Selection phase

Acronym of the project	**A*MIDEX**
Titre du projet en français	Vers plus d'excellence avec Aix-Marseille Université
Project title in English	Towards more excellence with Aix-Marseille University
Project manager	Name : Jean-Paul Caverni Contact information:
Institution leading the project (Project leader)	Name : Aix-Marseille Université
Capital grant requested M€	**1447 M€**

Structure of the Idex partnership

Higher education and research institutions	**Research institutes**	**Other[1]**
Aix-Marseille Université	CNRS	AP-HM
Ecole Centrale de Marseille	Inserm	
IEP d'Aix-en-Provence	CEA	
	IRD	

Indiquer les éventuels changements par rapport à la composition figurant dans le dernier dossier déposé (phase de sélection pour la première vague Idex 1 ou phase de présélection pour la seconde vague Idex 2).

***Le dossier de soumission** pour la sélection doit contenir l'ensemble des éléments de caractérisation du périmètre d'excellence de l'Idex et des actions proposées. Ces éléments comprendront notamment les données, indicateurs et résultats d'évaluation disponibles concernant la formation, la recherche et la valorisation (AERES et autres sources nationales et internationales). Il est rappelé qu'un accord a été conclu avec l'OST pour que l'Observatoire fournisse aux porteurs qui le souhaiteraient des indicateurs bibliométriques et et des informations quantitatives sur les brevets du périmètre d'excellence dans son contexte.*

[1] Par exemple : CHU, Pôles de compétitivité, etc. / For instance : CHU, competitiveness clusters, etc.

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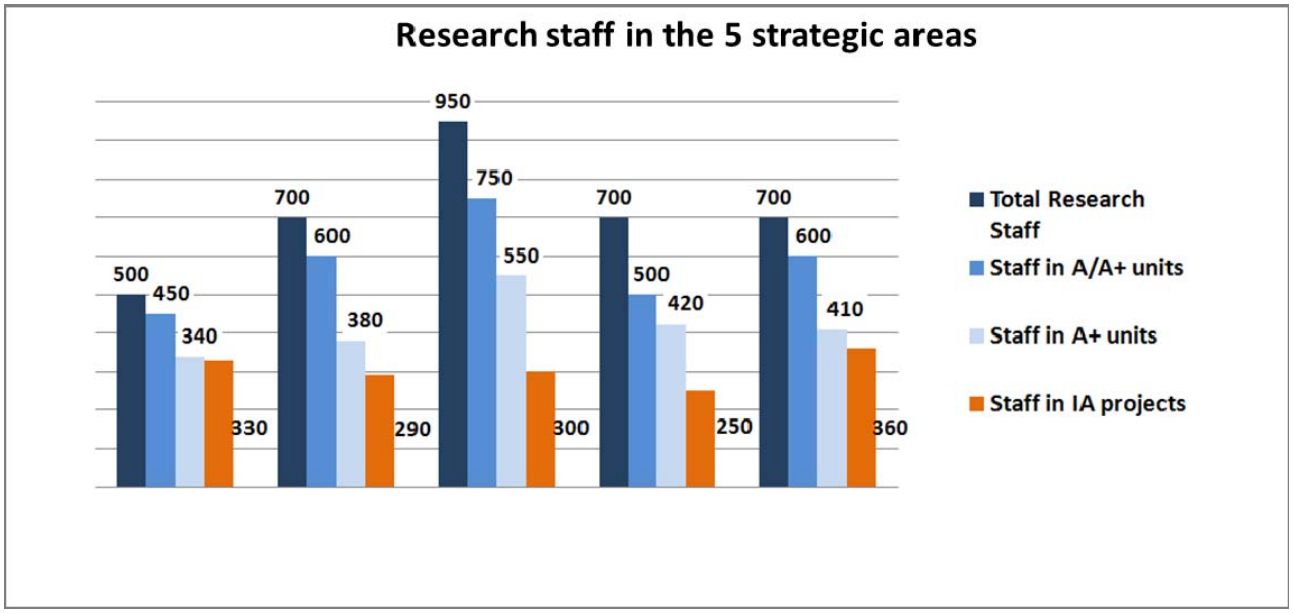
2. ADDITIONAL FILE: OPERATIONAL MEASURES

