

Module 3

Research Project

Erasmus+ Capacity Building in Higher Education
Assessing and Improving Research Performance at South East Asian Universities
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REPESEA

or „**Assessing and Improving Research Performance at South East Asian Universities**“ project was implemented in the framework of ERASMUS+ Program, Capacity-Building projects in the field of Higher Education.

The project aims to achieve the following specific objectives:

- To develop and implement the System of the Assessment of the Quality and Impact of Research at partner higher education institutions in partner countries,
- To develop, implement and accredit transferable research skill training modules at partner higher education institutions,
- To develop international cooperation among members of the partnership at regional and interregional level.

Introduction

The Module No 3 is designed to help trainees with preparation, application, planning, and obtaining resources to carry out the research, budgeting, monitoring, and management of research projects.

Grant opportunities

- Horizon 2020: EU funding scheme – Research & Innovation
- The European Cooperation in Science and Technology, a funding organization for the creation of research networks, called COST Actions;
These networks offer an open space for collaboration among scientists across Europe (and beyond) and thereby give impetus to research advancements and innovation.
- A country level research grants (NCN, National Science Centre, Poland)
- Japanese Government (Monbukagakusho) Scholarships (e.g. for research student)
- JASSO (Japan Student Service Organization)
- Japan Foundation, etc.

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1. Planning and writing a successful research grant proposal



Introduction

This section discusses the rules of writing successful research grant proposals with focus on research topic, title, objectives, and good research questions

A general overview of research projects

There are different types of research:

- basic research – conducted to enhance knowledge (to obtain knowledge and expand);
- applied research – focuses on analyzing and solving real-life problems by means of scientific methods;
- problem oriented research – conducted to understand the exact nature of a problem to find out relevant solutions;
- problem solving research – uses applied research to find solutions to the existing problems.

Types of projects from the perspective of research objectives

- exploratory research – conducted to explore the research questions;
- descriptive research – provides more understanding on current issues through a process of data collection;
- explanatory research or causal research, which is conducted to understand the impact of certain changes in existing standard procedures.

A well-written research proposal

- Communicates the potential significance of a topic of research,
- Informs about the impact of a research to be carried out,
- Assures about the feasibility of the project.

A research proposal may serve the following purposes

- Provides an overview of relevance and objective of a research project,
- Gives an overview of content, procedure and timing of a research project,
- Shows whether a research project is researchable in scope and timing.

Components of a research proposal

- Title,
- Research objectives and questions,
- Time schedule, etc.

Selecting a topic and a title of a research project

A research topic presents the area of investigation and is a wider notion than a project`s title.

- WHY the topic seems to be interesting?
- WHO are the information providers on this topic, who might publish information about it, who is affected by the topic?
- WHAT are the major questions for this topic? What are the issues and viewpoints to consider?
- WHERE is the topic important: at the local, national or international level? Are there specific places affected by the topic?

Selecting a topic and a title of a research project

A good title contains the fewest possible words that adequately describe the contents and purpose of a research to be undertaken.

A research project`s title should:

- relate to the topic, niche area and scientific discipline,
- be short but provide as much information about the project as possible,
- accurately describe the nature of the main element of a study,
- be descriptive and to the point,
- attract the attention and interest of a reader.

Formulating research objectives

Research objectives are the goals that are set in a research project and that are to be achieved through the project.

Types of research objectives:

- main objective (sometimes called general, primary or key objective) - states what researchers expect to achieve by the study in general terms, by providing clear, complete and coherent goal of the research,
- specific objectives (or secondary, additional objectives) - systematically address various aspects of a study and provide support in attaining the main objective.

Typical research objectives (1)

- **exploration**, which involves using mainly inductive methods to discover a concept, construct, phenomenon or situation and advance understanding, hypotheses or generalisations,
- **description**, which involves identifying and describing the antecedents, nature and aetiology of a phenomenon,
- **explanation**, which involves developing theory for the purpose of explaining the relationships among concepts or phenomena and determining reasons for the existence of events,

Typical research objectives (2)

- **prediction**, which refers to using pre-existing knowledge or theory to predict what will occur at a later point in time,
- **influence**, which relates to manipulation of the setting or variable to produce an anticipated outcome.

SMART approach in developing objectives

Specific, meaning that the objectives should be exact about what the research project is going to accomplish,
Measurable, implying the ability to quantify research activity or its results and that the source of and mechanism for collecting measurement data are identified,
Attainable, meaning that the objectives are reachable,
Realistic, meaning that there are the resources to make the objective happen,
Time specific, meaning that there is a defined timeframe for the achievement of the objective.

Research questions

- A research question is a clear, focused, concise, complex and arguable question, which research proposal will be centred around.
- It helps researchers to focus their scientific work by providing a path through a research and writing process.
- Formulating right research questions allows to clarify ideas, to reflect on definition and operationalization of important concepts.

FINER criteria in the development of a good research questions

Feasible, meaning that research objectives should be manageable in scope, and affordable in time and money, and that there is adequate technical expertise,

Interesting, meaning that getting the answer to research objectives posed intrigues potential reviewers of research proposal and community,

Novel, meaning that research objectives confirms, refutes or extends previous findings,

Ethical,

Relevant to scientific knowledge, and to future research.

Research questions

- Research questions should address a **knowledge gap**, as it makes no sense to ask a question if the answer is already known.
- The research question should be pragmatically and theoretically relevant.
- Main concepts are precise and anchored in the literature.
- Research questions should be manageable, which means it is answerable by means of research within a reasonable time frame and available resources.
- Formulation of research question should help the reader envision the type of research proposal (descriptive, evaluative, design-oriented, advisory etc.).

