

Transferrable European Innovation and Research Management Practices for the Arab World: Handbook for the MIMIR project

*By Bregt Saenen, Policy & Project Officer, European University Association
and contributors*

Table of Contents

1. Introduction	3
1.1. Partners	4
1.2. Approach	5
2. Transferrable European Innovation and Research Management Practices.....	5
2.1. University Vision and Strategy.....	6
2.2. Skills Development	12
2.3. Human Resources.....	15
2.4. Knowledge Transfer Structures	16
2.5. Sustainable Funding	21
3. Moving Forward: Transferring European innovation and research management practices to the Arab world	26
Appendices.....	27
Appendix 1 – Report of the Second Work Package of the MIMIR Project.....	27
Appendix 2 – Project Partners.....	29
Appendix 3 – Work Packages	29
Selected Bibliography	30

Executive Summary

The Modernisation of Institutional Management of Innovation and Research in South Neighbouring Countries (MIMIR) project aims to develop innovation and research management capacity in the Arab world, particularly in Morocco and Jordan. This handbook presents a selection of European practices, structured to highlight the basic elements shared by European management models: university vision and strategy, skills development, human resources, knowledge transfer structures and sustainable funding. The practices were selected by European project partners (i.e. Katholieke Universiteit Leuven, Università degli Studi di Milano and Università degli Studi di Roma “La Sapienza”) for their potential to be transferred to and implemented by their Jordanian and Moroccan counterparts. They will form the basis for the transferable innovation and research management model to be developed and implemented by the project.

1. Introduction

Innovation and research management is rapidly developing in Europe. In expanding the so-called ‘third mission’ of higher education institutions, policymakers and academic leaders are putting in place policies, structures and practices to facilitate university engagement with society at large and the private sector in particular.

The Euro-Mediterranean Partnership provides an international dimension to this process. By seeking to bring Europe and its neighbouring countries to the south closer together, this partnership has established a regular dialogue at the ministerial level. Promoting innovation and research cooperation is a key component in this dialogue, creating an opening to transfer developments taking place in Europe to its southern neighbours.

The Modernisation of Institutional Management of Innovation and Research in South Neighbouring Countries (MIMIR) project aims to develop innovation and research management capacity in the Arab world, particularly in Morocco and Jordan. Through building on recent European developments and strengthening the Euro-Mediterranean cooperation, the project engages higher education institutions and ministries in a structured dialogue on the transfer and implementation of European practices.

The European University Association (EUA) has worked extensively on developing innovation and research management in Europe. The ‘European Universities Implementing their Modernisation Agenda’ (EUIMA) project, implemented by EUA, aimed to provide a ‘[...] fuller empirical knowledge and understanding of the current nature of university-business collaboration [...]’,¹ while both Collaborative Doctoral Education in Europe projects (DOC-CAREERS and DOC-CAREERS II)² and Salzburg publications³ focused on establishing the central role of doctoral education in this regard. EUA has also

¹ Borrell-Damián, L., Morais, R., & Smith, J.H., 2014, *University-Business Collaborative Research: Goals, outcomes and new assessment tools. The EUIMA Collaborative Research Project Report* (Brussels, EUA Publications), p. 9. See also: Trueman, S., Borrell-Damián, L., & Smith, J.H., 2014, *The EUIMA Collaborative Research Project Papers: The evolution of university-based knowledge transfer structures* (Brussels, EUA Publications).

² Borrell-Damián, L., 2009, *Collaborative Doctoral Education: University-industry partnerships for enhancing knowledge exchange* (Brussels, EUA Publications) and Borrell-Damián, L., Morais, R., & Smith, J.H., 2015, *Collaborative Doctoral Education in Europe: Research partnerships and employability for researchers. Report on DOC-CAREERS II Project* (Brussels, EUA Publications).

³ EUA Council for Doctoral Education, 2010, *Salzburg II Recommendations: European universities' achievements since 2005 in implementing the Salzburg principles* (Brussels, EUA Publications) and EUA Council for Doctoral Education, 2016, *Doctoral Education - Taking Salzburg Forward: Implementation and new challenges* (Brussels, EUA Publications).

worked on the internationalisation of European policies and good practices, transferring them to Europe's neighbourhood and beyond.⁴ The MIMIR project marks a continuation of this work.

The handbook for the MIMIR project presents a selection of European innovation and research management practices. Based on the activities and events of the second work package, these practices were selected by the European partners for their potential to be transferred to and implemented by their Jordanian and Moroccan counterparts.

The European practices included in this handbook will form the basis of the management model that will be developed and implemented in subsequent work packages. It provides an overview of practices that can inspire and inform the development of a coherent model in the development phase of the project. As such, the handbook serves to *prepare for* rather than *report on* a new model for innovation and research management in the Arab world.

1.1. Partners

The MIMIR project is coordinated by the Universitat de Barcelona (UB, Spain), with EUA leading the second work package.

The European partners were selected based on the diversity of their innovation and research management models. In addition to UB and in alphabetical order, they are: EUA (Belgium), the Katholieke Universiteit Leuven (KUL, Belgium), the Unione delle Università del Mediterraneo (UNIMED, Italy), the Università degli Studi di Milano (UNIMI, Italy), the Università degli Studi di Roma "La Sapienza" (Sapienza, Italy), and the Université de Montpellier (UM, France).

The Moroccan and Jordanian partners were selected based on their potential to serve as regional hubs for research cooperation with Europe and further disseminate the project's outcomes in North Africa and the Middle East. In alphabetical order, they are: the Al-Balqa' Applied University (BAU, Jordan), the Association of Arab Universities (AArU, Jordan), the Jordan University of Science and Technology (JUST, Jordan), the Ministère de l'Enseignement supérieur, de la Recherche Scientifique et de la Formation des Cadres (MESRSFC, Morocco), the Ministry of Higher Education and Scientific Research (MoHE, Jordan), the Université Ibn Tofaïl (UIT, Morocco), the Université Mohammed-V de Rabat (UM5, Morocco), the Université Mundiapolis de Casablanca (Mundiapolis, Morocco), the Université Sultan Moulay Slimane (USMS, Morocco) and the University of Jordan (UJ, Jordan).

⁴ Jørgensen, T.E., 2012, *CODOC - Cooperation on Doctoral Education between Africa, Asia, Latin America and Europe* (Brussels, EUA Publications) and European University Association, 2015, *Principles and Practices for International Doctoral Education* (Brussels, EUA Publications). In addition, EUA every year organises the Arab-Euro Conference on Higher Education and every two years the Global Strategic Forum on Doctoral Education.

1.2. Approach

The MIMIR project engages project partners in a structured dialogue on the transfer and implementation of European innovation and research management practices. As detailed in the report of the second work package (cf. appendix 1), this dialogue was established during the activities and events.

The European partners first came together for a focus group meeting on innovation and research management, discussing the latest developments and trends across Europe. Based on existing EUA work, the discussion resulted in a preliminary overview of a management model.