2.1. THE PERIMETER OF EXCELLENCE; CURRENT STRENGTHS AND WEAKNESSES

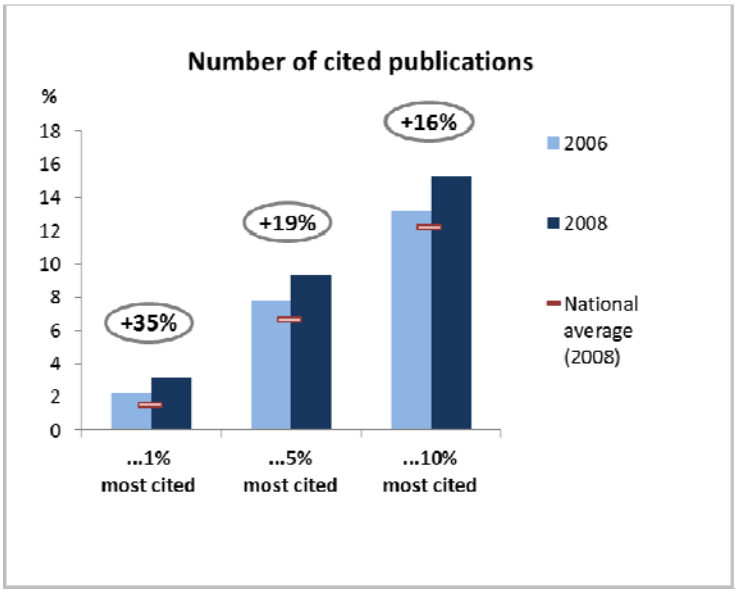
The A*MIDEX perimeter of excellence (Peridex) will represent a maximum of 30% of the total academic staff of the site. As such, it is far more selective than the proportion of researchers/lecturers involved in A/A+ teams (82%) and even in A+ teams only (59%). It has been built around 5 thematic priorities and encompasses academics involved in IA projects. It has therefore been defined in terms of research teams and innovative projects, and not disciplines *per se*. All the teams involved in the selected PIA projects will be included in the Peridex. For the 1st round, up to 700 researchers/lecturers are concerned. All the teams from the projects selected in the 2nd round will also be included in the Peridex. The teams from the projects not selected will be ranked by taking into account the detailed evaluations of the IA juries and advice from our Strategic Orientation Committee, and submitted to the decision of the A*MIDEX Steering Committee, so as to reach the 30% limit.
The key advantage of such a definition of our Peridex is that it relies strongly on external evaluations (COS, 2006; IA international juries; Strategic Orientation Committee), which ensures its relevance and objectivity.

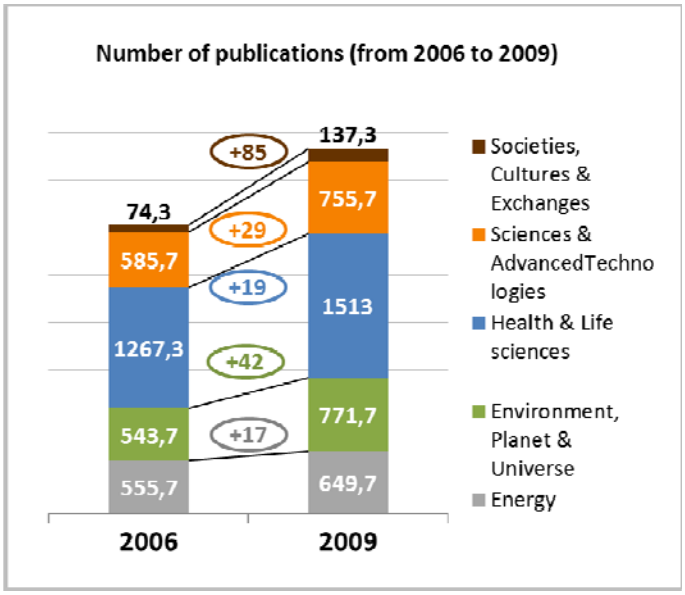


Source: AERES and internal data

Current strengths and weaknesses of our Peridex - The 5 priority areas have been identified according to the recognized forces of our site, as shown in the table below. They correspond to the key strengths our Scientific Orientation Committee (COS, composed of external academics) had already identified in 2006. Since then, the number of our publications in these 5 areas has been steadily increasing over the last 5 years (cf. OST study for A*MIDEX). The quality of AMU research has also been increasing over the last years, as shown by the growing proportion of top cited papers worldwide. A*MIDEX thematic priorities belong to the most visible disciplines of AMU, i.e. those with a regular scientific output and an important number of publications among the 5% most cited

worldwide. A*MIDEX is over national average for all categories on the proportions of publications most cited (and below for mere or uncited publications), which shows the great quality of our publications. Our proportion of co-publications with European and international partners has also been rising, which demonstrates that our research becomes more and more global and influential.





*Data: Thomson Reuters, OST Study for A*MIDEX - OST 2011*

Our Peridex also relies on the presence of key scientific infrastructures as well as on the quality of the education offer and the density of collaborations with the socio-economic sector (see table below and section 5.1.1).

However, all these strengths are not always evenly shared across our 5 thematic priorities, as shown in the table below. Transversal weaknesses include the need to reinforce our international attractiveness (to prepare for the renewal of generation of academic leaders in some disciplines, for instance in physics), the relatively weak industrial base compared to other sites in France (which can restrain collaborative research and technology transfer) and, in some thematic areas, the need of a better structuring of our research potential. These are the challenges that the A*MIDEX project has been specifically set to meet, especially through its Research Funds.

Priority areas	Strengths	Weaknesses / Development needs
Energy Nuclear energy ; Green energies.	• 2 Labex already selected (1 AMU-led) • Involvement in the EIT (European Institute of Innovation & Technology) InnoEnergy Knowledge and Innovation Communities • A competitiveness cluster: CapEnergies • International nuclear infrastructure (ITER)	• Need to develop the number of AMU teams involved in ITER • Lack of concentration of the teams specialized in alternative energies • Visibility of the education offer • Need to strengthen process engineering and metabolomics • Limited presence of major industries
Environment, planet and universe	• 1 Equipex, 1 network Labex • Internationally recognized leaders in astronomy, astrophysics and particle	• Lack of concentration of the teams specialized in environment