Research project stages

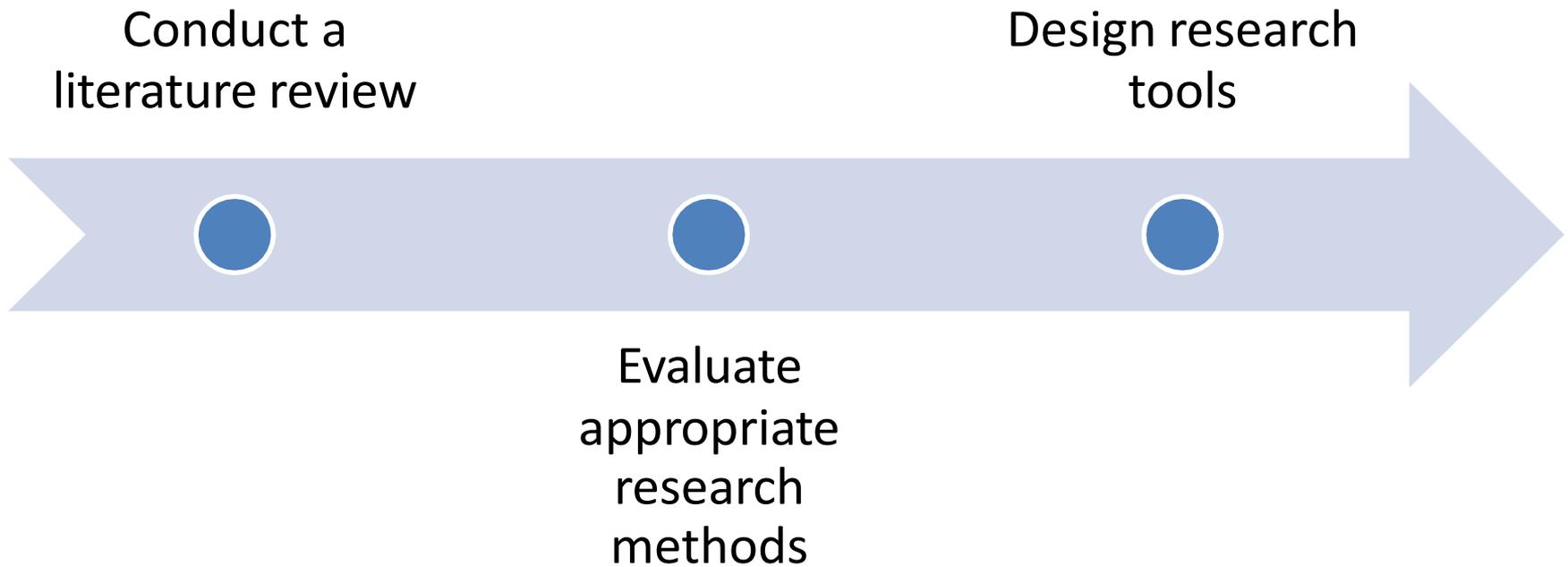
Identify a
research
problem

Refine
reserach
questions

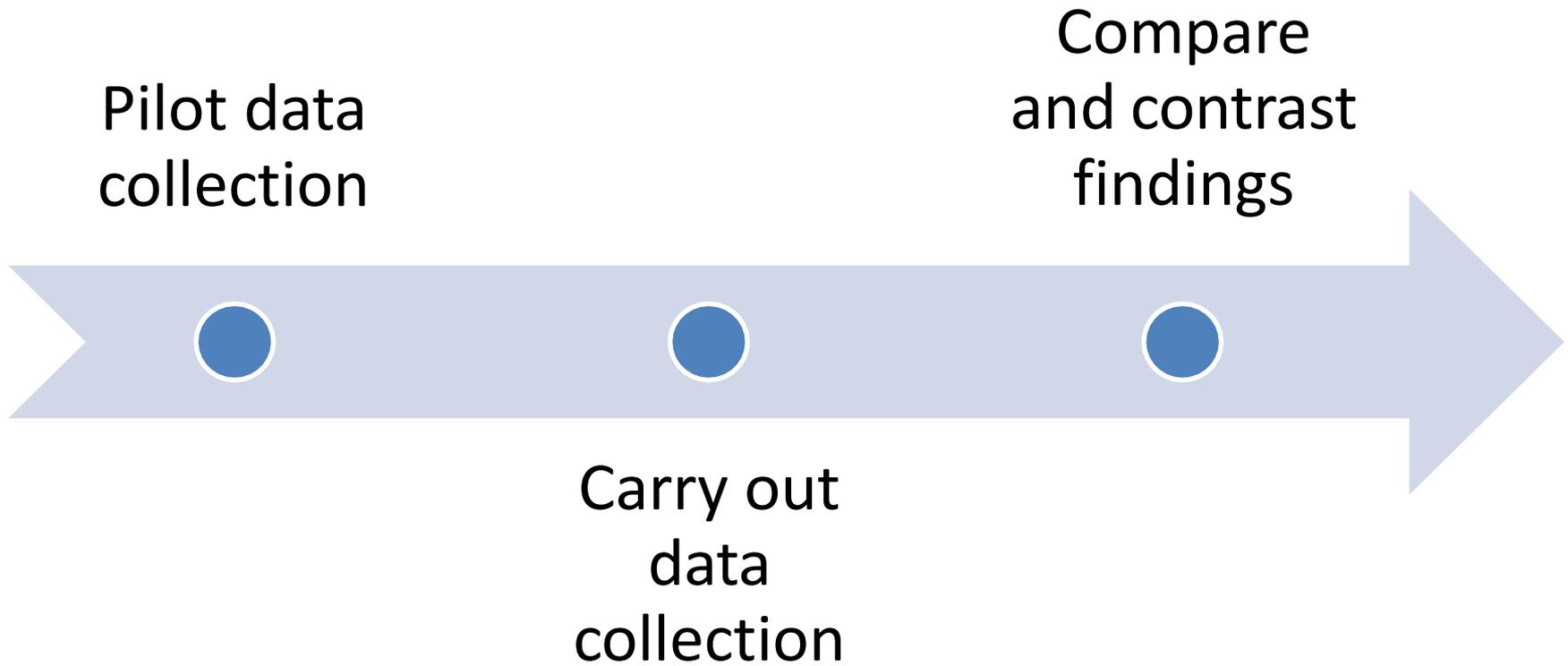
Refine aim
and
objectives



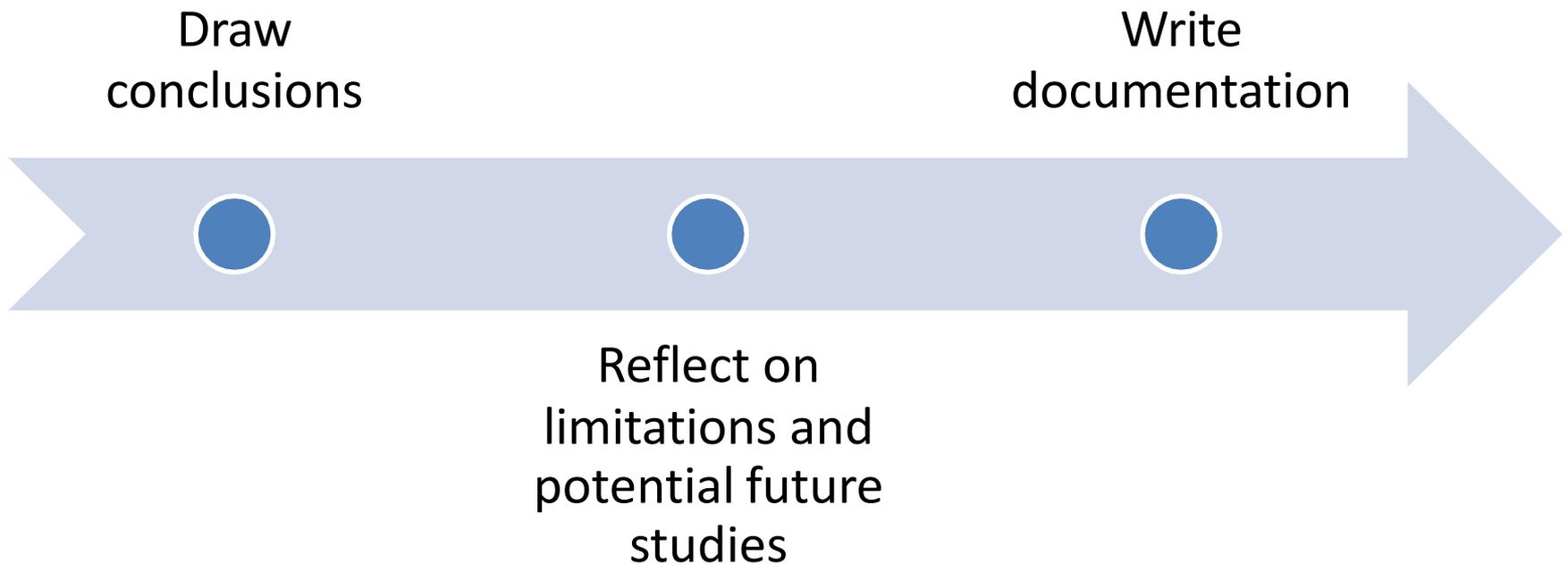
Research project stages



Research project stages



Research project stages



Developing a research project timetable

Establishes the structure for a project.

Main elements:

- list of tasks to be completed,
- dates on which the tasks need to be complete,
- expected duration of each task,
- **dependencies between tasks.**

The key points when setting up project timetable

- duration of a project i.e. start and finish dates,
- **specific stages of a project identified** i.e. pilot, focus group discussion, survey,
- objectives and their inclusion in the timeline,
- realistic project duration / timetable,
- **external constraints / deadlines influencing project duration / time frame)**
- regularity / **scheduling of progress reports and the person in charge.**

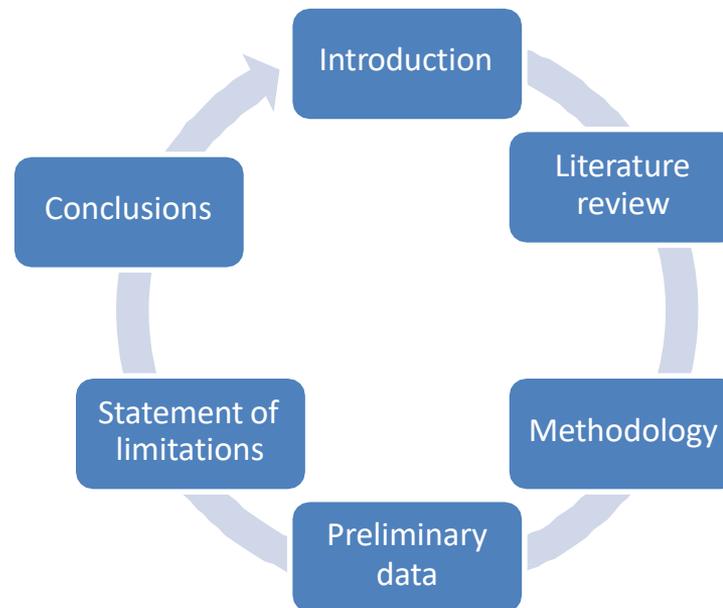
A Gantt chart

- Gantt chart provides a graphical illustration of a schedule that helps to plan, coordinate, and track specific tasks in a project.
- Gantt charts break a project down into a succession of tasks and assign each task to a different row along the vertical axis.
- helpful to identify **milestones** or particularly important completion points.

No	Task	2019				2020			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	Literature review								
2	Review and preparing the methodology			▼ D1					
3	Data collection								
4	Data analysis						▼ D2		
5	Interviews								
6	Interviews transcription, coding and analysing						▼ D3		
7	Preparation of case studies							▼ D4	
8	Results, discussion and conclusions								
9	Complete final report / publication								▼ D5



Project`s logic chart or a flowchart



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2. Identifying Priority Areas for Collaborative Research Projects

Setting Priority Areas for Research

Active involvement of the public.

- In consultation, an organization encourages the public to contribute their views, perceptions, and experiences, and then incorporates consultation into the research process.
- In collaboration, the public is empowered to become active partner in an ongoing public-researcher relationship and the public members and researchers make decisions together

Advantages and Disadvantages of Public Engagement

Level of Engagement	Advantage	Disadvantage
Consultation	Can involve a large number of participants and elicit diverse perspectives	Public does not actively participate in decision making process
Collaboration	Outcome is a more diverse perspective where the public actively participates	Few participants can be involved making it difficult to capture multiple views



Gap Analysis

- Gap analysis is a common strategic method used to identify actual performance in comparison to desired performance. It essentially helps in determining what needs to be done to improve current situation.
- Key issues identified in the first stage of topic generation will undergo rigorous analysis of analytical framework to determine its potential as priority research areas in collaborative settings

The main Stakeholders

Collaborative research requires inputs from all involved
Setting up of a committee consisting of:

- area experts,
- academics,
- practitioners – industry players where relevant,
- policy makers

Assessment

Questions that may be raised during the priority setting process by the committee include:

- What is the potential for research utilization of the proposed research area?
- Would the research area involve the development of products or have the potential to improve services?
- Would the proposed research area bring an innovative element?
- Would it enhance social well-being, increase economic standing, enable entrepreneurial capabilities, elevate innovation?

Criteria for Ranking Research Priority Areas

- Appropriateness - Ethical and moral issues, availability of pre-existing data, culturally accepted, etc.
- Relevance - Equity focus and community concern/demand, the size of the problem, contribution to the national and sector objectives
- Feasibility - Capacity of the system to support the research, financial and human resources available, Cultural/political environment

Criteria for Ranking Research Priority Areas

- Impact of research outcome - Chance/opportunity to implement the research, use of the research results, link of the research to policy decisions, overall reduction of the problem, including costs
- Opportunity to strengthen collaboration with partners - Presence of capable partners, availability of partner infrastructure and resources

Selection of collaborative research areas

- Areas that have high impact to all parties concerned;
- Areas that are most amenable to improvement; and are broadly inclusive in several respects, cutting across relevant boundaries,
- Areas that are likely to affect a range of demographic groups for which the benefits of the research output may be most viable.

Ways to establish alliances for research projects

- Taking part in conferences
- Taking part in projects at mother institution
- Establishing email contact
- Going on fellowships
- Going for research stays at other universities
- Inviting key note speakers to own conferences
- Research/teaching exchanges

Ways to establish alliances for research projects

- Organizing/participating in joint programs, joint summer schools etc
- Integrating foreign scholars in activities of the university (seminars, open lectures etc.)
- Exchange of students and young scientists which is simple way (as usually finding is more available for young scholars) to establish international research collaborations
- Internationalization of PhD programs

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3. Building alliances and selecting foreign partners

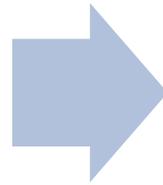
Introduction – general approach to establishing research contacts

- Successful relationships are built through establishment of channels of communication and trust.
- However, collaboration is always burdened with a risk which is costly:

How to select foreign partners that are reliable and guarantee a successful completion of the project?

The art of establishing alliances

Real life activities:

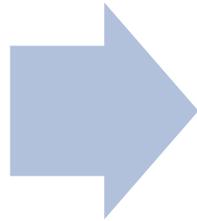


- Attendance in conferences, post-conference network through Research Gate, Facebook, LinkedIn etc. social media websites.
- Membership in academic association e.g. European International Business Academy (EIBA), Academy of International Business (AIB), Harvard Business School's Microeconomics of Competitiveness etc.
- Taking part in projects.
- Participation in fellowships, teaching programs, going for research stays at other universities.
- Inviting key note speakers to your conferences, researchers to co-author scientific articles.
- Organizing/participating in joint programs, joint summer schools etc.
- Integrating foreign scholars in activities of the university (seminars, open lectures etc.)
- Exchange of students and young scientists to establish international research collaborations (de Grijjs 2015).
- Internationalization of PhD programs.