Study tours subsequently established a structured dialogue between the project partners. The Jordanian and Moroccan partners were invited by their European counterparts to gain first-hand knowledge of and provide feedback on the innovation and research management models of Sapienza, KUL and UB. This dialogue resulted in a selection of European practices that have the potential to be transferred to and implemented by the Moroccan and Jordanian partners.

A concluding conference brought the partners together to discuss the preliminary outcomes of the second work package. In putting together the focus group overview of a management model with the practices selected during the study tours, the event further deepened the dialogue and finalised the content presented in this handbook.

2. Transferrable European Innovation and Research Management Practices

The handbook for the MIMIR project presents a selection of European innovation and research management practices.

The practices are selected for their potential to be transferred to and implemented in the Arab world, and are structured to highlight the basic elements shared by European management models: university vision and strategy, skills development, human resources, knowledge transfer structures and sustainable funding. They will form the basis of the management model that will be developed and implemented in subsequent work packages.

2.1. University Vision and Strategy

2.1.1. *Sapienza's Research Strategy and Quality Assurance*

Contribution by Maria Sabrina Sarto, Deputy Rector for Research Infrastructure and Tools, Sapienza, Italy

Sapienza considers the scientific research among the institutional activities that bring the highest added value to the university. There are 63 departments and more than 34 research centres focused on research activity. Their activities are coordinated by the governance and supported by the administrative offices, working together in order to carry out Sapienza's research strategy. According to the Italian legislation, universities must equip themselves with programming documents that define their policy orientations and strategic objectives. Sapienza's strategy is established in two programming documents: the Strategic Plan and the Performance Plan.

Sapienza was one of the first Italian universities to initiate a strategic planning process, nearly 10 years ago, with the elaboration of its first Strategic Plan. The Strategic Plan is an essential tool to outline the areas for development that the university intends to pursue and the strategy used to accomplish these objectives. A special committee is responsible to draft the Plan, which is updated periodically to incorporate new strategic guidelines indicated by the Ministry of Education, University and Research. The periodical update of this strategic document allows the university to keep abreast of the process of continuous innovation of the university system and the knowledge society.

With the Strategic Plan 2016-2021, Sapienza sets among its main goals the improvement of "the productivity and quality of research, even at the international level". The Plan indicates the strategic actions to achieve this objective and indicators to measure the impact.

The rationale behind Sapienza's research strategy is based on five main research priorities:

- Research Focus – Sapienza's research focuses on the main European research pillars and key-enabling technologies.
- Research Culture and Performance – Sapienza aims at strengthening its research culture and performance as well as the quality of research products through specific actions such as rewarding research excellence at group and individual levels; providing opportunities for staff to continuously improve their research skills; improving access to appropriate and current research equipment and facilities.
- Working together and Internationalisation – Sapienza promotes work across disciplines as well as across institutional, national and international borders through specific actions aimed at supporting cooperation, collaboration and internationalisation.

- Developing the Research Force – Sapienza invests in recruitment and hiring policies aimed at strengthening research including grants for graduate students with emerging international reputation and recognition of research performance for the staff.
- Innovation and Technology Transfer – Sapienza University has developed a broad plan for knowledge transfer that will position itself as a key provider, supporter and driver of national and international innovation, ensuring benefits for local economy, industry, the country and the global community.

From an operational point of view, the implementation of Sapienza's research strategy is defined in the Performance Plan. The document, developed in synergy with the Strategic Plan, lists cascading objectives beginning with the identification of university missions and programmes and indicates operative objectives, performance indicators and targets, both for the academic and the administrative sectors.

Sapienza fosters research quality assurance through self-evaluation processes that allow for an informed assessment to be made of its overall research activities. The aim of Sapienza research quality assurance system is to monitor the performance of research activities, set research objectives, remove possible obstacles, and verify the achievement of established goals.

In 2010, the Ministry of University and Research established the National Agency for the Evaluation of the University System and Research (ANVUR). Since then, universities are subject to periodic evaluation of their didactic and research performance. The quota of funding that universities receive annually from the ministry is based – partly – on the results of such evaluation. The parameters taken into consideration for research are scientific production (articles, books, patents, software, database) and research competitiveness (capacity to attract external resources, advanced training offered). The assessment is based on a peer-review approach and on bibliometric analysis.

To comply with the requirements imposed by the external evaluation, Sapienza has established a system of internal self-assessment. Each year, departments are called to draft a report on the status of departmental research (the so-called SUA-RD). It represents departments' self-assessment tools and helps to collect the necessary indicators to carry out the annual research quality assessment required by ANVUR.

The key bodies involved in the assessment processes are:

- University Board of Evaluation – it acts as zipper between ANVUR and the university and it is responsible for carrying out ex-post evaluation of quality assurance. In particular, it monitors

the effectiveness of the quality assurance system and formulates recommendations to improve the quality of research activities. It is composed mainly of external members.

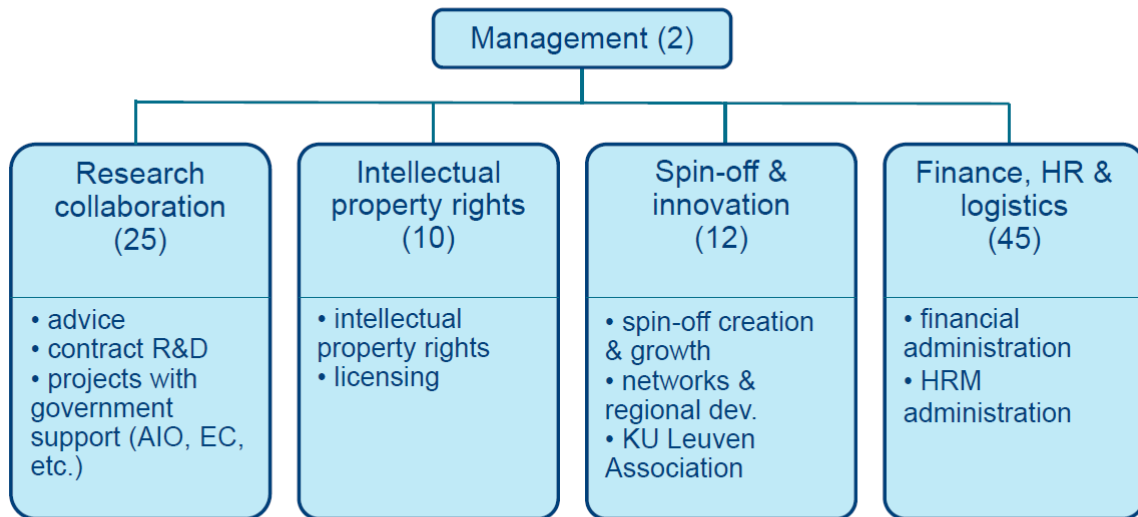
- Quality Team – it is the body supervising the correct implementation of quality assurance activities inside the university. In particular, it organises information flows from/to the Board of Evaluation, it supports departments in preparing the SUA-RD and assesses the impact of improvement measures. It is fully composed of internal members.
- Department Reference Person for Research - he/she acts as an interface for the Quality Team and is responsible for the implementation of the Research Quality Assurance System and the elaboration of the SUA-RD within the department.