Astroparticle physics and cosmology ; Oceanology.	physics, geosciences • A competitiveness cluster: Pole Mer PACA • Key infrastructures in astrophysics (Euclid ESA) and submarine studies (ANTARES)	
Health and Life sciences Neurosciences ; Bio imaging ; Infectious diseases.	• 1 IHU, 1 Equipex, 6 Infrastructures, 4 Cohorts labelled • Only one integrated Faculty of medicine in Marseille (no overlaps) • The 3rd French University Hospital (APHM) • The best site after Paris for research in microbiology (infectious diseases), immunology and neurosciences • One of the best sites in France for *in vivo* imaging • An internationally renowned cluster (immunology, immunophenomics)	• Need to develop scientific production (number of publications) outside a few domains: microbiology, immunology, neurosciences, oncology • A potential in Oncology which would deserve to be pushed to a new level
Sciences and advanced technologies Electron photon coupling ; Digital security.	• 1 Labex and 1 Carnot labelled • Key strengths in Mathematics, Photonics and Nanosciences • Strong microelectronics industries (40% of national production) • 1 competitiveness cluster: Pole SCS • A microelectronics platform (CIMPACA)	• Need to develop the teaching offer, especially in Optics and Photonics
Societies, cultures and exchanges Mediterranean area ; Digital humanities.	• 4 Labex (2 AMU-led Labex) • 3rd French site in Economics (1 Labex), best Law Faculty outside Paris (3rd rank in France) and leadership in arts and humanities on the Mediterranean (Maison Méditerranéenne des Sciences de l'Homme) • Advanced expertise in Digital Humanities (1 pending Equipex) • Support platform: IMéRA	• Lack of concentration of the teams • Insufficient international visibility

2.2. THE 4-YEAR TARGET OF THE PROJECT WITH REGARDS TO CRITERIA 2, 4, 5, 6, 8 AND 11 OF THE EVALUATION GRID; FORESEEABLE RISKS

2.2.1 CRITERION 2 - SCIENTIFIC AMBITION

Scientific ambition of the project - The joint ambition of AMU merger and the A*MIDEX project is to bring AMU to the top 20 European universities and the top 100 research universities worldwide within the next ten years. AMU has been ranked in the top 102-150 (ARWU 2011) and at the 40th European position (Leiden ranking of scientific output).

Our role model in this ambition is the University of Manchester, which has moved up from 89th to 38th in the ARWU ranking since its successful merger in 2004. Its multidisciplinary nature, the number of its students and its grad/undergrad ratio make it comparable to AMU. It has fully demonstrated the potential synergies of a merger and the added value of a single and focused research and education strategy.

4-year scientific target - Within the next four years, the A*MIDEX project will already have a major impact on AMU's excellence and attractiveness in research thanks to a fast implementation, a transformed environment, and specific attention to our best research infrastructures.

A swift implementation: The A*MIDEX foresees a swift implementation with a first round of calls for proposals as early as 2012 for the Rising Stars Fund and the Emergence and Innovation Fund, and a second in 2013 for the other funds. From then on, each fund will be published every 2 years. Up to 12 innovation projects, 8 interdisciplinary projects and 10 rising star laureates will therefore have been launched by 2016 (amounting to a total of 35.2 M€).

A streamlined structuring of our research potential: The launch of A*MIDEX will take place in a fundamentally transformed environment thanks to the merger and the *Opération Campus*. From 2012, the merger will have significantly pooled our research potential (from 150 to 115 research labs), thereby increasing both its capacity and visibility. The *Opération Campus* will have also had a major impact on the attractiveness of our Luminy (sciences and technologies) and Aix (social sciences and humanities) campuses.

A specific attention to key scientific platforms: The optimization and upgrading of our key research infrastructures will also give a boost to our thematic priorities. Their management will be reviewed so as to make sure their use is optimized throughout the university. They will also be opened more widely to external researchers, thereby increasing their added value in the development of international collaborations. Specific attention will be paid to the training of research engineers and scientists on how to better use, maintain and upgrade these facilities.

Target indicators to monitor the achievement of our ambition in research:

Research and Innovation			
Indicators	**Baseline 2011**	**Year 4**	**Year 10**
Number of ERC starting grants	7 (2008-2010)	+40%	+100%
Annual volume of ANR and FP contracts	28 M€ (2010)	+20%	+50%
Number of researchers in A+ units	2100 (2011)	+10% (AERES review 2015)	+25%
Number of publications in the 5 priority areas	3827 (2009)	+ 20%	+40%
Proportion of AMU publications in the 10% most cited worldwide (Source : OST)	15.3% (2008)	18%	23%

Foreseeable risks

- The main risks of the projects lie in the possible side-effects of a fund-based allocation system. The Rising Star fund could be unduly concentrated on internal staff, at the expense of the attraction of external promising talents. The role of the external jury will be crucial in

this respect to avert the "involution" of the Rising Star. The Emergence and Innovation Fund is inherently meant to support high-risk innovative projects, but there is a risk that many of these projects fail to achieve their goals. The jury's experience in breakthrough pioneering projects should help assess the credibility of the projects submitted. A mid-term go/no go milestone will be set to re-assess the relevance of the project. Strong disciplinary projects might integrate a superficial interdisciplinary twist to become eligible for the Interdisciplinary Fund. The interdisciplinary experience of the jury again should prevent such distortion.

- Another risk is the dispersion of funding between too many projects. A minimum of 400 k€ per project will be established to avoid this pitfall.