The art of establishing alliances

Online activities:



- Identifying useful email contacts (posted on the institutions website, included in scientific articles etc.)
- Establishing a profile on online scientific networks such as: Research Gate, Academia.edu, Google Scholar, Mendeley, ResearchID, etc.

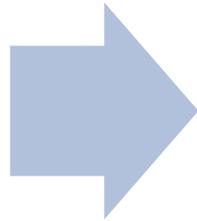
to describe your research interests, show publications and research projects you are engaged in etc.

- Writing a scientific blog.
- Posting content on social media such as Facebook, LinkedIn, Twitter etc.



The art of establishing alliances

External support:



- You can seek partners through third parties, e.g.:
 - > Poland: National Science Centre,
 - > UK, University of Oxford,
 - > UK, University of York etc.
- Ask your network (supervisor, older colleagues within established networks, etc.) for recommendations of reliable sources.



Selecting foreign partners

The key considerations when looking for collaborative partner are as follows:

1. Understanding well the reasons why you and potential partner are interested in engaging in a research project.

3. All project members should define their accountabilities: internal and external.

2. Identify characteristics of your potential partner.

4. Determine your approach to collaboration and its implications for the form of collaboration.



• Selecting foreign partners

Ad 1 The reasons have usually several dimensions such as practical, personal or greater agenda for example to change nature of research and symbolic. These motivations have implications for your project.

Ad 2 Partner should probably be in some way complementary in terms of skills, knowledge, experience, etc. Compatibility of partner is important.

Analyze how your partner can contribute to the collaboration and if these expectations are realistic. Try to answer the following questions related to your potential partner: Is he/she able to work well with other team members, especially at a distance, across borders?

What is their work style and is it complementary to yours, so you can avoid unnecessary conflicts? Does including a potential foreign partner/institution enhances your ability to win funding for the project? Do they speak good enough English to be able to communicate without problems?

Ad 3 These accountabilities often compete and must be negotiated before start of the project.

Selecting foreign partners

To clarify a collaboration approach try to ask yourself the following questions:

What is the timeline of this project? Is it restricted by the available funding or will it exceed the funding period?

Are project members interested in changing knowledge or changing reality?

Who project partners are accountable to?

What is the character of the human relations in this project? Do they exist for the purpose and time of the project or are they important in their own right and will last after the project is finished?

Who selects the research theme and when?

What assumptions about 'knowledge' do project members have? Different world views and research traditions may have impact on the approaches to collaboration and thus should be identified at the start.

Select partners early to have time to get to know each other.

The partners in international research project should complete a training on cultural awareness in order to avoid misunderstandings and conflicts resulting from cultural differences.



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4. Sources of financing

Introduction

This section focuses on the problem of finding financing needed to implement research projects.

As knowledge is increasingly recognised as the key driver of competitiveness, governments and other types of organisations prepare different programmes supporting research.

Finding research funding is becoming increasingly competitive, however there are also different non-profit organizations that sponsor research.

Types of sources of financing research projects

- government,
- private industry,
- foundations,
- professional organizations.

Government

- The share of gross domestic expenditure on R&D financed by government is about 31% in the European Union and 24% in the US.
- The most important source of funding in Europe is Horizon 2020 - the European Union's Framework Programme for Research and Innovation for years 2014-2020. Budget - EUR 80 billion.
- Horizon 2020 accepts the applications from entities based in Third Countries (non-EU countries)

Government

Governments usually have agencies that are responsible for the distribution of funds, which includes announcement of calls for proposals and appraisal of applications. Usually there are separate agencies that deal with academic research (basic research) and applied research.

Horizon 2020

- Calls and topics are presented on the website. The application can be done with the use of the electronic submission service.
- <http://ec.europa.eu/research/participants/portal/desktop/en/funding/index.html>
- Funding opportunities in research, including funding programmes, fellowships and individual grants can be found on the website: https://ec.europa.eu/info/research-and-innovation/funding/funding-opportunities_en

International Cooperation in Horizon 2020

International cooperation is crucial to address many Horizon 2020 objectives.

Principle of general openness: the programme will remain to be the most open funding programme in the world.

Need to join forces globally to tackle global challenges.

Source:<https://ec.europa.eu/programmes/horizon2020/>

International Cooperation in Horizon 2020

International cooperation, under Horizon 2020, can also take place in:

- joint or coordinated calls,
- specific joint initiatives, or
- networking between projects.

Source:<https://ec.europa.eu/programmes/horizon2020/>

New strategy for international cooperation in research and innovation

Need to engage more actively and strategically in international cooperation:

Three main objectives:

- Strengthen the Union's excellence and attractiveness in research and innovation
- Tackle global societal challenges
- Support the Union's external policies

Combining openness with better targeted actions

Strengthened partnership with Member States

Stronger contribution of research and innovation to external policies of the Union

Source: <https://ec.europa.eu/programmes/horizon2020>

Participation in Horizon 2020 as Associated Country

- ENP countries already associated to FP7 are eligible for association without pre-conditions (Art. 7.1.c)
- ENP countries, not previously associated, have to fulfill four criteria (Art. 7.1.b)
 - Close economic and geographical links with the Union,
 - Good capacity in science, technology and innovation,
 - Good track record of previous FP participation,
 - Fair and equitable treatment of IPR.

Source:<https://ec.europa.eu/programmes/horizon2020>

Evaluation of Proposals

STANDARD AWARD CRITERIA

EXCELLENCE

IMPACT

QUALITY &
EFFICIENCY
OF THE ACTION

- ✓ **ERC** frontier Research actions >>> only "EXCELLENCE"
- ✓ **Innovation actions** >>> higher weighting for "IMPACT"

Source: <https://ec.europa.eu/programmes/horizon2020/>

Evaluation of Proposals

Excellence:

the proposed work corresponds to the topic description in the work programme.

- Clarity and pertinence of the objectives; Credibility of the proposed approach

Soundness of the concept, including trans-disciplinary considerations, where relevant;
Extent that proposed work is ambitious, has innovation potential, and is beyond the state of the art (e.g. ground-breaking objectives, novel concepts and approaches).

Impact:

- The extent to which the outputs of the project should contribute at the European and/or International level to:

Enhancing innovation capacity and integration of new knowledge;

Strengthening the competitiveness and growth of companies by developing innovations meeting the needs of European and global markets; where relevant, by delivering such innovations to the markets;

Any other environmental and socially important impacts.

Source: <https://ec.europa.eu/programmes/horizon2020/>

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Source: <https://ec.europa.eu/programmes/horizon2020/>

Evaluation of Proposals

Quality and efficiency of the implementation:

Coherence and effectiveness of the work plan, including appropriateness of the allocation of tasks and resources; Complementarity of the participants within the consortium (when relevant); Appropriateness of the management structures and procedures, including risk and innovation management.

Source: <https://ec.europa.eu/programmes/horizon2020/>

Private industry

- Private industry-financed research is often conducted by university researchers for industry
- Industry funding and partnerships offer the potential to accelerate innovations, and move research to market where it can benefit the economy and society.
- In the countries representing so called market innovation system (e.g. USA, UK or Australia), the role of private industry funding of scientific research is much higher than in the countries with so called continental European innovation system (e.g. France, Germany or Italy).

Opportunities for funding

<http://www.crdfglobal.org/grants/funding-opportunities>

Opportunities for funding, which are available in the form of research grants, fellowships, business plan competitions, technical trainings, laboratory upgrades, and travel support to attend professional conferences and events.

Opportunities for funding

- Sponsored Programs Information Network
- SPIN contains information on more than 8,000 current funding opportunities, i.e., grants, fellowships and other support programs.
- Twelve major categories or topics are covered, including: Arts/Humanities; Behavioral/Social Sciences; Education; Science and Technology; Mathematics; Computer Science; Management/Commerce; and Law.

<https://spin.infoedglobal.com>

Opportunities for funding

Community of Science COS

COS Funding Opportunities claims to be the “largest, most comprehensive database of available funding,” with 700 member institutions.

<https://pivot.cos.com/>

Foundations

- non-profit organizations that sponsor a broad array of research, from high-profile foundations that tackle comprehensive, international challenges to small family foundations, which focus on a single important issue
- The most common are foundations supporting researchers working on biological phenomena relevant to particular diseases or disorders, e.g.:
 - Glenn Foundation for Medical Research
<http://glennfoundation.org/>
 - the Juvenile Diabetes Research Foundation
<http://www.jdrf.org/>
 - the United Mitochondrial Disease Foundation
 - <http://www.umdff.org/>

Foundations

Foundation Center helps with locating a funder by geographic area (including global funders), and review funder statistics to determine what their funding priorities are. On its website, there is link to Foundation Directory Online (FDO), which objective is to deliver quality funding prospects.

<https://fconline.foundationcenter.org/>

Foundations

In South East Asia there are following foundations supporting scientific research projects:

ASEAN Foundation, <http://aseanfoundation.org>

South East Asia-Europe Net, Partners in Science, <https://sea-eu.net>

JASSO Malaysia

<https://www.jasso.go.jp/ryugaku/about/jeic/malaysia.html>

Yoshioka Scholarship at the Malaysia-Japan International Institute of Technology (MJIIT)

Professional organizations or societies

In case of professional societies, they usually offer travel grants, although a few have research grant opportunities. As it is very sector-specific, professional societies in specific areas should be investigated with respect to research funds opportunities.

Examples:

<http://ibro.info/professional-development/funding-programmes/>

<https://www.seda.ac.uk/research-small-grants>

<https://www.sigmaxi.org/>

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5. Budgeting

Key questions before you start

- Does the sponsor (source of financing) require a specific form of budget presentation?
- Are there restrictions on the type of expenditure that can be financed from a given source?
- Is the maximum budget for the research project specified?

The main categories of costs

- personnel salary of persons involved in the implementation of the project,
- external services or subcontracting - costs of purchase of specific services necessary to carry out the project implemented by specialized institutions (eg. research institutes / professional services),
- purchase of materials and supplies necessary for conducting research,

The main categories of costs

- purchase of major instrumentation and devices,
- indirect costs, usually associated with the provision of appropriate working conditions for members of the research team, often referred to as a percentage share in the entire budget
- costs related to travel (travel expenses, members' diet)
- costs related to the dissemination of research results (conferences, publications, etc.).

The costs of personnel salary

The costs of personnel salary are calculated by dividing the number of planned working days and the daily remuneration of the members of the research team.

The salary of a member of the team usually depends on their role in the team and experience (junior, senior researcher, manager, etc.).

Purchase of external services (subcontracting / professional services)

The simplest method is to quote such a service at the stage of planning the budget by collecting this information from 2-3 potential subcontractors that provide such services.