*2.1.2. KUL's Combination of Centralised and Decentralised Innovation and Research Management
Contribution by Kolja Raube, Senior Researcher at the Leuven Centre for Global Governance
Studies, based on a presentation by Paul Van Dun, Director of Leuven Research and
Development, KUL, Belgium*

On the one hand, research and development management at KUL have been set up centrally. Leuven Research and Development (LRD) centrally administers external research funded projects. LRD's function is to manage research collaborations, protect and exploit intellectual property, set up spin-off companies, provide incubation instruments and seed financing as well as create high-tech eco-systems.

In terms of cooperation and interaction with university faculties and research units, LRD interacts with them on all the above-mentioned functions (cf. figure 1). In other words, while LRD manages research cooperation centrally in terms of managing and financial rules, the research units are actively implementing national, regional and international research respectively. LRD can thus ensure that the same rules are applied and streamlined in the various projects of different university faculties (cf. figure 2).

Central multidisciplinary staff



- Close interaction and collaboration between different units
- Regional and international networking

Figure 1 – Organisation of Leuven Research and Development (I) (source: KUL)

LRD research divisions & projects

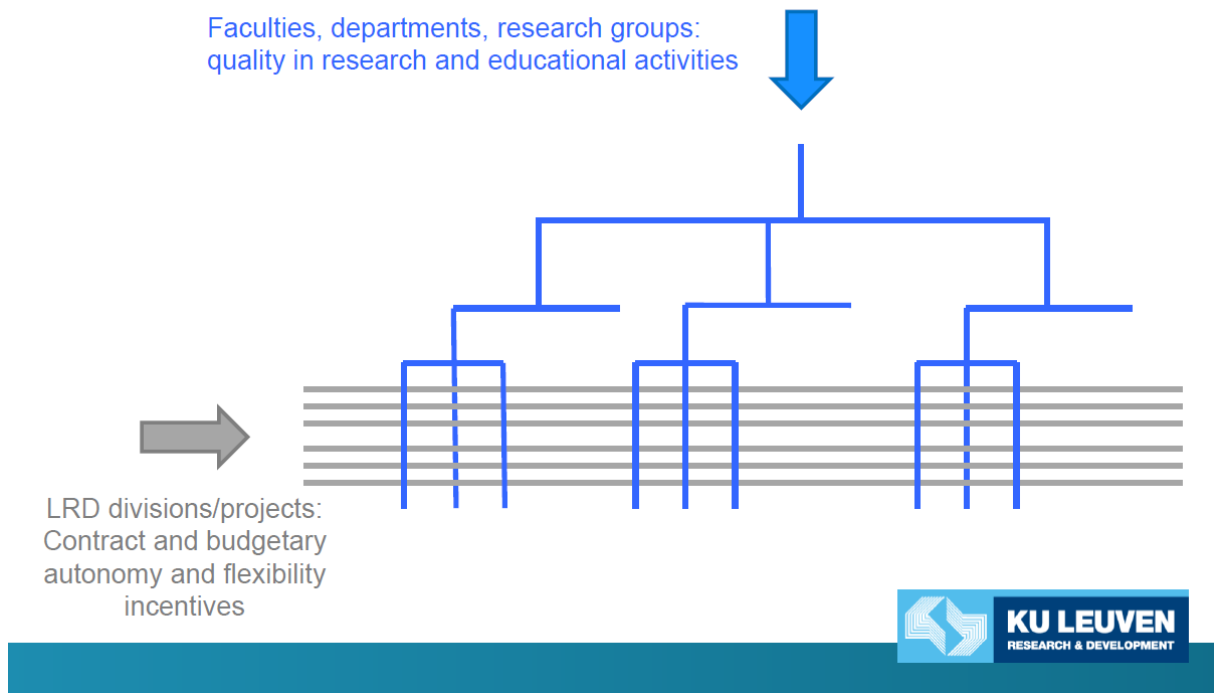


Figure 2 – Organisation of Leuven Research and Development (II) (source: KUL)

For example, once a project has been taken on and will be implemented at KUL, the respective project principle investigator will open a budget line under which the project is administered financially. LRD also gives guidance during the project application. However, the initiative to apply for projects must come from individual academics or research centres. As such, bottom-up initiatives and cooperation are key to foster the actual application. Networks of partners inside and outside the university are crucial to prove the good management, implementation and effectiveness of the project's operation and results.

2.1.3. *KUL's Combination of Centralised and Decentralised Management of International Research Projects*

Contribution by Kolja Raube, Senior Researcher at the Leuven Centre for Global Governance Studies, based on a presentation by Stijn Delauré, Head of International Funds at the Research Coordination Office, KUL, Belgium

The Dienst Onderzoekscoördinatie KUL operates in an environment of bottom-up initiatives from research units (cf. figure 3). Dienst Onderzoekscoördinatie is able to provide starting grants to young

academics and initiate fundamental research projects and therefore it centrally administers a KUL based budget which is spent on fostering research projects. However, the conditions for the research units is that other externally funded research has to follow this initial funding.