2.2.2 CRITERION 4 - TEACHING : AMBITION AND INNOVATION

General ambition of the Excellence Academy - The Excellence Academy will concentrate all A*MIDEX funding for education and training. It will be both a label for selected degrees of excellence and a framework structure coordinating an additional service offer for students in these degrees. To develop its label, the Academy will build upon a combination of *grandes écoles* selectivity, reputation and support standards with the academic standards of university education. The model of the Dahlem Research School at *Freie Universität* Berlin can be quoted as an example for such type of organization, although the latter focuses exclusively on PhD programs.

Target perimeter and organization - The Academy will focus strongly on graduate and postgraduate education. However, a limited number of undergraduate programs will also be included in order to compete with *classes prépa - grandes écoles* curricula and attract high potential students. Our target at four years is to label 5 bachelor programmes, 15 master programmes and 8 doctoral schools. At PhD level, given the number and diversity of students within labelled doctoral schools, the Excellence Academy's service offer will be concentrated on the best students (i.e. those who have obtained a full time PhD grant). The programmes are selected by A*MIDEX Steering Committee following the advice of the EA Academic Committee. To be eligible, programmes have to obtain an A+ grade in national AERES evaluation. Decisions on labelling will be based on the compliance with a "degrees of excellence quality charter" that will be based on the following criteria:

- Coherence with the five A*MIDEX thematic priorities;
- A high selectivity rate and rigorous selection procedures;
- Strong international ambition based on academic partnerships and international recruitment of students and faculty;
- Innovative and research-based pedagogy of highest quality;
- Interdisciplinarity of the teaching offer;
- Socio-economic outreach: partnerships with business community, internship opportunities offered to students;
- For PhD programmes: respect of EUA recommendations on doctoral education, in particular supervision of theses by an advisory committee, in coherence with the quality charter of our PhD collegium.

Target indicators to monitor the implementation of the Excellence Academy:

Excellence Academy			
Indicators	**Baseline 2011**	**Year 4**	**Year 10**
Selectivity rate at entry of degrees of excellence	*Non applicable*	30%	20%
Selectivity rate for EA grants at Bachelor and Master level	*NA*	10%	8%
Selectivity rate for EA grants at PhD level	*NA*	5%	4%
Overall % of international students in degrees of excellence at Bachelor and Master level	*NA*	35%	50%
Number of students in Erasmus Mundus programmes (total AMU perimeter, average number per year)	75	+30%	+60%
Number of Master degrees evaluated A+/A by AERES (total AMU perimeter)	54	+5% (in 2015 AERES review)	+ 10%
Study to work transition of graduates from EA degrees: salary at entry, position, nature of employer, etc.	*Indicator to be developed in consistency with current AMU standards*		

Foreseeable risks

- Ability of the EA structure to impose a rigorous implementation of its chart to ensure EA's consistency and quality. A dedicated staff will be in charge of supervision and quality assurance.
- Ability to promote EA label among international academic partners and employers considering the variety of its programmes. EA international recognition will be built upon excellent lab2lab or lab2business relationships and transcended by a significant investment on EA's brand recognition.
- Internal acceptance of a two gear educational system and pressure to quickly enlarge EA's perimeter. EA will be at the forefront of innovation and used as a role model for the University at large.

2.2.3 CRITERION 5 - ECONOMIC PARTNERSHIPS, RESULT EXPLOITATION AND TECHNOLOGY TRANSFER

Socioeconomic ambition of the project - A*MIDEX aims at substantially increasing AMU's socio-economic utility at both national and international levels, with a specific attention to improving collaborative research and public-private partnerships, and to enhancing results exploitation and technology transfer. Our strategy will focus on multinational companies and SMEs, both in France and at the international level. Our site is historically known in microelectronics, aeronautics and chemistry, but it also has tremendous opportunities in energy (ITER[2]), IT (high tech SMEs) and health potential (IHU partners and immunology cluster). On the whole, our site displays nine nationally labeled competitiveness clusters in almost all industrial fields.

[2] The ITER international project amounts to 12 billion € in long term commitments (see section 5.3.1.2).

4-year socioeconomic target - Within the next 4 years, our result exploitation and technology transfer environment will be profoundly transformed with the implementation of the SATT and the complementary A*MIDEX Transfer Fund and HIT (House for Innovation and Technology). Together with the site's IHU, Carnot institutes and incubators, these instruments design a well-rounded ecosystem focused on the development of collaborations with the socioeconomic sector. They have been conceived as transformative tools to deepen the relations between the academic and the private sector as a whole, with expected benefits on public-private research, technology transfer and students job-to-work transition.

- The ***Transfer Fund*** will facilitate joint public-private research projects, such as private endowed chairs. By 2016, two calls will have been published, with a total budget of 4.8 M€.
- The ***A*MIDEX House of Innovation and Technology (HIT)***, will spearhead collaborative public and private R&D in the field of IT security. A common 5,000 sqm building will concentrate 100 M€ worth scientific equipment and host a hundred project-related research positions joining both public and private scientists.
- The ***SATT*** is already in the process of implementation. It will be created in January 2012 and fully operational by April 2012 and concentrate its main activities on technology transfer (pre-maturation, maturation and development), after the proof of concept.
- Our recently created ***AMU Foundations*** have already raised more than 3 M€ from sponsors and private companies in only two years. They have therefore proven performing tools for developing public-private research projects. These Foundations will be merged in the next years in order to improve our effectiveness in fundraising and reach the top five French university foundations within the next ten years.