It should be checked whether the program / sponsor allows for subcontracting.

It must be remembered that the quotation time can be long

Costs of purchasing materials and supplies

If experiments require specialized equipment or materials (e.g. chemical reagents, laboratory supplies, computer software and supplies), it is necessary to collect information about the price. Check the price or gather information from 2-3 suppliers about the cost.

Check whether the purchase of materials and equipment is an eligible cost.

Major instrumentation

Major instrumentation - when the cost of the instrument exceeds a defined value and when the device has an anticipated lifespan of more than a year (laptops, laboratory equipment, etc.)

When requesting major instrumentation it is important to specify the manufacturer and model of the specific instrument

Indirect costs

Indirect costs are usually calculated as a share of the entire budget. Indirect costs can be assessed on modified total direct costs basis (rates do not include the costs of major instrumentation or subcontractors) or a total direct costs basis (all costs are taken into account).

Indirect costs cover a pool of funds related to the facilities and administrative costs that are incurred in support of the research activities, eg the use of office equipment, etc.

Travel expenses

trips to perform some specific tests (eg to conduct an interview, to collect samples of materials for research, etc.)
trips related to meetings with partners that form the consortia

Categories of travel expenses

- transport costs (depending on the number of people who will participate in the trips, distance, means of transportation, and the number of trips planned),
- accommodation costs (it should be checked whether the funding source does not require the application of rates accepted for specific countries).
- per diems (similarly to the above - the rates for the country to which the research team members will be travelling) may be determined.

In-kind contribution

Usually in-kind contributions in the form of voluntary work is possible.

Sometimes the project grant rate and project co-financing is determined with reference to the status of the individual consortium members. Universities and public research entities usually have the highest possible grant rate.

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6. Managing collaborative research projects (Project cycle management)

• Introduction into management of collaborative research projects

The management of collaborative research projects requires from project leaders to:

- Build trust and respect,
- Flexibility in managing changes in the course of the project,
- Good communication skills and cross-cultural awareness,
- Project management skills,
- Ability to create project's organization culture driven by unified, shared vision.

• **Managing successful research projects**

Research project paradoxes (vom Brocke and Lippe (2015)):

- Research projects are characterized by uncertainty and require freedom and flexibility but it is necessary to manage it tightly to reach the stated goals.
- Collaborative research enhances combination of views, approaches to solve problem comprehensively but diversity of partners result in managerial problems related with managing different cultures, different organizational set ups and multiple disciplines.
- Manager of such collaborative project has limited power as partners enjoy autonomy and because of governance structures. At the same time some tasks such as project vision management, summary of results need engagement and commitment of all partners.

• Managing successful research projects

Research project paradoxes (vom Brocke and Lippe (2015)):

Research projects are characterized by uncertainty and require freedom and flexibility but it is necessary to manage it tightly to reach the stated goals.

Collaborative research enhances combination of views, approaches to solve problem comprehensively but diversity of partners result in managerial problems related with managing different cultures, different organizational set ups and multiple disciplines.

Manager of such collaborative project has limited power as partners enjoy autonomy and because of governance structures. At the same time some tasks such as project vision management, summary of results need engagement and commitment of all partners.



- **Managing successful research projects**

Rules of successful collaborative research project management:

Management
of a project
vision.

Ensuring
partners are
compatible
and that work
style is
collaborative.

Organizing and
monitoring of
work progress
should be
flexible and
carried out at
multiple levels.

Employing
skilled
scientific
project
manager.



• Managing successful research projects

Managerial solutions to the above paradoxes (vom Brocke and Lippe (2015)):

Continuous building of mutual trust and respect throughout the project (Easterby-Smith and Malina 1999).

Clearly stating the objectives of a project that all partners want to achieve. Thus, at the very beginning of a project everyone in a consortium should understand the objectives of all consortium partners so that the project's plan can be devised to achieve these goals (Harris 2007).

Good planning and providing realism and hope are key to effective leadership and governance.

Conflicts in projects are common issue. Clear and frequent communication is basis for preventing misunderstandings and makes way for development of mutual trust (Lau et al. (2014)).



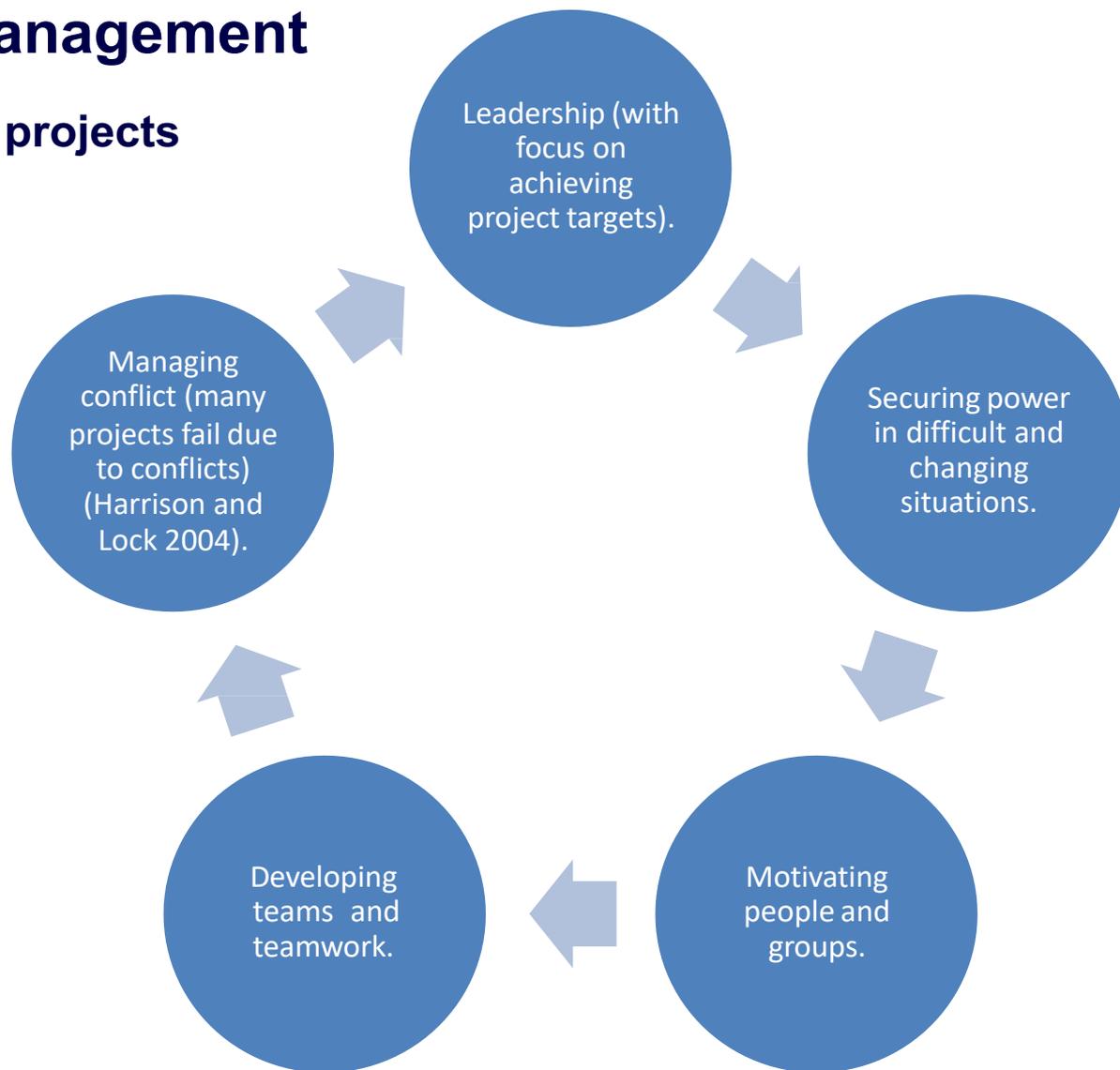
- **Project cycle management**

- Identifies and addresses all phases of a project that include: planning, organizing, coordinating and controlling of a project (to achieve the objectives and to satisfy all stakeholders).

• Project cycle management

Managing people in projects

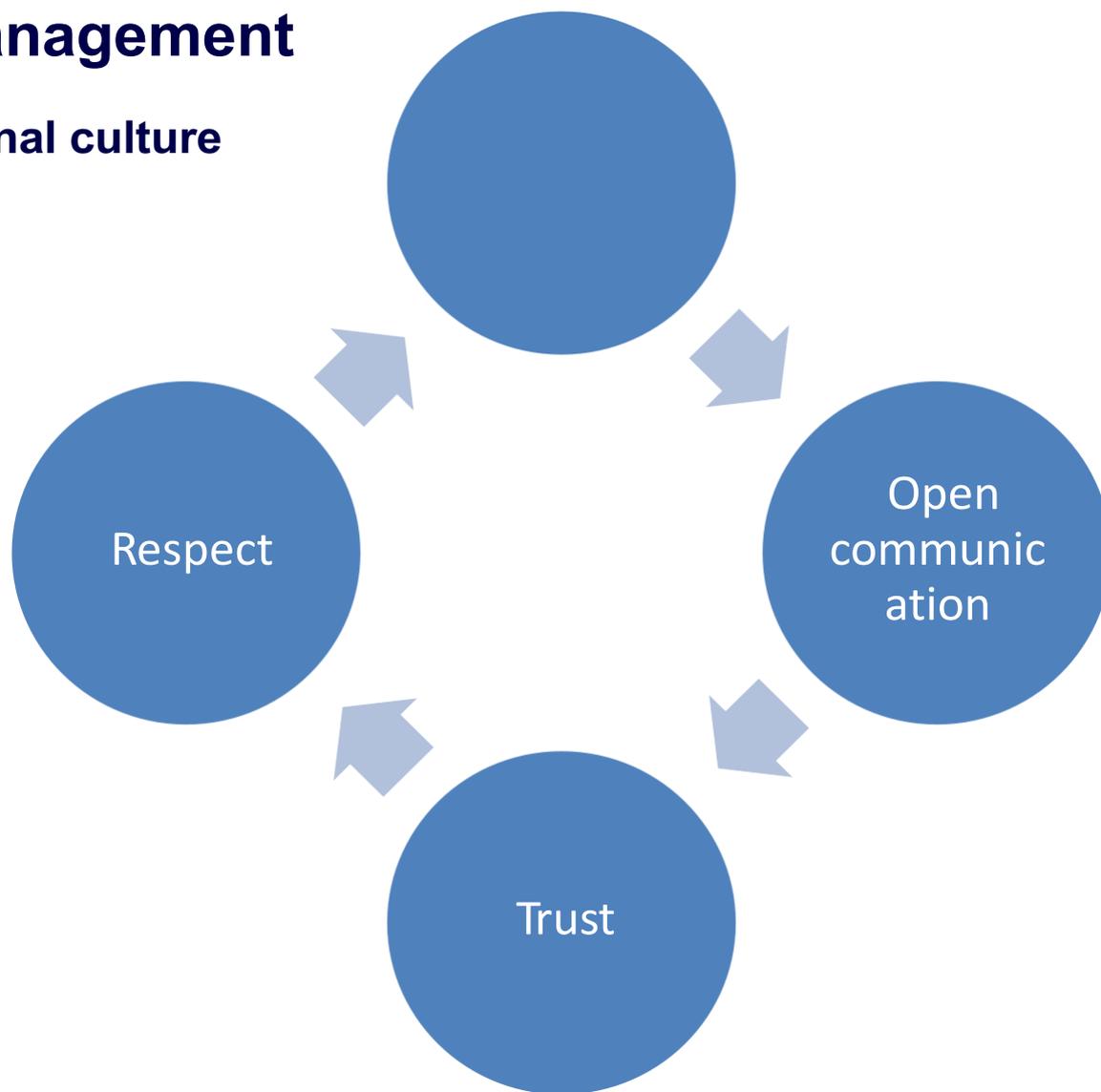
- Project manager should have skills in the following spheres:



• Project cycle management

Project's organizational culture

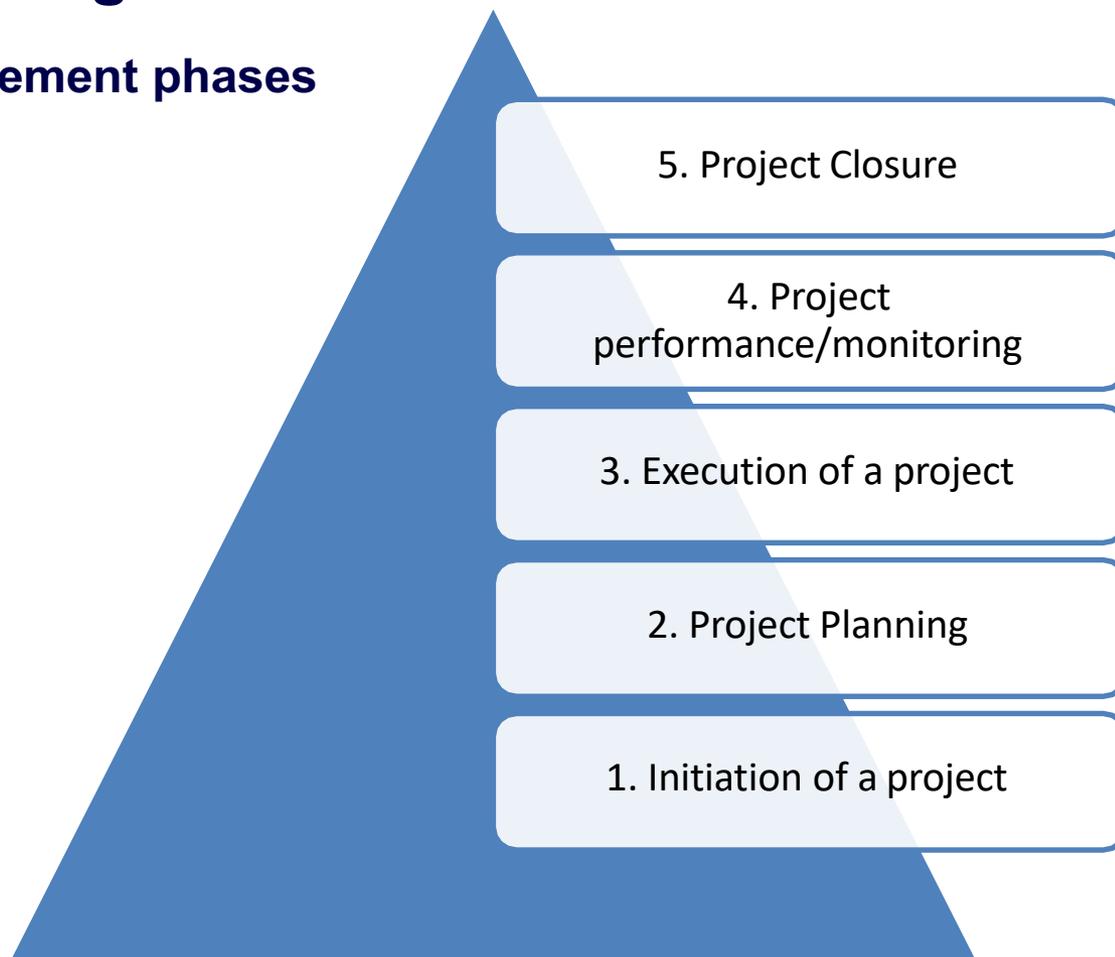
- The performance of a project depends on cooperation and teamwork which require:



• Project cycle management

Project cycle management phases

- There are **five** phases of a project management (based on Smartsheet 2018):



• Project cycle management

Project cycle management phases

- **Ad 1** A project initiation document should be formulated with goals and requirements of the project. It should comprise of needs, stakeholders and the research project case.
- **Ad 2** There are two methods to support the development of goals:
 - S.M.A.R.T.** (allows to ensure that goals are thoroughly examined and that we understand implications of goal-setting process)
 - CLEAR** (reflects contemporary work conditions and mean).

Documents to be created:

Scope statement,
Work breakdown schedule,
Milestones,
Gantt chart,
Communication plan,
Risk management plan.

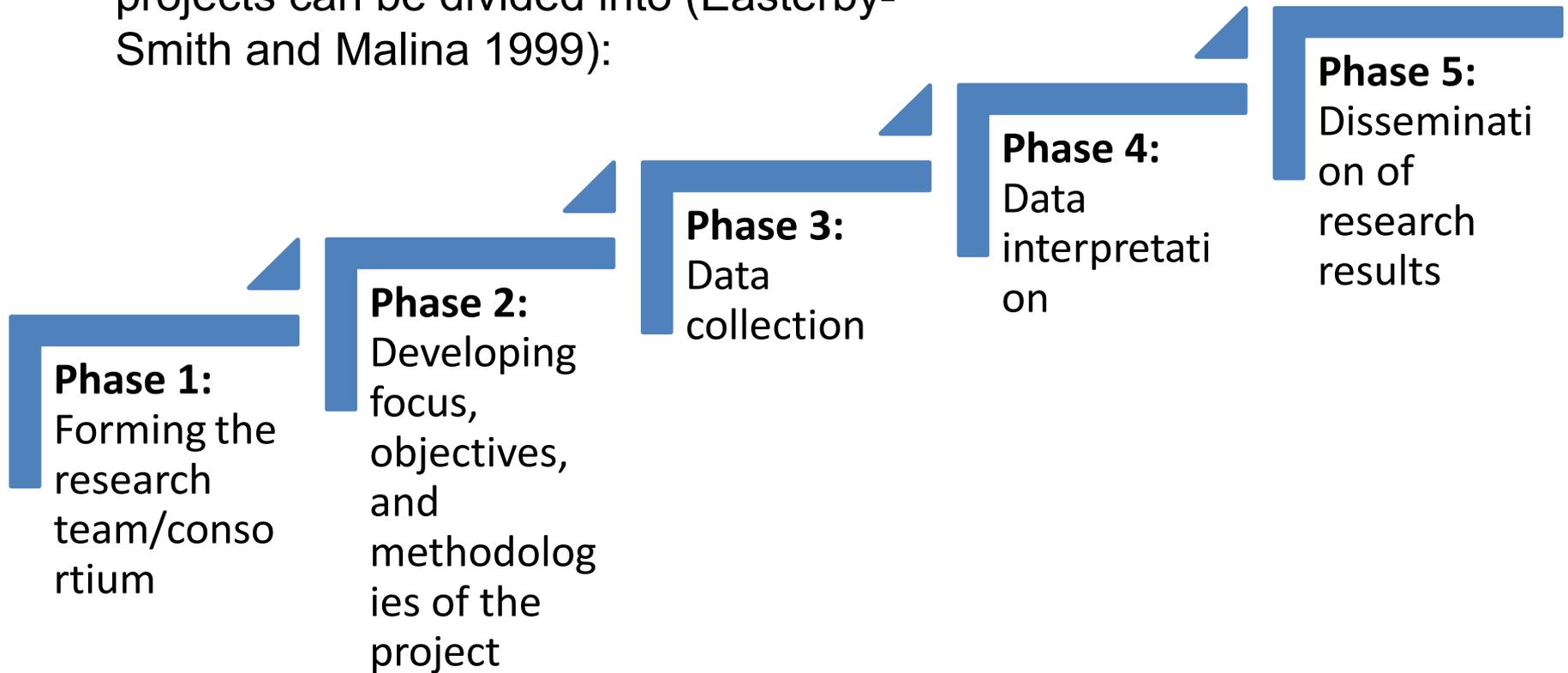
• Project cycle management

Project cycle management phases

- **Ad 3** The following tasks are performed:
Development of team/s, Assignment of resources,
Execution of project management plans,
Management of purchases if necessary,
Project manager directs and manages project implementation,
Establishment of tracking systems,
Task assignments are executed,
Meetings during which status of progress in realization of tasks is discussed,
Updating of project schedule,
Modification of project plans as necessary.