Research policy – actors, interactions

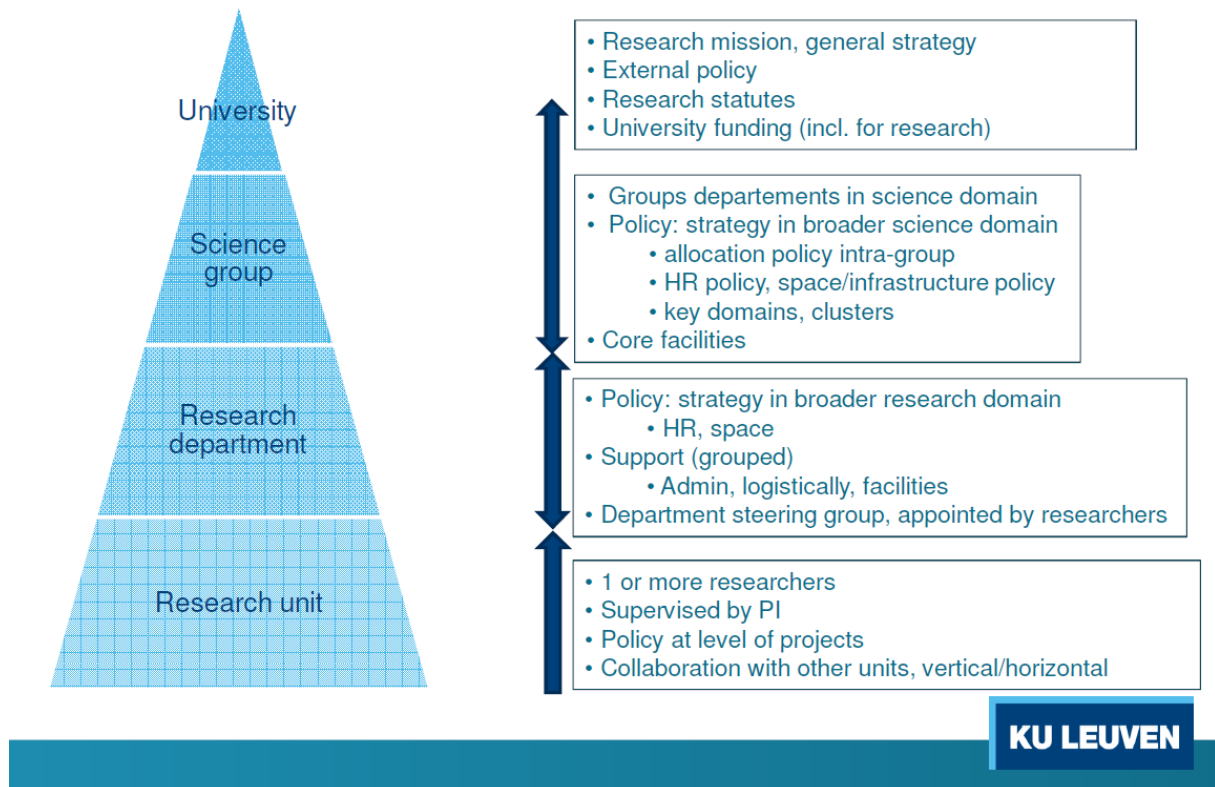


Figure 3 – Research Policy and Actors (source: KUL)

In other words, funding that is primarily Leuven-based needs to be related to larger research networks on a regional level, and with European networks in later stages of the research. Again, while the central university level can establish rules, financial means and information, it leaves the final decision and implementation to individual academics and research centres. It is up to the research centres and units as well as their participating staff to manage the application and final implementation of projects. In other words, not only does the capacity to develop and write projects need to stay with the decentralised research centre/unit, but so does the knowledge on how to better manage the respective project once it has been granted.

2.2. Skills Development

2.2.1. *UNIMI's Investment in International Mobility and Entrepreneurial Mindset of Graduate Students*

Contribution by Monica DiLuca, Professor of Pharmacology and Vice-Rector for International Strategy, UNIMI, Italy

UNIMI's Students Advisory and Career Guidance Services Centre offers advice and career guidance before, during and after the university studies.

The Centre was established in 1999 with the goal to enhance the employability of all students, both undergraduate and postgraduate, so that they would be able to compete and flourish in a challenging, fast-moving knowledge-based economy. Moreover, a law passed in 2003 stipulated that Italian universities take on a recognised role of intermediary between employers that are offering jobs and students and graduates who are seeking jobs, and thus becoming certified employment services.

Over time the Centro per l'Orientamento allo Studio e alle Professioni (COSP) has organised its services to:

- Help students and graduates develop their employability skills (communication, team-working, critical thinking, organisational, commercial awareness), with the purpose of preparing them to apply for jobs in line with their training and to demonstrate the range of skills they developed during their studies, internships and extracurricular activities.
- Make employers understand the benefits of recruiting well trained graduates, allowing them to search for their candidates through the university's placement services. The main goal is to build a vivid and useful network.

The main services offered are as follows:

- Internships and work experience management: all students enrolled are entitled to have a first introduction to the job market through an internship experience during their studies. Due to the 2013 regional law that controls the internships in Lombardy, COSP manages the internship service for all students and recent graduates within one year after graduation which includes proper insurance, in Italy and abroad, through a specific document (an internship agreement between the university and the employer, with a detailed description of the intern's duties). Every year COSP handles around 4 000 internships. In order to help students and graduates find an internship or a job, COSP manages an online job vacancies board, open to all types of employers searching for employees. COSP selects, for its users, only the best and certified internship and job offers.

- CV Database: to help employers find the right candidate among UNIMI's students and graduates population, COSP also manages a CV Database, that includes the resumés of everyone who has enrolled or graduated. Employers must register on the website, which is free of charge, before searching for their candidates by selecting freely via certain parameters (course of enrollment, age, grades, degree, specific skills).
- Career Fairs: to enhance the meeting between employers and job searching graduates, COSP organises every year different career fairs, events at which employers from different fields and selected for their internships and job offers, present themselves and search for candidates. Once a year COSP also organises an International Career Fair, with employers from all around the world.
- Career guidance and job-seeking advice services: COSP offers guidance on the different methods and strategies of job-seeking (CV and cover letter, application forms, assessment, intrapreneurship) during specific meetings held in collaboration with human resources consulting firms, career advisors and professional counselors. It is possible to book one-to-one appointments, and once a week an employment information service is also available for everyone who is interested.

*2.2.2. Sapienza's Services offered through the Office for Research Mobility and European Projects
Contribution by Rosa di Stefano, Member of Office for Research Mobility and European
Projects, Sapienza, Italy*

The international side of Sapienza is essential to the university's research strategy. With more than 1150 agreements, Sapienza collaborates with other renowned international universities and research centres. The aim is to promote international collaboration and facilitate exchanges between faculties, researchers and students to continually improve the level of teaching and research at Sapienza. Mobility and research projects are developed by individual faculties and/or departments, which are granted the autonomy necessary to achieve results quickly and efficiently. In order to support the Sapienza research community in its effort towards internationalisation, the Research Mobility and European Project Unit offers several services and opportunities dedicated to researchers.

Sapienza is strongly committed to enhancing networking and cooperation between Sapienza and other institutions worldwide. To this end, it supports both incoming and outgoing researcher mobility through specific programmes and dedicated funding. The Research Mobility and European Project Office is responsible for the entire procedure, from issuing the call to the management of the post-selection phase. Two calls are issued each year:

- Visiting professorship programme: the programme aims to invite visiting researchers and professors from leading universities and research centres to carry out joint research projects.

The minimum duration of the stay is 30 days. During the period 2011-2016, more than 400 professors and researchers visited Sapienza under the Visiting Professorship Programme, many of them from top-level institutions such as MIT, Harvard and Oxford Universities. The Research Mobility and European Project Unit drafts and issues the annual call and provides administrative and practical assistance to visiting scholars, before and after their arrival in Italy.

- Doctoral Mobility Programme: Sapienza offers mobility grants for students enrolled in the Sapienza doctoral programmes. In order to obtain a scholarship, students must stay in the country of the host institution for a continuous period of 3 (minimum) to 18 months (maximum).

The office also provides information and support to researchers who would like to apply for European Research Council (ERC) programmes and Marie Skłodowska-Curie Actions (MSCA) with Sapienza as the host institution. ERC and MSCA grants are part of the “Excellent Science” Pillar of the “Horizon 2020” EU Programme for Research and Innovation. They are important instruments provided by the European Union to enhance the European Research Area, retain excellent scientific leaders and promising young researchers and attract talented researchers from outside of Europe. In order to support applicants in submitting successful proposals, the Research Mobility and European Project Unit offers the following services:

- Support for the design, development and submission of project proposals;
- Preliminary assessment of proposals;
- Support and technical assistance for registration and submission of proposals on the on-line platform;
- Support for the drafting of project sections related to administrative issues and to the description of management and other related activities;
- Preparation of the project budget;
- Pre-screening of the project proposal.