Target indicators to monitor the achievement of our socioeconomic ambition:

Exploitation and socio-economic partnerships			
Indicators	**Baseline 2011**	**Year 4**	**Year 10**
Annual volume of industry contracts	18 M€ (2010)	+15%	+50%
Annual turnover of lifelong learning for industry	2 M€	+100%	+300%
Number of projects matured under incubator/AMU responsibility per year	12	+20 projects	+ 40 projects
Number of preindustrial demonstrators created	*NA*	1 in 2012, 2 in year 4	4 in year 10
Number of patents submitted per year*	41 (average 2009/10)	90	90
Number of licenses conceded per year*	8 (2010)	25	37
Licensing benefits per year*	400 k€ (2010)	800 k€	12 000 k€
Total number of start-ups created*	5 (2010)	12	72
Number of new jobs created (through start-ups and/or licensing)*	*NA*	160	2800

* Indicators applying to the perimeter of the SATT project, incl. the HIT project

Foreseeable risks

- Even though it has the 3rd GDP in France, our region counts fewer major industrial companies as compared with other sites. To overcome this limitation, our strategy is explicitly targeted at the national and international levels
- The balance between AMU and business commitments: A*MIDEX Steering Committee will develop an expertise and support to academics to help them design and negotiate well-balanced partnerships
- The coordination between the different instruments is a major task for the achievement of our target indicators. A*MIDEX Steering Committee will coordinate efforts through annual reviews of the transfer system.

2.2.4 Criterion 6 - International and European policy

International ambition of the project - A*MIDEX international objectives rely on a cross-fertilization strategy with our very best partner universities in the world (widening the disciplinary scope of our collaborations), and a leadership strategy in the greater Mediterranean area (developing networks and collaborations with the best European and Mediterranean universities in our priority areas).

4-year international target - Beyond the impact of our Research and Education Funds (which all have a distinctive international dimension), A*MIDEX will exert a significant leverage on AMU's international visibility and attractiveness thanks to its International Fund. In the next 4 years, two rounds of calls will have been published, amounting to 4.8 M€ to boost international research projects.

Strengthened collaborations with world leading universities - Our cross-fertilization strategy with our very best partners will rely on current projects under implementation, such as the upcoming joint research unit with the MIT (USA), the PhD Track in NanoSciences with the *Technische Universität München* or our joint program in immunology with the Harvard Medical School (which was launched in 2009). The International Fund is precisely meant to foster the creation of comparable projects in our 5 priority areas with our most prestigious and promising partners in North America, Europe and Asia.

A confirmed leadership in the Mediterranean area - Our Euro-Mediterranean strategy is based on two tracks: developing our links with the best universities in the area and strengthening on our position in wider academic networks and projects.

The *first track* aims at developing strong links with the best Mediterranean universities in our priority areas, as for instance in Health and Life Sciences the universities of Bologna, Milan and Tel Aviv (see section 5.4.3.1 for a complete table). Within the next 4 years, we expect thematic connections to have developed with these universities, so as to boost the number of visiting researchers/lecturers and joint research projects as well as student exchanges and joint degrees.

The *second track* of our Mediterranean strategy relies on our driving position in the Tethys project (34 universities and 40 associated partners since 2000) and the MISTRALS decennial project (Mediterranean Integrated Studies at Regional and Local Scales, launched in 2008), as well as on the labeled Labex on Mediterranean. Our priorities in these projects will be focused on Environment, Planet and Universe (oceanography, biodiversity and paleontology), Societies, cultures and exchanges (migrations) and Health and Life Sciences (infectious and tropical diseases).

International target indicators:

INTERNATIONAL STRATEGY			
Indicators	**Baseline 2011**	**Year 4**	**Year 10**
Proportion of co-publications with international partners	43.7% (2009)	50%	60%
Number of new collaborations and projects within targeted partner universities	*To be established*	+20%	+50%
Mobility between AMU and targeted universities: number of incoming and outgoing students and academics	*To be established*	+30%	+50%
Number of foreign academics (full time teaching researchers)	142	+16%	+40%
Mobility between AMU and universities and research institutions in the Mediterranean area : number of incoming and outgoing students and academics (UPM, Tethys, MISTRALS and other networks)	*To be established*	+10%	+40%

Foreseeable risks

Our best partner universities can also prove to be challenging competitors, particularly when it comes to attractiveness and recruitment. We must therefore be wary to engage on a balanced co-funding principle and to build recruitment schemes with sufficiently robust incentives (see HR policy, section 5.6).

International policy is difficult to steer as it is mainly based on decentralized collaborations. There is an actual risk of dispersion. It is important that a mixed jury both reflects AMU international strategy and imposes rigorous criteria to concentrate resources on the most promising projects.

The current political situation in Mediterranean Southern and Eastern countries might constrain some of our partners' capacity to engage in high-level collaborations. However, the strength of the relations and networks already established should help to overcome this risk, which moreover does not concern our main strategic partners on the European side.

2.2.5 CRITERION 8 - GOVERNANCE: AMBITION, IDENTITY, TRANSFORMATION AND STRUCTURE

A transformed structure from 2012 onwards - The merger enables a major restructuring of academic structures: from 40 to 22 faculties (-45%) and from 150 to 115 research units (-23%). Such a streamlining effort is unprecedented in any recent university merger in France. Organizations, processes and systems for support functions have also been designed, drawing on the best practices from the 3 universities. They will be pooled at the central level, with decentralized services at the campus level.