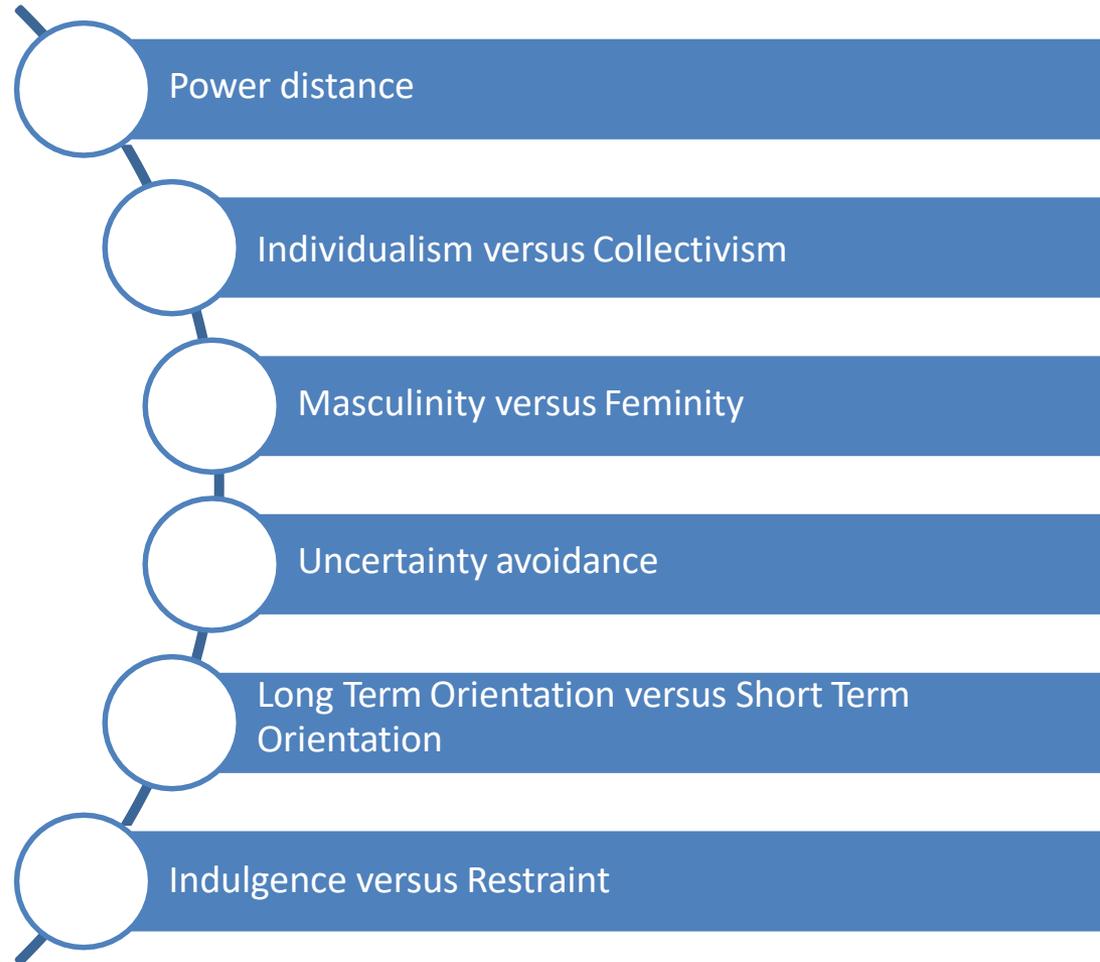
• Project management in international research projects

- Project phases in international research projects can be divided into (Easterby-Smith and Malina 1999):



• Cultural differences in international research projects

➤ Six dimensions of national culture (Hofstede (2010)):



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7. Risks related to research projects

Risks in Research

Risks related to research ethics

- Ethical risk is often associated with those that may harm the subjects involved in numerous ways but is somewhat necessary to the conduct of the research.
- Risk management for research projects is crucial to ensure that the whole research conduct will be carried out smoothly and efficiently

Key benefits to the application of risk management to research projects

The identification, analysis, assessment, treatment and monitoring of risks helps bring clarity to the scope of a particular research project.

It assists project participants to defend a project when adverse events occur and assists with a justification of changes as a result of those adverse events.

Risk identification

Actions/events which can compromise the schedule, costs, outcomes of the project



Risk assessment

Estimation of the risk exposure (low, medium, high, critical)



Response planning strategy

Avoidance

Mitigation



Monitoring & Controlling

Tracking the progresses in solving the issues



Reporting

Updating the Risk log and the Risk Management Registry

Key benefits to the application of risk management to research projects

The greater the risks undertaken by research projects can represent increased opportunity for success if risks can be managed and research outcomes achieved.

The identification of contingency of funds that can increase the ability for a project to survive adverse events through the provision of additional funds.

Managing Research Risks

Risk management of research projects should be applied at the conception of the research idea

Planning and controlling of uncertainty

A tendency for risk management activities to be performed in research projects on specific technical aspects

All the potential risks can be assessed in terms of their probability and impact

		Probability		
		High	Medium	Low
Impact	High	ALARM	very high	high
	Medium	very high	high	medium
	Low	high	medium	relax



How to handle project risks?

list all activities and related risks

initial phase - avoidance tactics

implementation phase - mitigation of risks

In the execution phase of the research project, monitoring and control are performed in order to make sure that the process is going according to the plan and all identified risks are being handled properly.

Examples of risks

Internal risks affecting the Consortium;

Risks associated with time management (timely response and subsequent finalization of an assignment);

Risks in relation to the execution of the assignments

Risks in relation to the availability of 'specific' and 'specialized' data.

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8. Monitoring progress

The role of monitoring

- Providing project management, staff and other stakeholders with information on whether progress is being made towards achieving project objectives.
- Providing regular feedback to enhance the ongoing learning experience and to improve the planning process and effectiveness of funds.
- Improving the efficiency and effectiveness of a project.
- Increasing project accountability with donors and other stakeholders

Defining objectives

A well formulated goal:

- does not describe what is planned to do but **what is planned to fulfill (reach)**;
- should be understandable, clear to interpret, precise, measurable, concrete, controllable and real.
- In a typical research project it is advisable to formulate **milestones**.

Indicators

A good indicator should give an idea of the level of success.

Indicators should be:

Specific

Measurable

Achievable

Result oriented

Time constrained

Reporting

Be clear:

Who is reviewing the information,

How it will be presented to them,

How frequently.

Reporting

The periodic reports should provide:

- statement on the progress achieved in the recent reporting period,
- a list of problems that have occurred in the recent period and actions taken to overcome the problems,
- confirmation of actions and products to be carried out in the next stage,
- statement on the financial situation and implementation of the schedule for the entire project and the current stage.

Monitoring as an integral part of a project

- Establish the project objectives,
- Make sure that project objectives are clear and measurable,
- Define specific project targets in accordance with the objectives,
- Agree with the sponsor (funding source) on the specific indicators to be used for monitoring project performance (if required by the sponsor),

Monitoring as an integral part of a project

- Specify the format and frequency of progress reports,
- Clarify roles and responsibilities for monitoring (eg. if there is a need to have a monitoring committee).

Activities in the monitoring and implementing stages

Objectives in a quantified form

Project Targets

Deliverables



Activities in the monitoring and implementing stages

Reporting stage (Q1, Q2, Q3, Q4)

Person in charge



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9. Successful delivery of research outcomes

Introduction

A committed team supported by transparently executed management is a passport to success.

- Success factors in delivery of research outcomes,
- The process of delivery of research outcomes.

Success factors that create a successful environment for a team, enhance the chances of successful delivery of research findings.

Success factors in delivery of research outcomes

Example of success factors of a research project:

- Communication,
- Involvement,
- Commitment,
- Competent team,
- Transparency.

Success factors in delivery of research outcomes

- Communication with other players as to expectations and concerns is crucial in building trust, productive work environment and commitment.
- Social media provides a new measure of communicating and cooperating on projects and should be considered as a tool to improve project management process (PMI 2018).

Success factors in delivery of research outcomes

Factors that have impact on a project success:

- Involvement and commitment,
- A competent project team,
- Simplicity of communication and transparency in management.

Success factors in delivery of research outcomes

Factors that have impact on a project success:

- People are the key element of research, their diversity, networks and confidence to show initiative cannot be over-emphasized. That is why socializing, building trust through strengthening relationships is so important. Here regular meetings within the research group would be very useful. Caring for enthusiasm, motivation and training could save a lot of time and nerves.

- **Success factors in delivery of research outcomes**

Factors that have impact on a project success:

- During the meeting or other communication channels, any message or result transmitted by or to the team members need to be characterized by simplicity. A handy advice is to present visually rather than in words, which also proves to be useful for final research outcomes delivery. A project managed **transparently** is one which has visibility to every task of the project. Everyone can see the status of each part of a project (Weber 2017).

• Delivery of research outcomes

The delivery method is worth discussing with other team members. It often depends on the type of a project and can be determined by sponsors and stakeholders.

The results can be sent to stakeholders with a purpose to establish whether the outcomes meet the expectations and priorities of a contracting side.

Regardless of the output, it is essential to collect all sorts of feedback in one, easily accessible document and analyze it within the project team.

A project conclusion report may come handy.

The mid-term and closing presentation or the final research outcomes delivery.



• Delivery of research outcomes

Examples of delivery methods:



Source: <https://www.bsria.co.uk/market-intelligence/management-consultancy/research-solutions/delivery-methods/>

Delivery of research outcomes

- The delivery method is worth discussing with other team members. It often depends on the type of a project and can be determined by sponsors and stakeholders, however, at this phase it is useful to develop a consultation process for the undertaking. It could be a session within a project team, enlarged, if allowed, by principals or/and a practice engaging outside experts and academics.
- The results can be sent to stakeholders with a purpose to establish whether the outcomes meet the expectations and priorities of a contracting side.
- Regardless of the output, it is essential to collect all sorts of feedback in one, easily accessible document and analyze it within the project team.
- A project conclusion report may come handy.
- The mid-term and closing presentation or the final research outcomes delivery.

Delivery of research outcomes

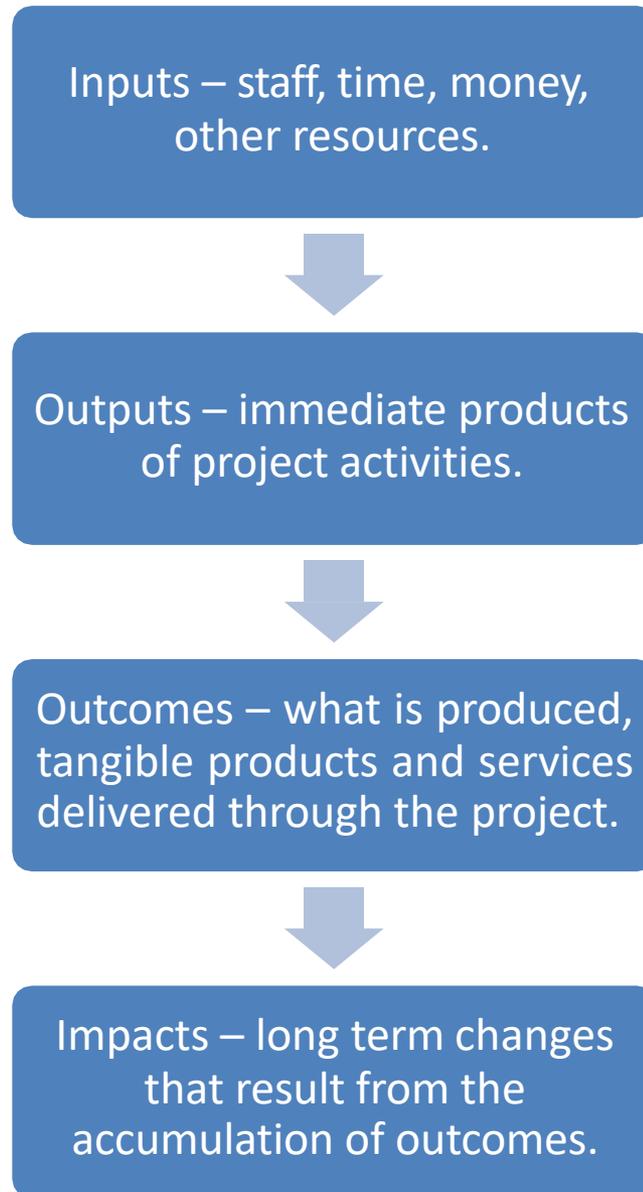
- In the middle of a research project, a kind of a mid-term presentation of outcomes is helpful. this is an occasion to present the so far undertaken methods and preliminary results. Communication at this point can save time and effort, especially in case when any section of the research turned out to be unsuccessful.