The office also offers its services to successful applicants in the management of their projects through:

- Support for financial and administrative project reporting;
- Support for the financial and administrative management of approved projects;
- Support in case of audit by the European Commission.

Finally, the Research Mobility and European Project Unit is strongly committed to the promotion of international research mobility through a constant dissemination effort and the activation of measures to encourage the presence of international researchers at Sapienza and the participation in funding opportunities. To this end, the office provides:

- Gathering and dissemination of information on funding opportunities for international research;
- Preparation of a weekly newsletter;
- Organisation of workshops and info-days for researchers, professors and administrative staff;
- Organisation of national info-days in collaboration with EU Programme National Contact Points.

2.3. Human Resources

2.3.1. *UNIMI's Focus on Hiring and Training Doctoral Degree Holders as Administrative Support Staff*

Contribution by Vittoria Mastromauro, Senior Research Officer at the Grant Office, UNIMI, Italy

Until September 2014 the Research Office of the Research Services Division, in charge of the “pre-award” phase, was composed of four full-time staff units having to deal with both national and international calls for proposals. With a population of over 2 000 researchers and professors plus doctoral candidates and post-doc fellowships, the four staff units working at the Research Office were evidently not sufficient to meet the needs of the scientific community at UNIMI.

In 2014 the University Board of Directors had resolved to create a task force of eight full-time temporary units from different scientific fields (four life sciences, two social sciences and humanities, two physical sciences and engineering), preferably with a doctoral degree.

The “junior officers” were hired in September 2014 with a two-year contract and were integrated in the staff of the Research Office who supervised their training and coordinated their activities. The junior officers did not have experience in project writing, therefore they had to be intensively trained during the first 12 months. They collaborate with the 32 UNIMI research departments so as to support the grant process, including providing information on funding opportunities, advice on targeting the right opportunities, developing guidelines, reviewing applications and submitting project proposals under different calls. They do not directly write the proposals but give support to researchers participating both as coordinators and partners.

The UNIMI governance resolved that having doctoral degree holders as administrative support staff could represent an added value, with their experience as former researchers sharing background, values and mind-set with the UNIMI scientific community. Moreover, the scientific community would feel very motivated to submit proposals if fully supported in all the steps and aspects of the proposal.

The short-term objectives for the junior officers were to increase the number of proposals submitted and to differentiate the variety of proposals (i.e. other funders). The long-term objectives (by 2020) are to increase the number of UNIMI scientists participating in European calls, improve the competitiveness of the research proposals, increase the number of successful projects, and improve the success rate of departments.

The feedback from the UNIMI scientific community regarding the services offered by the junior offices is so far very positive. In April 2016 seven junior officers were offered a permanent position at UNIMI.

In December 2016 the Board of Directors approved the Strategic Plan (<http://www.unimi.it/ateneo/107137.htm>) setting the university strategic priorities for the following three years. It includes goals and indicators for each institutional activity characterising the university mission, including research.

Since January 2017 UNIMI has enjoyed a new electronic system for the management, *inter alia*, of output both in terms of scientific publications and research funding. This system allows an easy monitoring of the activities. Moreover, the results of the research activities (funds for research) carried out by UNIMI scientists are detailed every year in the report which is submitted to the Board of Directors for approval.

2.4. Knowledge Transfer Structures

2.4.1. *UNIMI's Private Foundation to Strengthen University-Business Partnerships and the Challenge on how to Deal With Existing, Bilateral Partnerships*

Contribution by Claudio Gandolfi, Full Professor of Agricultural Hydraulics and Vice-Rector for Knowledge Transfer, UNIMI, Italy

The support capacity for the technology transfer activities of the university and for its relations with private companies is necessary since these two environments have different needs and objectives. It can be difficult to find a common language between the parties, but the technology transfer from university to the private sector is an important activity for academic research to contribute to the well-being of the whole community.

The decision by the university to rely on a private foundation for the creation and strengthening of relationships between industry and academic research is built on the purpose of creating a positive environment that can understand business dynamics and promote the transfer of innovation and technologies. This thereby gives a new value to the intellectual property developed in the university.

The foundation intends to represent university departments and research groups in the private sector, thus enabling an effective match between the specific demands of industry with the competences developed in academia in the relevant field of interest, or by responding to specific questions. The presence of an external subject can also simplify the coordination of different forms of expertise and different departments. These activities can give an added value to committed research or for the university to be a centre for technical services. The foundation would not interfere with the already existing relationships among research groups and industries, but can positively empower these relationships and give advice, or contribute in other ways when required.

As the foundation's objectives include the promotion and creation of new university-business relationships, it can organise or participate in meetings, fairs, workshops or other activities where it is possible to meet businesses.

The research results and innovation, achieved in the university laboratories, can be offered and transferred to established companies so as to enhance and be included in existing manufacturing processes, or to new business realities, such as start-up companies or university spin-offs. For these new realities, the foundation can be the opportunity to have a mentor who supports researchers in their first steps as entrepreneurs.

*2.4.2. Sapienza's Services Offered Through the Office for Research Enhancement and Innovation
Contribution by Paola Ciaccia, Head of Patents and Technology Transfer Unit, Sapienza,
Italy*

The Technology Transfer and Promotion Office (TTO) helps faculty members, researchers and students with intellectual property (IP) protection, development and the technology transfer of their innovative projects. More specifically, the TTO assists anyone at Sapienza who wishes to develop and transfer IP (i.e. know-how, patents, designs) or launch a start-up or a spin-off in innovative fields based on the results obtained from research and teaching activities.

The office works in synergy with the Deputy Rector and with the Patent and Technology Innovation Committee, which evaluates researcher patent proposals with filing, maintenance and all other patent procedures. The office also provides monitoring and maintenance of the university patent portfolio.

Technology transfer activities aim to strengthen links between the scientific and business community such as:

- Providing guidance in planning an effective patent or other IP protection strategies and handling all implementation details during the entire research activity process;

- Organising group meetings in departments, with a special focus on young researchers, to encourage an entrepreneurial culture and improve their ability to transform innovative ideas into commercial propositions;
- Assisting with technical and market assessments and actively marketing Sapienza technology to industry partners through the following tools:
 - o Non-Disclosure Agreements (NDA)
 - o Material Transfer Agreements (MTA)
 - o Option to License
 - o Licence Agreements
- Promoting Patents portfolio through outsource broker companies, to license or cede the IP to those who are interested in acquiring them;
- Brand exploitation activities for Sapienza.

Technology transfer is now established as the third mission for all universities, together with research and education. Over the course of the last 15 years, Sapienza has developed procedures for technology/know-how transfer to drive research from theory to dynamic activity, thereby leading to the creation of a patent portfolio and innovative entrepreneurship.

The staff works with the researchers to find the best way to market the technology, using a specific database but also taking advantage of networks provided by inventors in connection with their research activity.

The signing of a contract, such as a collaboration or licence, triggers a virtual cycle that provides support to future research and financed developments.

In 2013, one of Sapienza's best achievements led to the signature of a licence contract agreement and a sponsored research agreement with an American company for a total of €3 million to exploit the biomedical patent filed by Sapienza researchers working together with the university. The study paves the way for important developments in liver cancer research.