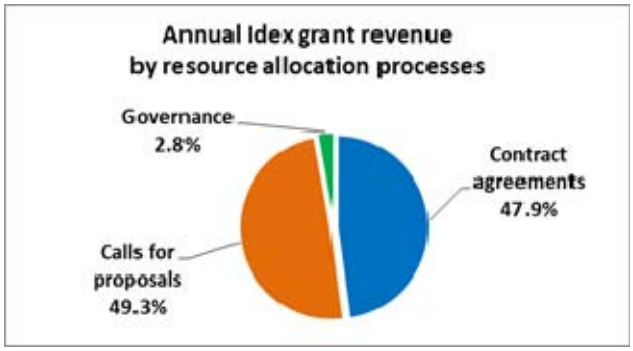
AMU's governance relies on the AMU Council (30 members, including 22 elected members and 8 qualified personalities), which defines the strategy and adopts the budget, and the Managing Board (the President, the Vice-Presidents and the General Manager), which proposes and implements the policies.

The A*MIDEX governance from 2012 onwards - The A*MIDEX governance will be set up by 2012 and embedded in AMU rather than in a separate, specific institution so as to maximize its legitimacy, efficiency and openness:

- The ***AMU Council*** will be responsible for A*MIDEX strategic supervision. It will adopt A*MIDEX annual program and budget proposed by the Steering Committee, and make sure that A*MIDEX moves forward in line with AMU strategy.
- The ***A*MIDEX Steering Committee (SC)*** will be in charge of A*MIDEX management and the coordination of all the IA projects of the site. It will be composed of 9 members representing the partners of the project, with voting powers reflecting their contribution to A*MIDEX[3]. It will be normally chaired by ***AMU President***. However, the steering and implementation of the project requires a full-time, which is out of reach for AMU President, especially during the merger's implementation. An ***Executive Vice President of the Steering Committee*** will be appointed by AMU Council by proposal of AMU President after consultation with A*MIDEX partners. This person will chair the SC in case of absence of AMU President and manage ***A*MIDEX Office***, an operational team in charge of implementation of A*MIDEX and coordination with the other IA labelled projects.
- The ***A*MIDEX Foundation***, an AMU subsidiary, will be in charge of the financial management of the Idex, and the other IA projects (except for the SATT and the IHU). To ensure consistency, it will be chaired by the Steering Committee Executive Vice President and all the partners will be founding members.

2.2.6 CRITERION 11 - RESOURCE ALLOCATION SYSTEM

A*MIDEX funds (outside Labex) will be allocated almost exclusively via internal calls for projects alongside internationally admitted criteria and the Idex strategic objectives of each fund.



Internal Calls for proposals for the Funds (49.3% of the budget) - Each call will be prepared by the Steering Committee (SC) according to the specific objectives of each fund and after consultation of the Strategic Orientation Committee (which is composed exclusively of external personalities). Calls for projects will be launched every two years. For each Fund, the projects will be evaluated by a specific jury (75% external), composed of leading academics with distinct experience in the Fund's objective (e.g. ERC laureates for the Rising Star Fund). The allocation of funds will eventually be made by the SC, taking into account the jury's assessment and the concentration of funds both on the perimeter of excellence and the thematic priorities (cf. delta document for details).

Contracts agreements for the Labex and the HIT (47.9%) - The Labex selected will be directly endowed with the allocated amounts. However for each Labex a contract agreement will be set up between the project leader and AMU so as to ensure its integration in AMU's overall strategy and the monitoring of its implementation and achievements. The resource allocation to the HIT will also

[3] More precisely, it will be composed of 3 representatives of Aix Marseille University, 1 representative of the research institutions (CNRS, Inserm, CEA, IRD), 1 representative of the Assistance Publique des Hôpitaux de Marseille, and 1 representative for 2 higher education establishments (Ecole Centrale de Marseille, IEP of Aix). The A*MIDEX socio economic partners will be permanent invited members, with advisory status only.

be conditioned on a Contract agreement between AMU and the other partners of the project (industrials, local authorities and research institutions). This contract will define the objectives of the HIT project and its detailed operating rules.

Governance costs (2.8%) will be managed by the Steering Committee Chairperson.

2.3. Operational measures implemented during the 4-year period and corresponding timeline

A*MIDEX combines a large set of tools, projects and structuring changes that need to be precisely identified and orchestrated in the next 4 years. A lot of work has already been done to prepare the merger and define the target organization for faculties and research units. As a result, AMU new organization will come into effect in the beginning of 2012 and will be the frame of implementation for A*MIDEX. This is a major asset.

Meanwhile the progressive set up of a fully integrated administration together with A*MIDEX specific tools, projects and governance represent an important challenge. Considering the disruptive effects of the merger during the first 18 months, the swift set up of A*MIDEX tools that will bring new resources to academics will be key to fuel a positive transformation dynamic. By the first trimester of 2013, a first round of projects financed through the two main research funds will be selected and ready to kick off.

Four main work streams have been identified in order to fully implement A*MIDEX project:

1. A*MIDEX Steering and development
2. Research and transfer funds
3. Excellence Academy
4. HR Policy

These 4 work streams are presented in the following section. A second section is added to demonstrate the consistency of the A*MIDEX project with AMU's merger process.