- **Delivery of research outcomes**

Results chain

- The following terms describing the results of a project can be defined:

Inputs together with strategy, a set of actions undertaken by a project, refer to *process*, while outputs and outcomes to *results*.



Success factors in delivery of research outcomes

Example of success criteria:

- Meets stakeholders` requirements,
- Meets the objectives,
- Yields benefits,
- Happy team.

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10. Communication with stakeholders

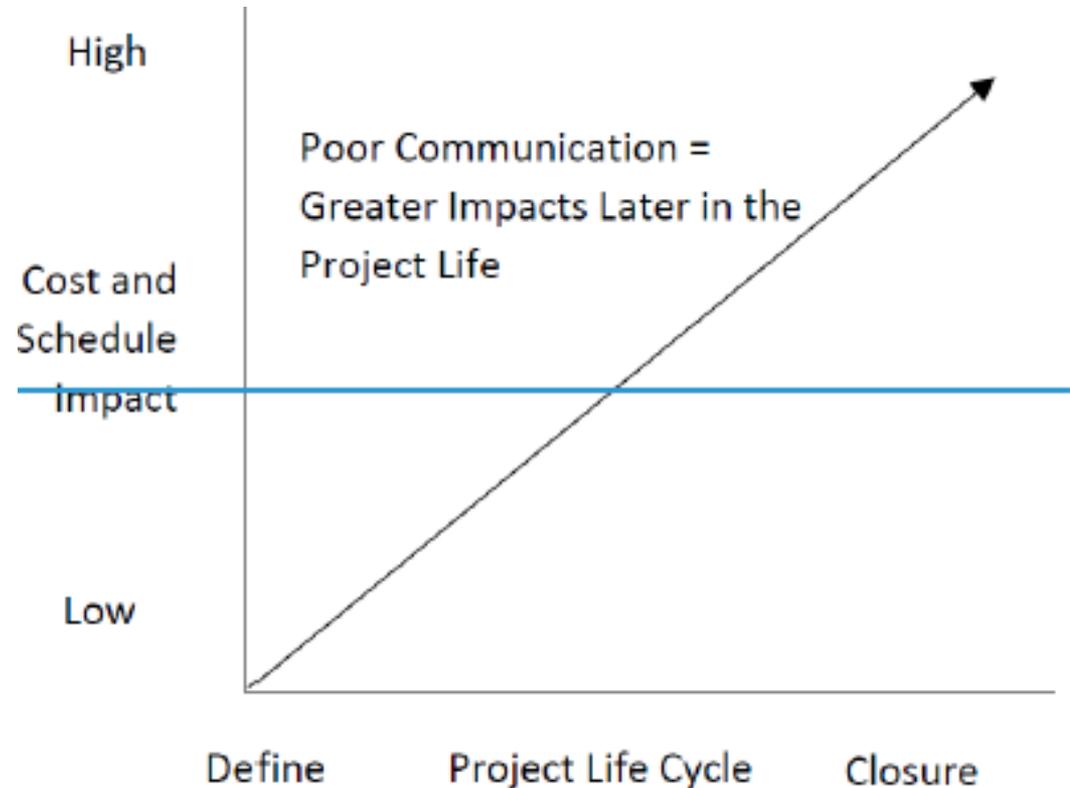
• Introduction

- Good project managers are aware of benefits of healthy relationship among colleagues and know how to make use of various tools to establish rapport between team members.

• The need for communication with stakeholders

At the beginning of a research project:

- a communication plan should be delivered.
- a full list of partners along with their areas of interest need to be prepared.
- the communication constitutes one of success factors of a project.



Source: Rajkumar 2010, authors' elaborations.

Methods of communication

While drafting a communication plan, at least two questions need to be answered:

- What instruments will be most productive in communication in our research project,
- When do the stakeholders need to be contacted.

Methods of communication e.g.:

- Emails, websites,
- Meetings,
- Briefings, presentations,
- Workshops,
- Calls, especially conference calls, etc.

• Methods of communication

The plan may be presented as a communication matrix in which case columns specify the communication prerequisites for a research project:

- communication type,
- target ,
- objective,
- method,
- frequency,
- communicator.

Stakeholder (category)	SR issue/aspect	Communication (form)	Primary manager	Communication frequency
Customers (distributors)	Fair marketing of SR aspects of new products	Information sessions + special SR product folder	Sales Manager	1 x per quarter
Customers (consumers)	Fair marketing of SR aspects of new products	Product data + support by telephone (reactive)	Customer Service Manager	Daily support by telephone
Employees	Using home working options for office staff	Department sessions and pilot	Department head (+ HRM support)	Every month
Sector organizations	Establishing criteria for dealing with lithium waste	Special sector working group meeting	Production Manager	2 x per year
Suppliers (from Eastern Europe)	Safety officers in the production process of batteries	Dialogue during special suppliers meeting	Procurement Manager	Ad hoc (min. 1 a year)
Suppliers (From Asia)	Working conditions for women in factories	Site visits + awareness-raising programme	Procurement Manager	Ad hoc (min. 1 a year)
Local residents	Smell pollution during the summer months	Open forum with local residents	QHSE Manager	2 x during the May to September period
Local government	Creating more youth employment	Dialogue on work/ school project	HRM Manager	September + January

Source: http://www.iso26000bestpractices.com/free_tools/

- **Methods of communication**

- It is natural, that during the process of conducting a research project, difficult issues appear often. Having this in mind, identifying **communication challenges** such as reluctance of stakeholders to take the initiative can save many troubles. Another worth remembering thing is that stakeholders` communication requirements may differ for each group.

• **Methods of communication**

Decision-makers should assure the stakeholders of quality services by appointing a person responsible for a contact – a spokesperson (with a deputy).

Communication keeps all parties up-to-date with the research development.

Communication should be:

- Clear,
- Concise,
- Has strategy and action plan,
- Proactive,
- Has its timeline.

- **Methods of communication**

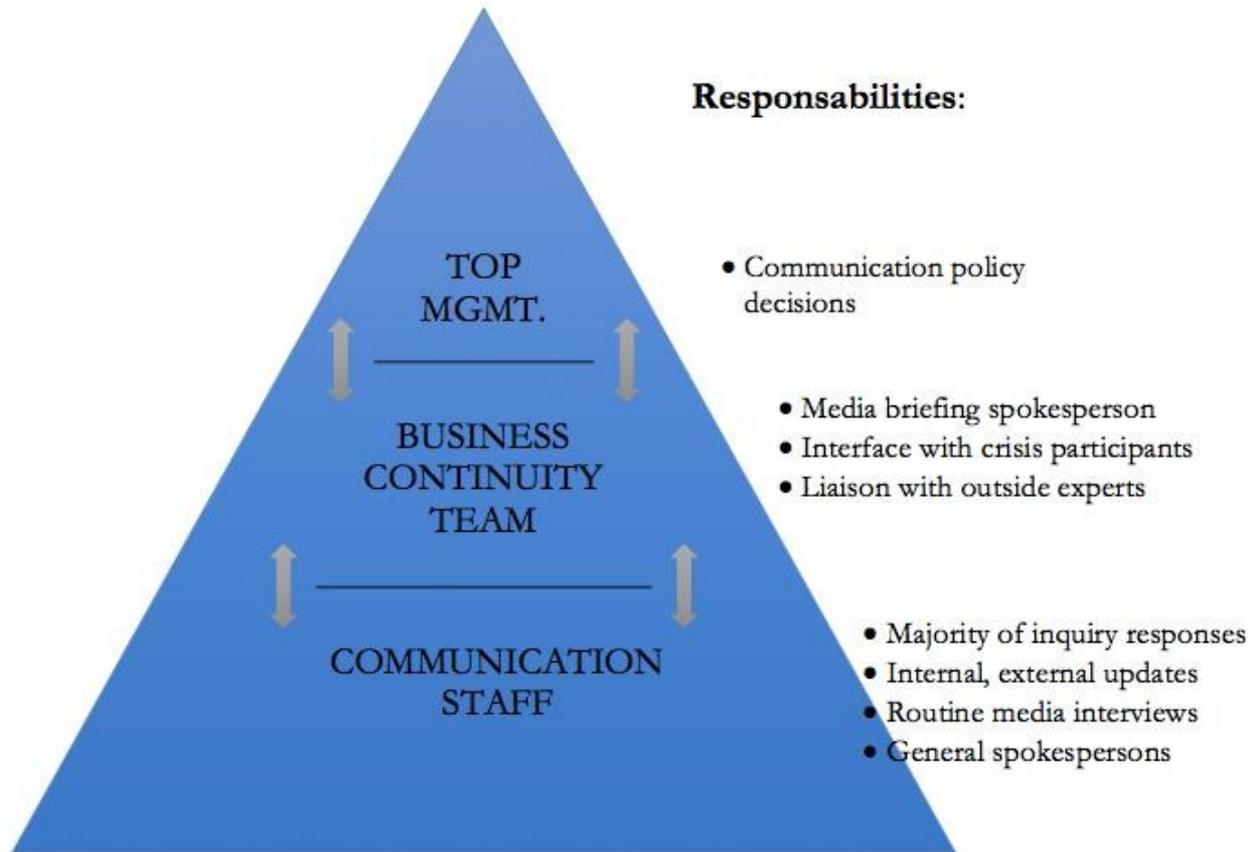
- An appointee of the project team should have his or her deputy. Spokesperson and deputy spokesperson should be introduced to all stakeholders and the team need to be make sure that its communication representatives are fully accessible to grantees by e-mail, phone etc. Additionally, it would contribute to effective communication with stakeholders if each team leader also designated a communication representative.

- **Methods of communication**

- The effective communication should consist of at least three key elements:

- communication plan,
- understanding of stakeholders,
- cooperation and engagement.

- **Methods of communication**



• **Methods of communication**

- There exist several ways of measuring the effectiveness of communication with stakeholders, e.g., evaluation meetings with surveys, conducted at the end of a meeting.
- Another way is just to hear the feedback directly from stakeholders. The group can be simply asked about opinion, however, in this case the audience should be rather small.
- There are also other channels of communication such as, e.g., discussion fora/forums, nevertheless, any method of measuring performance of communication need to be tailored to the needs of the target audience.