The great amount of research done at Sapienza drives the creation of spin-offs and start-ups that develop from an examination and a careful evaluation of technical assessments, scientific, economic and financial sustainability carried out by administrative offices, scientific commissions and decisional committees at the university.

Sapienza acts as an incubator, providing its students with the opportunity to expand their knowledge and their technical expertise by participating as active actors in the constitution of self-promoted

companies and giving them free access to university labs and spaces, not to mention the opportunity to work side by side with academic staff (full professors).

Thus, the result is the creation of high-value high-tech companies and highly innovative services that provide products and services to targeted markets at both the national and international levels. The new companies, brought forward by young researchers, can be considered successful stories that witness the new skills acquired by generations of scientists on highly competitive markets and show that the academic community is effectively changing its *forma mentis* into a more entrepreneurial approach, confirming Sapienza as a leading player on the national and international scene.

2.4.3. KUL's Support Structures Working to Promote and Facilitate Collaboration with Public and Private Sector Partners

Contribution by Kolja Raube, Senior Researcher at the Leuven Centre for Global Governance Studies, based on a presentation by Paul Van Dun, Director of Leuven Research and Development, KUL, Belgium

The mission of KUL is, amongst others, 'promoting and supporting knowledge and technology transfer between university and industry' (cf. figure 4).

Mission

“Promoting and supporting knowledge and technology transfer between university and industry”

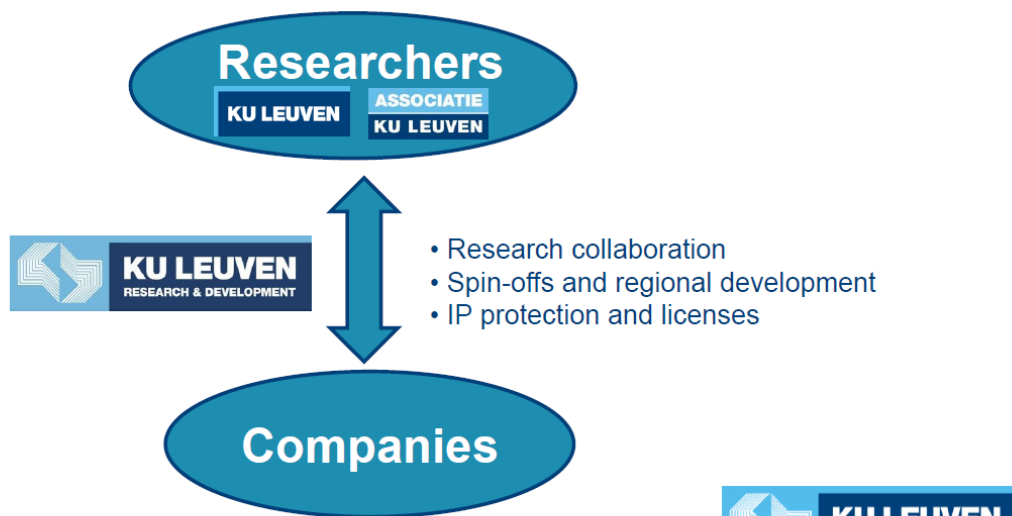


Figure 4 – KUL mission on knowledge transfer between university and industry (source: KUL)

KUL is especially interested in research collaboration, spin-offs and regional development as well as matters of IP protection and licences.

Nevertheless, academic staff members, especially professors, are responsible for contributing to research, education and society. Researchers understand more and more that this contribution to research cannot be university-funded only, but it also depends on securing external partners. There is an increasing bottom-up understanding that applications for external funds come from within the academic body rather than the central university. While the central university can give direction and guidance, it remains a professor-based decision to apply for research grants. Depending on the disciplinary background, cooperation and collaboration with private sources of funding become more and more attractive.

2.5. Sustainable Funding

2.5.1. *UNIMI's Funding Strategy that Allows for Bottom-up Flexibility by the Research Departments* *Contribution by Chiara Tonelli, Vice-Rector for Research and Professor of Genetics, UNIMI, Italy*

UNIMI's three-year funding strategy, the Research Support Plan 2015/2017, was approved by the Board of Directors in June 2015. In order to make UNIMI and its researchers more and more competitive in research, the investment of internal funds in some activities was considered crucial. The Research Support Plan focuses, *inter alia*, on the following initiatives:

- Support the capacity of UNIMI scientists to attract competitive funds

With national funds becoming more and more scarce, it is very important to have competitive researchers who can attract their own funds to carry out their research activities. Tools:

- Transition Grant 2015/2017 - "Partnerships H2020". The aim of this initiative is to fund UNIMI scientists who participated in European calls and came very close to being successful (i.e. reserve list, score above threshold) but were not funded because of insufficient budget. Further objectives are to:
 - create the best conditions for researchers to compete at European level;
 - increase the number of participants and competitiveness of UNIMI research proposals;
 - strengthen excellent CVs.
- UNIGEST: creation of a centralised direct management of major European projects. A dedicated team of experts will directly manage, on request from the scientist in charge, the European funding (budget monitoring, expenditure review and approval, internal and external approvals for changes or extensions, reporting closeout, etc.) This direct management will allow the scientist to lighten the administrative burden connected with the grant management and focus more on the scientific parts of the project. Scientists are often intimidated by the complexity of the grant management. This centralised support should encourage and motivate them even further.

- Strengthening of Research Infrastructures

Research Infrastructures are a crucial aspect in research. They must always be available, efficient and up to date. Tools:

- funds specifically made available to research departments for the replacement, updating and acquisition of scientific equipment in order to reinforce and strengthen research laboratories

- UNITECH - technological platforms: in 2017 four technological platforms will be established:
 - COSPECT (COMprehensive Substances characterisation via advanced sPECTroscopy)
 - NOLIMITS (Novel Live bioImaging Milano cITà Studi)
 - INDACO (Infrastructure for the treatment of complex data)
 - OMICs

- Role of departments

Departments are the place where research activities take place. They have to decide on their own internal strategies to become more and more competitive in research. Tools:

- Annual funds for institutional activities.

The strategic motivation for this activity is to:

- strengthen the planning capability of UNIMI scientists
- increase the "network building" capability of departments through scientific initiatives integrating different knowledge and competences also at interdepartmental level
- increase the dissemination of research results through the organisation of workshops and publication of results

In order to obtain funds, each UNIMI department has to develop an investment plan including the initiative to be carried out (funds for young researchers, organisation of workshops, etc.)

The activities implemented under the Research Support Plan 2015/2017 are periodically monitored by the Research Services Division. A detailed report is submitted every year to the Board of Directors for approval.

Moreover, the monitoring of all research activities and the supervision of their regular implementation is carried out periodically also by the Research Observatory established according to the UNIMI by-laws. It is composed of nine members who are renewed every three years.

