyrights, trade secrets, and other IP assets.
2. Developing an IP strategy that aligns with the organization's business objectives and takes into account the competitive landscape and legal considerations.
3. Developing policies and procedures for the creation, management, and protection of IP assets, including employee training on IP best practices.
4. Identifying opportunities to license or sell the organization's IP assets to generate additional revenue.
5. Conducting regular IP landscaping to identify emerging technologies and potential IP infringement risks.
6. Working with legal counsel to manage IP disputes and infringement claims.

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7. Developing and maintaining an IP portfolio database to track the status and value of the organization's IP assets.
8. Conducting regular reviews of the organization's IP portfolio to identify underutilized assets or opportunities for portfolio optimization.

Figure 13: Potentially relevant Intellectual Property Rights per item

A creative work	An invention	Confidential information	A data set	A brand or a logo	A design
Copyright	Patent	Trade Secret	Copyright	Trademark	Design Right
Design Right	Trade Secret		Trade Secret	Copyright	Copyright
	Utility Model			Design Right	

9. Collaboration and partnerships

Collaborations and partnerships are an essential part of the R&D process. They enable the use of additional resources, expertise and knowledge that might not be available internally, and extend the scope and impact.

Partnerships can be established with many stakeholders, including but not limited to centers with relevant or complementary activities and focus, institutional partners, professional associations, industrial partners, etc. A legally binding document will be prepared and signed by all parties, depending on the collaborative model agreed by the partners. The collaborative agreement describes the scope of the partnership, the responsibility of each party and the terms and conditions of the partnership. As an indication, collaboration agreements may take the form of

- Partnership agreements with other organizations, which may involve the sharing of resources, knowledge or intellectual property, outlining the scope of the partnership, the respective responsibilities of each party and the terms and conditions of the partnership;

- Joint ventures, to create new products or services, involving the sharing of risks, resources and rewards and governed by a joint venture agreement;

- Licensing agreements, by licensing its intellectual property to other organizations in exchange for royalties or other remuneration;

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- Research collaborations, with other organizations on research projects involving the sharing of knowledge, expertise and resources; and;

- Financing partnerships, to obtain funding for research projects or service offerings.

Although forming a collaboration or partnership can lead to the attainment of shared goals and mutual benefits, it's essential to be cautious and take certain precautions to ensure a successful and sustainable relationship.

Below are some points to consider:

1.Clarify your expectations: Make certain that you and your potential partner have a clear understanding of what you both hope to achieve from working together. This could include goals, timelines, roles and responsibilities, and any other expectations.

2.Consider your compatibility: Assess whether you and your potential partner have compatible values, work and communication styles. A lack of compatibility can lead to conflict and make the collaboration less effective.

3.Assess reliability: Take the time to do your research and assess whether your potential partner is trustworthy and responsible. This may include checking references, looking at their track record and considering any red flags.

4.Agree on the decision-making process: Be clear about how decision-making will take place and how disagreements will be resolved. This can help avoid conflict and ensure that the relationship stays on track.

5.Have a clear agreement: Have a written agreement that outlines the terms and conditions of the collaboration, including goals, responsibilities, timelines and any financial arrangements.

6.Consider exit strategies: While you may be hoping for a long-term and successful collaboration, it's important to plan for the chance that things don't work out. Make sure there are clear arrangements for how to end the collaboration if necessary.

7.: Communication on a regular basis is key to the success of any collaboration. Make sure there are clear channels for communication and that everybody is on the same page about how frequently and in what form communication will occur.

10. Performance metrics and evaluation

The operations of the R&D center should be regularly evaluated using KPIs that are closely linked to the organization’s goals and objectives and provide meaningful insights into its performance. The metrics should address multiple aspects of performance, including

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financial performance, project excellence, portfolio excellence, customer satisfaction, etc. Once these metrics have been identified, the R&D hub needs to set up a data collection and reporting process and conduct regular performance reviews. Based on the reported results, the hub should specify a set of improvement targets and take corrective actions to ensure performance improvement. For example, if the success rate of projects is low, the R&D hub may need to consider investing in additional training or resources to improve the effectiveness of its R&D process. Alternatively, if the return on R&D investment is low, the organization may need to reconsider its investment priorities or seek new sources of funding. An indicative list of metrics for evaluating the performance of the Hub follows:

Pass rates: This metric is the percentage of projects that successfully meet their objectives and can be used to assess the effectiveness of the R&D process.

The return on investment (ROI): ROI is a measure of the financial return on investment in R&D projects and can be used to evaluate the cost-effectiveness of the organization's R&D activities.

Time to commercialization: This metric is used to measure the time it takes to launch a new product or service and can be used to assess the efficiency of the R&D process.

Innovative output: This metric is the number of new products, processes or technologies developed by the R&D center and can be used to assess the overall innovation capacity of the organization.

Consumer Satisfaction: This metric measures customer satisfaction with the R&D center's products and services and can be used to assess the effectiveness of the organization in meeting customer needs.

11. Ethics and Compliance

A code of conduct should be developed outlining the ethical principles and values to which the Hub and its staff must adhere. This could cover policies on conflicts of interest, confidentiality, data protection and fair competition. In addition, an ethics policy should be established that outlines the hub's commitment to operate with integrity, transparency and compliance with relevant laws and regulations. Guidelines and expectations for ethical behaviour should be provided and followed at all times. This should cover issues such as

1.Conflicts of interest: Guidelines on how to deal with potential conflicts of interest, such as declaring relationships with outside parties or avoiding situations where personal interests may conflict with those of the Hub or its customers.