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11. Stakeholders' engagement form future collaborations

• Introduction - Stakeholders' Role in Research

- Stakeholders: *individuals or groups who have an interest or some aspect of rights or ownership in the project, can contribute in the form of knowledge or support, or can impact or be impacted by, the project* (Bourne (2005)).
- Stakeholders are the parties that are likely to benefit from the research output and therefore play an important role in ensuring that the research flow and the whole process leading to the outcome would be in line with the identified needs.

- **Introduction - Stakeholders' Role in Research**

- Types of Stakeholders and their Concerns:

Grant Providers and Investors Profitability, Return on Investments, Dividend, Income, Growth	Regulators Compliance, Constructive Consultation
Employees Compensation, Remuneration, Security, Work-Life Balance, Training & Development	Partners/Suppliers Business Opportunities, Expansion Possibilities
Communities/Customers Value Safety, security of information quality and responsiveness	



• Introduction - Stakeholders' Role in Research

Fedder (2017) asserts that the main principles for stakeholder engagement include:

- Contextualise the research project,
- Analyze the relevant stakeholders,
- Assess the most beneficial timing,
- Use appropriate and adequate engagement tools,
- Anticipate and manage conflicts,
- Evaluate and sustain momentum for adapting current and future engagement initiatives

• Benefits of Stakeholders' Engagement

Benefits of stakeholders' engagement at different stages of the research process (Fedder (2017)).

Research stages:

1. Design,
2. Design implementation,
3. Implementation,
4. Post-research implementation,
5. Post activities.

• **Benefits of Stakeholders' Engagement**

Benefits of stakeholders' engagement at different stages of the research process (Fedder (2017)).

Examples of Stakeholders' Engagement:

Ad 1 Design:

- Help to define the project concept and project design/research strategy, including identifying useful potential outcomes and common interests,
- Identify other potential stakeholders and possible roles,
- Help define the best approach for engagement,
- Identify possible scope of their own contributions, including motivation, and associated limitations,
- Highlight possible risks and potential for conflicts to arise,
- Advise on requirements and resource needs.

• **Benefits of Stakeholders' Engagement**

Benefits of stakeholders' engagement at different stages of the research process (Fedder (2017)).

Examples of Stakeholders' Engagement:

Ad 2 Design Implementation:

- Establish agreements on access to study sites,
- Provision of resources – e.g. equipment, funding, staff time,
- Defining project plans,
- Co-design and development of conflict resolutions approaches, if relevant,
- Networking and awareness raising with non-contributory stakeholders.

• **Benefits of Stakeholders' Engagement**

Benefits of stakeholders' engagement at different stages of the research process (Fedder (2017)).

Examples of Stakeholders' Engagement:

Ad 3 Implementation:

- Assist with training of other stakeholders to enhance delivery or participation,
- Data collection and expert advice, including capturing new data,
- Review project success,
- Assist in defining and developing tools,
- Conflict resolution, if relevant.

• **Benefits of Stakeholders' Engagement**

Benefits of stakeholders' engagement at different stages of the research process (Fedder (2017)).

Examples of Stakeholders' Engagement:

Ad 4 Post-research Implementation:

- Define, develop, and help deliver engagement activities, products and publications,
- Implementation of results – testing outputs of the research
- Advise on data exchange requirements.

• **Benefits of Stakeholders' Engagement**

Benefits of stakeholders' engagement at different stages of the research process (Fedder (2017)).

Examples of Stakeholders' Engagement:

Ad 5 Post Activities:

- Publicity and promotion, via websites, academic materials, research reports, newsletters, books, guidelines, social media, the general media (newspaper, radio, and television), etc.,
- Review project success, including efficiency of engagement initiative,
- Identify future information, tools, and research needs,
- Develop stakeholder-led monitoring and networking beyond life of funded project.

• Benefits of Stakeholders' Engagement

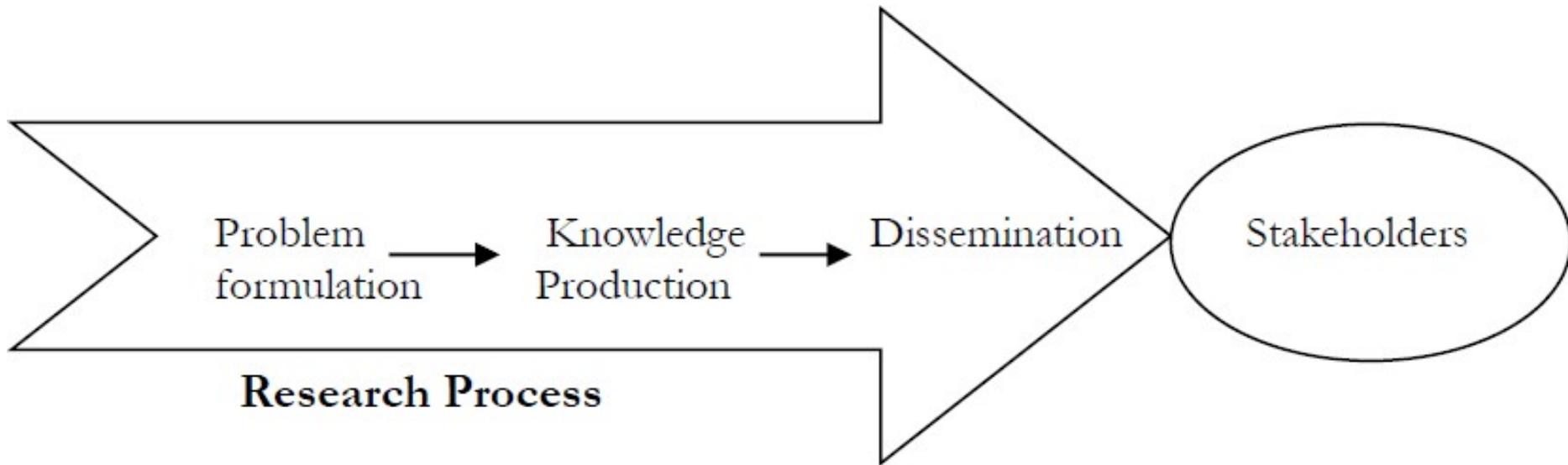
Benefits of Stakeholders' Engagement:

To Researchers	To Stakeholders	To the Society
<ul style="list-style-type: none"> • Higher profile • Opportunities for learning • Research relevance • Enhanced reputation • Contacts establishment • Dissemination/outreach • Knowledge sharing • Support for research • Chances for future funding 	<ul style="list-style-type: none"> • Access to knowledge • Learning opportunities • Motivation and capacity to act • Sense of involvement • Potential monetary incentives • Sense of ownership • Adapted policies and practices, innovations • Shared responsibilities and improved decision-making 	<ul style="list-style-type: none"> • Economic improvement • Behavioural changes • Social wellbeing enhancement

Source: Durham E., Baker H., Smith M., Moore E. & Morgan V. (2014). The BiodivERsA Stakeholder Engagement Handbook. Bio-divERsA

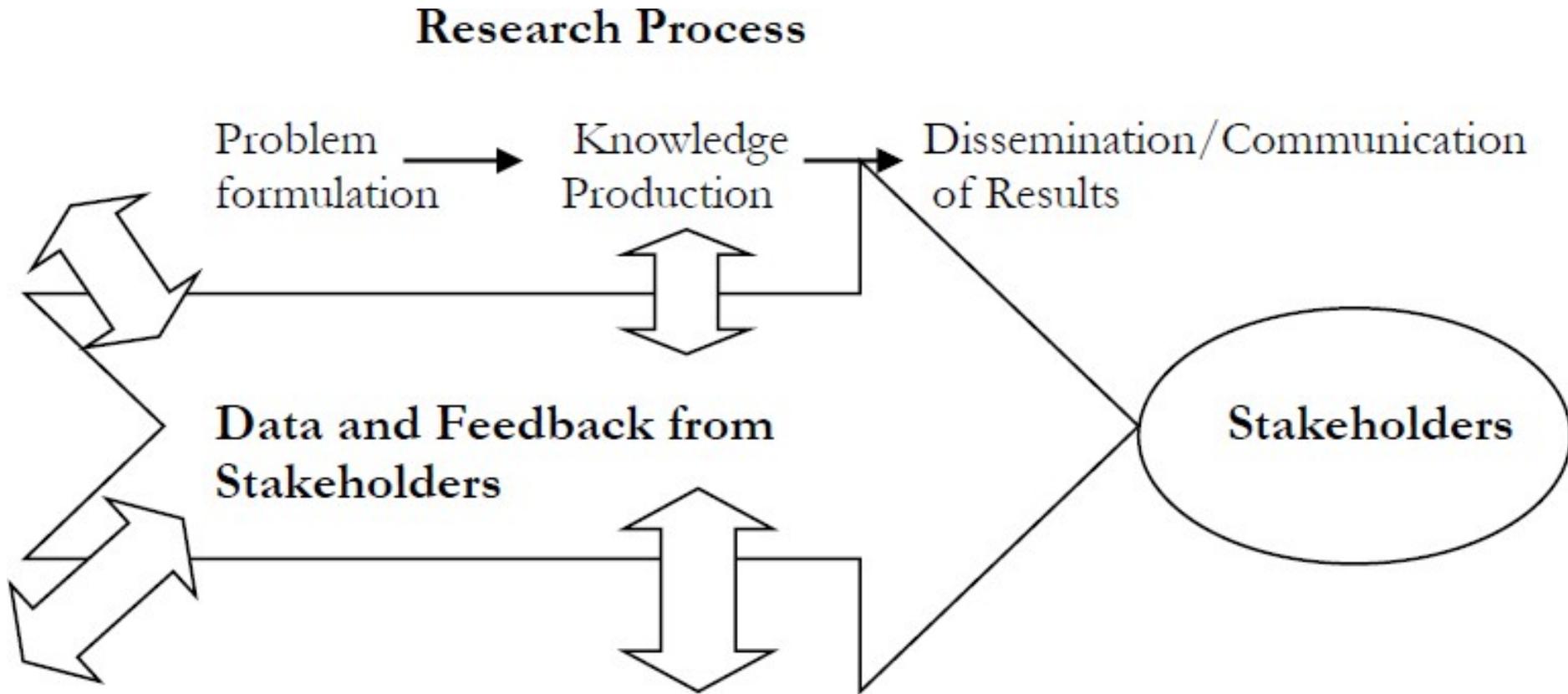
- **Models of Stakeholders' Engagement**

Transfer model



- **Models of Stakeholders' Engagement**

Interaction model



• **Models of Stakeholders' Engagement**

Transfer and interaction model:

- The differences in the two models lie in the continuity of information exchange between the stakeholders and the researchers in the interaction model.
- The key idea in stakeholders' engagement is for researchers to interact with stakeholders who are likely to benefit from the research undertakings.