*2.5.2. Sapienza's Services Offered Through the Office for Research Projects and Fundraising
Contribution by Carola Aiello, Member of the Office for Research Projects and Fundraising,
Sapienza, Italy*

The Office for Research Projects and Fundraising is part of the Research and Technology Transfer Area (ASuRTT) of Sapienza. It supports Sapienza researchers in monitoring funding opportunities, matching

internal and external competences for competitive partnerships, writing project proposals, and fostering dissemination and exploitation of research results.

More specifically the Office for Research Projects and Fundraising provides the following services:

- Information on funding opportunities through the regular organisation of workshops and events on EU Programmes for R&I thematic priorities and rules for participation. These events are usually organised jointly with European Commission officers as well as with National Contact Points of the relevant funding programmes.
- Customised assistance to researchers, including:
 - o Identifying funding opportunities within European, international and national programmes;
 - o Supporting researchers to identify which programme best suits a project idea;
 - o Searching for partners through dedicated software and networks;
 - Supporting applicants in proposal design and drafting, with a specific focus on the administrative aspects;
 - o Eligibility check of proposals in compliance with the criteria of the European Commission;
 - o Supporting applicants during grant agreement negotiations;
 - Technical and practical assistance for the preparation of the final report and dissemination of the project results.
- Training. The training programmes planned by the office cover all key aspects of European research and innovation policy: from project design and management to administrative and financial aspects of project management.

The organisational model necessary for a large university with many research departments is mainly based on an intra-institutional network of research support services. This means that the services of the Fundraising Office are provided with the support of a contact person operating in each Sapienza department. The department contact persons operate as crucial nodes in the network. Their role is fundamental in identifying the strengths and weaknesses as well as the unexploited potential of the departments. This is very useful for the Fundraising Office to design and develop services that are custom-tailored to the concrete needs of department researchers.

The Office organises targeted training modules planned on-demand and upon specific request of the departments to enhance project design and management skills and competencies for researchers and administrative staff (above-mentioned department contact persons) of the departments.

Furthermore, to reinforce relations with department personnel, the office organises regular meetings and visits to departments. These informal meetings, which target different research groups, aim to deepen research themes, inform researchers about available funding opportunities and encourage them to apply to upcoming calls within European, international, national and regional calls for proposals.

2.5.3. *KUL's Internal Allocation of Financial Resources in Relation to External Funding*

Contribution by Kolja Raube, Senior Researcher at the Leuven Centre for Global Governance Studies, KUL, Belgium

In total, KUL's research expenses are at 455 Mio Euro (2015). As mentioned above, KUL stimulates research through different categories of funding. These categories are C1 (basic research), C2 (research with a long-term socio-economic impact) and C3 (research with a short-term socio-economic impact). Within these categories there is open competition from within the university, without any pre-set categories of funding (cf. figure 5). Applications must go through intensive international peer-review and the assessment of an independent research council.

Internal research funds as leverage

KU Leuven research expenses in 2015: 455 M€

20% internal

leverage

80% external

Bottom-up, no thematic allocation
Competition, international peer-review
plus independent research council

Categories of funding:

- C1: basic research
- C2: socio-econ impact on long-term
- C3: short-term socio-econ impact

40% national

9% international (EU)

24% private sector

7% other

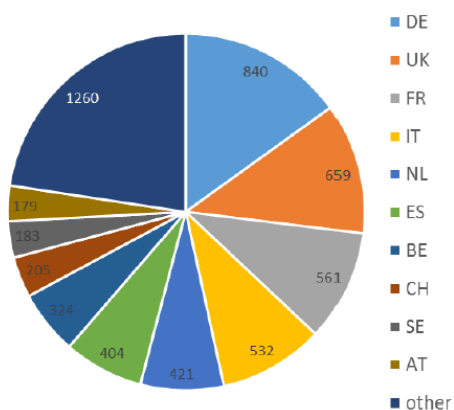
KU LEUVEN

Figure 5 – Internal and External Research Funding (source: KUL)

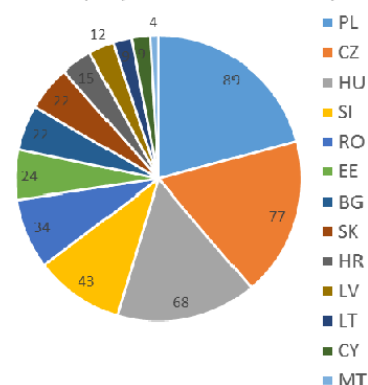
The ratio between internal and external funding is currently 20% internal and 80% external funding (2015). In other words, with 20% of its research expenses KUL has been able to attract an additional 80% of external research projects, which were nationally funded (40%), internationally or EU-funded (9%), private-sector sponsored (24%) or related to other sources (7%). With regard to international projects (2015), KUL attracted 264 Mio Euro in the period 2007-2013 from FP7-funding and 117 Mio Euro from 2014 until today with regard to H2020-financing (cf. figure 6).

Focus on Europe

Number of partnerships per country in KU Leuven FP projects (whole EU)



Number of partnerships per country in KU Leuven FP projects (Central Europe)



FP7 (2007-2013): 551 projects, 264 M€
 H2020 (2014-now): 211 projects, 117 M€

Challenge: majority with neighbouring countries
 23% of partners in multi-partner project from EU13

KU LEUVEN

www.kuleuven.be/eu

Figure 6 – Europe-based research collaboration (source: KUL)

2.5.4. KUL's Centre for Global Governance Studies as a Bottom-up Initiative Developed With Initial, Top-down Financial Support

Contribution by Kolja Raube, Senior Researcher at the Leuven Centre for Global Governance Studies, based on a presentation by Jan Wouters, Director of CGGS, KUL, Belgium

The Leuven Centre for Global Governance Studies (CGGS) was founded in 2007. Initially it received a start-up grant by the central university, and has been an interdisciplinary research centre from the beginning. It was originally situated with the Group Humanities and Social Sciences, bringing together

several faculties at KUL, GGS invited researchers to join the centre with different disciplinary backgrounds. At the same time, the research objectives and goals of the centre were clearly formulated in a way that the research identity of the centre evolved around multi-disciplinary perspectives.

After the initial funding by the KUL, GGS has been able to bring multi-disciplinary research perspectives together, leading to a centre that is now entirely funded through competitive research grants from inside and outside the university. Research grants are received from the European Union (FP6, FP7, Jean Monnet Action), the Flemish Research Council (FWO) and many other sources of funding. Since its establishment, GGS's staff has expanded from initially one director and one research manager in 2007 to more than 25 members of staff (including senior research manager, research managers and doctoral candidates).

3. Moving Forward: Transferring European innovation and research management practices to the Arab world

The MIMIR project will move forward with the development and implementation of an innovation and research management model. Combined with an analysis of the state of play in Jordan and Morocco,⁵ the European practices presented in this handbook will form the basis for this model.

As stated in the project objectives, the '[...] model will be in line with international norms and expectations, in particular with those of Europe, and as such, it should enable South Neighbouring partners to easily access and integrate within the European Research Area.'⁶ When developing this model, one key task will be to put in place appropriate quality assurance processes. A successful transfer and implementation of the practices listed in this handbook to the existing structures of the Jordanian and Moroccan partners, will require careful consideration of the responsibilities of all stakeholders involved.