2.Confidentiality and privacy: Guidelines for safeguarding confidential information, respecting the privacy of employees, customers and other stakeholders, and maintaining appropriate information security practices.

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3.Discrimination and Welfare: Guidelines prohibiting discrimination and harassment on the basis of protected characteristics such as race, gender, sexual orientation, age or disability, and outlining procedures for reporting and dealing with any incidents that may occur.

4.Bribery and Fraud: Policies prohibiting bribery and other corrupt practices, including policies on gifts and entertainment, political contributions and other situations where conflicts of interest may arise.

5.Compliance with Laws and Regulations: Policies on compliance with applicable laws and regulations, including privacy, data security, anti-bribery and anti-corruption.

6.Reporting of wrongdoing: Procedures for reporting suspected violations of the Code of Ethics, including whistle-blower protection and policies for investigating and addressing reported incidents.

The code of conduct should be clearly written so that it can be fully understood and should be equally recognised by all members of the Hub, including the management team. It should set out responsibilities and expectations, as well as guidelines on the correct channels to follow when an issue arises. The code should also include consequences for non-compliance, so that everyone understands the implications of not following the code.

Once the code is in force, all members of the hub should be given training on how to follow it to ensure its effectiveness. Retraining or counselling may also be required when issues of non-compliance arise. Regular monitoring of compliance and review of the code are recommended to keep the code up to date.

12. Risk Management

The Hub should have procedures in place to identify, assess and mitigate the risks associated with its operations. Areas of risk that should be considered include cybersecurity, data privacy, financial risks, and legal and regulatory risks.

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Potential risks should first be identified and analysed, then assessed and prioritised according to their severity (answering questions such as How critical is the failure that could occur? How wide is the affected area?), frequency (by answering questions such as How often does this risk occur? How many times does it occur?) and detection (answering questions such as Is the risk difficult to detect? Can it be detected proactively?)

Once risks have been identified and assessed, risk responses and mitigation strategies should be developed to address them. Mitigation strategies may include proactive treatment, regular risk assessments, etc. Early identification and assessment of risks is crucial as it enables the development of appropriate risk response plans.

The Hub should also put in place procedures for regularly monitoring and reporting on risks to ensure that the Hub is aware of potential risks and can implement appropriate mitigation measures.

13. Crisis Management

Crisis management in the Hub's operations involves a strategy-based approach to identify and respond to an unexpected event that has the potential to cause harm to people, property or disruption to operations. The development of a crisis management strategy enables the hub to be ready for such an event and to have a crisis management plan in place to deal with it.

A crisis can take the form of a natural disaster, terrorist attack, mass violence, global pandemic, etc. and can occur at any time, with or without warning. In addition to people, property and processes, they can affect staff morale, the reputation of the centre, customer satisfaction, etc. Therefore, the proactive development of crisis response plans is critical.

Crisis response planning includes establishing a crisis management team, outlining procedures for communicating with staff, customers and partners during a crisis, and identifying critical business functions and infrastructure, as well as alternative working arrangements if necessary to ensure business continuity.

The center should also establish procedures for validating, testing and refining its crisis management plans to ensure that they are effective and up to date.

14. Procurement of necessary equipment

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This section contains instructions on the procurement process on the basis of the rules established in the ASTRA project, which must be followed throughout its life or in any case once your R&D centre is established.

14.1 Equipment purchase rules

- Total purchase cost (no depreciation) of the purchased equipment will be accepted according to the foreseen budget of the Hub
- All equipment/items purchased should be recorded in the inventory of the Hub and the institution it belongs to
- All equipment/items purchased should be labelled with a sticker of the Erasmus+ Logo
  All equipment/items that are funded through the ASTRA Project should be purchased and installed not later than 12 months before the end of the project
- Invoices and proofs of payment should be kept (they act as supporting documents; their main info to be informally translated in English)
- Tender procedure should be followed for purchases over 25.000 EUR: three quotations from different suppliers and selection of the most cost-effective offer. (proofs – such as emails – should be kept from the tendering process and of the three different quotes from suppliers
- VAT can only be claimed if it cannot be recovered by a beneficiary (If VAT is claimed under the project, in case of sampling of supporting documents the Agency/Auditor will request an official document from national tax authorities stating that the institution concerned cannot recover VAT)
- Exchange rate: Requests for payment from the ASTRA Project and financial statements must be in euros. Beneficiaries with general accounts in a currency other than the euro must convert costs incurred in another currency into euros at the average of the daily exchange rates published in the Official Journal of the European Union, determined over the corresponding reporting period, available at https://www.ecb.europa.eu/stats/policy_and_exchange_rates/euro_reference_exchange_rates/html/index.en.html

14.2 List of equipment

Below, a list of equipment is presented, that is necessary to be procured during the initiation of activities of the R&D Hub for its successful overall operation.

Quantity	Type of equipment	Extra details

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10	PCs / laptops	-
10	Desks and accompanying chairs	-
1	Copying - printing - scanning machine	-
1	Video conference system	-
1	Server	(64GB RAM, 2 disks 1.92TB Read Intensive SFF plcaced in array RAID 1)
1	Support operational set	Including: - 1 Server Rack 22U data cabinet - 600x800 deep Perforated Door - 1 Modem/Router - 1 Network Switch
1	Mid-level hardware firewall with advanced security subscription	(Antivirus, Web Filtering, IPS, Application Control, IP Reputation Blocking)
4	Software licenses	1 X Microsoft Windows 10 Pro for Workstation, 1 X Microsoft Office 365 for business, 1 X Github, 1 X Jira
10	User sets	mouse, headset, speaker
11	UPS	for the laptops and the multifunction machine

15. References

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