2.3.1 A*MIDEX Works streams

*Work stream 1: A*MIDEX Steering and development*

This work stream aims at:

a. Setting up governance bodies and steering capabilities by mid-2012
b. Elaborating and launching management procedures (incl. resources allocation) by end 2012
c. Defining (S1 2012) and implementing monitoring and evaluation procedures by end 2012

The table below fleshes out the roadmap for this work stream.

Roadmap for A*MIDEX Steering and development		2012				2013				2014				2015				2016			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
a. Setting up of governance bodies	Setting up of the Steering Committee																				
	Setting up of A*MIDEX Foundation																				
	Setting up of A*MIDEX staff																				
b. Management procedures	Elaboration of steering procedures for Labex																				
	Elaboration of steering procedures for A*MIDEX calls for projects																				
	Elaboration of steering procedures for other IA projects																				
c. Monitoring and evaluation	Elaboration of baseline for monitoring and evaluation																				
	Elaboration and submission of annual action plan and budget																				
	Reporting to Steering committee																				
	Reporting to AMU Council																				
	External financial audit																				
	In-depth evaluation (in coherence with ANR evaluation at 4 years)																				

The quality of the staff recruited for the operational team will be key for the quality of the steering. It should be composed of both first gear internal experts that enjoy a strong legitimacy and a detailed knowledge of who is who within AMU and top experts recruited from outside that will bring new skills (project management, academic selection processes management, talent management, audit, monitoring and evaluation, etc.) and push for new ways of working.

Work stream 2: Research and Transfer Funds

This work stream aims at:

a. Designing calls for projects
b. Organizing the selection process
c. Ensuring monitoring and evaluation
d. Setting up infrastructure of the House of Innovation and Technology (HIT). Calls for projects of the HIT fund will follow the same roadmap as the Research funds described below.

Quick implementation will be key to guarantee a positive dynamic and reputation of A*MIDEX. Money must reach the most talented research teams and promising projects quickly. On the other hand, the selection process must be bulletproof according to international standards so that A*MIDEX is regarded as a new and legitimate way of allocating resources within the university. All calls for projects will be issued in a bi-annual rhythm. In order to avoid an excessive concentration of workload for the A*MIDEX Steering Committee and researchers submitting projects, there will be an alternation from one year to another: Project calls for the Rising Stars fund, the Emergence and Innovation fund and the HIT fund will be issued in 2012, 2014, 2016, etc. Calls for the Transfer fund, the Interdisciplinary fund and the International fund will be issued in 2013, 2015, etc.

Roadmap for Research and Transfer Funds		2012				2013				2014				2015				2016			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
a. Design of calls	Preparation of calls for projects																				
	Recruitment of experts and jury																				
b. Selection	Publication of calls																				
	Submission and selection of projects																				
c. Monitoring & evaluation	Project monitoring																				
	In-depth project evaluation																				
D. HIT	Set up of HIT governance																				
	Construction of HIT building and relocation of scientific equipment																				
	Set up of HIT operational management																				

Rising Stars fund, Emergence and Innovation fund, HIT fund
Transfer fund, Interdisciplinary fund, International fund, EA
All funds

Work stream 3: Excellence Academy

This work stream aims at:

a. Setting up the Excellence Academy and developing its service offer for students (mentoring programs, residential seminars, career development, …)
b. Selecting and promoting the development of A*MIDEX degrees of excellence (quality assurance charter, promotion of the label at international level and towards business, support in pedagogical innovation and ICT use, …)
c. Providing merit based grants for student mobility.

These measures are detailed in the delta document (section 4.2).

Roadmap A*MIDEX Excellence Academy		2012				2013				2014				2015				2016			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
a. Set up of EA structure and support services	Recruitment of the Excellence Academy's director and staff																				
	Setting up of Academic Committee																				
	Design of student support services (mentoring, professional skills program, career development)																				
b. Degrees of Excellence	Definition of EA charter for degrees of excellence																				
	Progressive labeling of the first 28 EA degrees																				
	Start of teaching in first excellence degrees																				
	Monitoring of labeled degree programs																				
c. Student grants	Calls for applications to EA student grants																				
	Selection of grant holders																				

Work stream 4: HR Policy

This work stream aims at:

a. Structuring talent management capabilities
b. Designing selection processes
c. Launching regular calls for top international researchers at all levels
d. Elaborating and implementing a broader talent policy for AMU at large

e. Ensuring monitoring and evaluation.

Roadmap for HR strategy		2012				2013				2014				2015				2016			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
a. Structure capabilities	Recruitment of A*MIDEX support and development staff																				
b. Design selection process	Elaboration of recruitment procedure for A*MIDEX academic positions																				
	Setting up of support unit and search committees																				
c. Calls for applications	Annual calls for applications to A*MIDEX academic positions																				
	Interviews and deliberation of selection committees																				
d. Broader talent policy	Setting up of Bonus systems for Research and Pedagogy																				
	Alignment of compensation policy within AMU in the context of the merger																				
e. Monitoring & evaluation	Elaboration of monitoring and evaluation procedures																				
	Monitoring of A*MIDEX staff satisfaction																				
	In-depth evaluation of HR policy																				

The success of the work stream will be strongly determined by the quality and rigor of the selection processes, the talent management team's responsiveness and flexibility when opportunities arise and its ability to ensure and assess top talents loyalty in the long run by pulling all attractiveness levers (welcome attitude, support for practicalities, packages' competitiveness…).