⁵ MIMIR work package 1.

⁶ MIMIR work package 3.

Appendices

Appendix 1 – Report of the Second Work Package of the MIMIR Project

This report provides an overview of the second work package, which involved a series of activities and events that resulted in the handbook. In particular, the report provides an overview of how the structured dialogue between the project partners was established during these events and gives background information on how the content of the handbook was developed. Firstly, the European project partners came together in a focus group to discuss innovation and research management in Europe. Secondly, the Jordanian and Moroccan partners were invited to visit their European counterparts during three study tours. Thirdly, all project partners met at a conference to further discuss and give input on the preliminary outcomes of the second work package.

1. Focus Group⁷

The European project partners of the MIMIR project were hosted by UNIMI on 15 September 2016 in Milan, Italy. They gathered together for a focus group discussion on European innovation and research management practices, debating the management of and contemporary trends in innovation and research in Europe.

The discussion focused on the objective of the third work package, which '[...] is to *develop a new institutional management model* for innovation and research for both Morocco and Jordan [...]. The model will be in line with international norms and expectations, *in particular with those of Europe*, and as such, it should enable South Neighbouring partners to easily access and integrate within the European Research Area.'⁸ (emphasis added)

In debating this objective, the participants agreed that European innovation and research management models are complex and show a great diversity. As such, they agreed that the goal of the second work package should be to have the handbook reflect this complexity and diversity in the good practices identified.

Moreover, it was agreed that the MIMIR model should be developed taking into account existing differences in institutional capacity between the partner universities so as to facilitate its successful transfer to the Moroccan and Jordanian project partners. As such, it was agreed that the second work package should offer good practices that can be included in a transferrable model, serving the project's objective by focusing on those practices that lend themselves to short-term transfer and applicability between the European and Arab project partners.

⁷ MIMIR work package 2, outcome 2.1.

⁸ MIMIR work package 3.

During the focus group UNIMI also presented a select overview of its innovation and research management model.

2. Study Tours⁹

The Jordanian and Moroccan project partners visited their European counterparts during three study tours. The study tours were arranged '[...] in order to have a first-hand look at the research and innovation offices and their professional services to the research community and to present “in situ” and “in function” each institutional organizational research and innovation management model.’¹⁰

The first study tour was hosted by Sapienza on 21-22 November 2016 in Rome, Italy. The Moroccan and Jordanian partners were presented with a full overview of the innovation and research management model of Sapienza. This also included visits to several offices related to innovation and research management (i.e. Office for Research Enhancement and Innovation, Office of Research Projects and Fund Raising and Internationalization Office) and visits to Sapienza’s Nanotechnology and Nanoscience Laboratory and Molecular Links Rome spin-off company.

The second study tour was hosted by KUL on 20-21 March 2017 in Leuven, Belgium. The Jordanian and Moroccan partners were presented with a full overview of the innovation and research management model of KUL, including visits to several offices related to innovation and research management (i.e. International Office, Leuven Research and Development, Office of International Research Projects and Leuven Centre for Global Governance Studies) and visits to the Bakala Academy and Mintlab.

The third and final study tour was hosted by UB on 18-19 May 2017 in Barcelona, Spain. The Moroccan and Jordanian partners were presented with a full overview of the innovation and research management model not only of UB, but also of the wider region and included visits to the Union for the Mediterranean and the Parc Científic de Barcelona.

3. Conference¹¹

The European, Moroccan and Jordanian partners met for a conference organised by EUA and hosted by KUL on 21-22 March 2017 in Leuven, Belgium to further discuss and give input on the preliminary outcomes of the second work package. The presentations on global higher education and research collaboration, university-business collaborative research and principles and practices for international

⁹ MIMIR work package 2, outcome 2.2.

¹⁰ MIMIR work package 2, outcome 2.2.

¹¹ MIMIR work package 2, outcome 2.3.

doctoral education by EUA and Montpellier's innovation and research management model by UM, provided the background for discussion among the participants.

Appendix 2 – Project Partners

Partner	Acronym	Country
Al-Balqa' Applied University	BAU	Jordan
Association of Arab Universities	AArU	Jordan
European University Association	EUA	Belgium
Jordan University of Science and Technology	JUST	Jordan
Katholieke Universiteit Leuven	KUL	Belgium
Ministère de l'Enseignement supérieur, de la Recherche Scientifique et de la Formation des Cadres	MESRSFC	Morocco
Ministry of Higher Education and Scientific Research	MoHE	Jordan
Unione delle Università del Mediterraneo	UNIMED	Italy
Università degli Studi di Milano	UNIMI	Italy
Università degli Studi di Roma "La Sapienza"	Sapienza	Italy
Universitat de Barcelona (project coordinator)	UB	Spain
Université de Montpellier	UM	France
Université Ibn Tofaïl	UIT	Morocco
Université Mohammed-V de Rabat	UM5	Morocco
Université Mundiapolis de Casablanca	Mundiapolis	Morocco
Université Sultan Moulay Slimane	USMS	Morocco
University of Jordan	UJ	Jordan

Appendix 3 – Work Packages

The MIMIR project is divided into eight work packages. The handbook is based on the activities and events of the second work package, providing the basis to develop and implement a model in subsequent work packages.

Work package	#	Category
Scope analysis and state-of-the-art in southern partner countries	1	Preparation
European state of the art on innovation and research management	2	Preparation
Developing a research and innovation management model for Jordan and Morocco	3	Development
Supporting structures for innovation and research management	4	Development
Development of capacity building programme	5	Development

QA tools in management of innovation and research	6	Quality plan
Dissemination and sustainability	7	Dissemination and exploitation
Management	8	Management

Selected Bibliography

Borrell-Damián, L., 2009, *Collaborative Doctoral Education: University-industry partnerships for enhancing knowledge exchange* (Brussels, EUA Publications).

Borrell-Damián, L., Morais, R., & Smith, J.H., 2014, *University-Business Collaborative Research: Goals, outcomes and new assessment tools. The EUIMA Collaborative Research Project Report* (Brussels, EUA Publications).

Borrell-Damián, L., Morais, R., & Smith, J.H., 2015, *Collaborative Doctoral Education in Europe: Research partnerships and employability for researchers. Report on DOC-CAREERS II Project* (Brussels, EUA Publications).

European University Association, 2015, *Principles and Practices for International Doctoral Education* (Brussels, EUA Publications).

EUA Council for Doctoral Education, 2010, *Salzburg II Recommendations: European universities' achievements since 2005 in implementing the Salzburg principles* (Brussels, EUA Publications).

EUA Council for Doctoral Education, 2016, *Doctoral Education - Taking Salzburg Forward: Implementation and new challenges* (Brussels, EUA Publications).

Jørgensen, T.E., 2012, *CODOC - Cooperation on Doctoral Education between Africa, Asia, Latin America and Europe* (Brussels, EUA Publications).

Trueman, S., Borrell-Damián, L., & Smith, J.H., 2014, *The EUIMA Collaborative Research Project Papers: The evolution of university-based knowledge transfer structures* (Brussels, EUA Publications).