2.3.2 MEASURES TO IMPLEMENT THE MERGER

The merger of the three Aix-Marseille Universities has been officially recognized in August 2011. A single Council has been elected in November, simplifying the decision and supervision procedures as well as the coordination of relationships with A*MIDEX Steering Committee. Implementation of the merger process is well underway. It can be divided into 3 phases:

The current phase (Sept 2010 – Q3 2012) aims to set up AMU entities while, at the same time, ensure operational continuity. This phase has been well anticipated as:

- The target structure of faculties and research units has already been designed and validated by the 3 universities governance and integrated in the 5 year contract with ministry of HE&R and research institutions
- All core support processes, such as payrolls, purchases, payments, etc. have been set up in order to ensure AMU's operations by Jan 1st 2012
- All key executives (President's team, AMU Council members, deans and General Manager for support functions) will be appointed or elected
- The integrated educational offer has been designed and will be implemented by September 2012
- At the same time, the target organization schemes of support functions have been defined and implemented.

The second phase (2012 Q3 – 2014 Q2) will focus on transition of support functions with the aim to gradually shift their functional models towards target. This entails the following actions:

- Map all available capabilities (headcounts, skills, systems…)
- Identify upgrade and streamline opportunities (process re-engineering, shared services, new services…)
- Implement new processes, systems and operations models (e.g. shared services)
- Align HR policies and enhance talent management (see 5.2.3.)
- Define target organization.

The third phase will consist in implementing the target organization and the moving of central support staff in 2 dedicated buildings while local support staff will remain dedicated to campuses.

Roadmap for the merger		2011		2012				2013				2014				2015		
		Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Governance and academic structure to target organization and operational continuity for support functions	Election of University Management Board and set up of AMU's governance bodies																	
	Set up of the transformation governance and steering capability																	
	Deans' elections																	
	Faculties' mergers																	
	Research units' mergers																	
	Selection and appointment of support functions VPs																	
	Critical support processes aligned																	
Transition phase for support functions	Resources and skills mapping																	
	Identification of shared services opportunities within AMU and research institutions																	
	Shift towards target structure (central vs decentralized activities)																	
	Reingeneering of core processes coupled with shared services, new IT systems and localized movings implementation																	
	HR																	
	Finance and accounting																	
	Premises and estate																	
	Alignment of HR policies																	
Central support functions to target organization	Design of target organisation at central level																	
	Moving to the new administration building																	
	Shift towards target organization charts																	
Change management	Steering and progress review																	
	Training for impacted staff																	
	Support to transformation																	
	Communication																	

Two and a half year will be a long period during which it will be key to impulse and monitor change in a consistent manner, train staff to help them adapt to new conditions, negotiate with staff and unions a highly qualitative and efficient organization and communicate actively with various channels. With a full 4 year mandate, AMU President will be able to manage such a long journey.

3. EXECUTIVE SUMMARY

3.1. EXECUTIVE SUMMARY

Aix-Marseille University: an outstanding potential at the heart of a dynamic territory. At the time of the first presentation of the Aix-Marseille Idex project (A*MIDEX), the merger of the three Aix-Marseille universities (Université de Provence, Université de la Méditerranée and Université Paul Cézanne), an ambitious challenge started from 2006, was still in process, mobilizing the academic staff leaders. The process is now completed and the birth of the resulting new university: Aix-Marseille University (AMU) has been legally established by a recent government decree (n° 2011-1010 of the 24th August 2011). After an inappropriate partition which had been lasting for more than 40 years, the merger of the three Aix-Marseille universities creates an empowered and visible modern multidisciplinary university. The governance team is known and will be set on January, 3rd, 2012.
AMU is a major player in the French academic landscape, gathering over 4,500 teachers and teacher/researchers, 19,000 Master students and 4,000 doctoral students. Its consolidated budget was close to 610 M€ in 2010.

AMU demonstrates a true quality, insofar as 82% of its laboratories are ranked A+/A, setting AMU well above the national average of 66%. Moreover, AMU is the second university as regards ANR funding, tying for first place with University Paris 6 UPMC, and the third site outside Ile de France for the total number of ERC grants obtained since 2008. Education accords with this trend, since 8 doctoral schools out of 12 and 73% of our Masters have been rated A+/A this year.
AMU is already in the top 3 of Euro-Mediterranean Universities (alongside Roma and Pisa) and in the top 150 world-class university 2011 Shanghai ranking. It also stands as the 40th European university (out of 250 European universities) according to the last Leiden ranking for the number of publications. In the next 10 years, its ambition is to belong to the top 20 of European universities and to reach the top 100 of world universities.
Among AMU teams' main achievements in science, we could mention a few examples like the discovery of the first exoplanet, the participation in unique projects such as the famous ITER or the building and managing of ANTARES international underwater observatory in the Mediterranean sea, or the discovery of the Progeria gene that is responsible for early ageing. Another highlight concerns the discovery of "Mimivirus" by our teams in microbiology. As far as technology developments are concerned, they are a priority of AMU and are therefore increasing each year. For instance, a noteworthy contract has been signed between Sanofi and AMU teams in oncology/immunology; other teams cooperate with industrials in microelectronics located in Rousset where about 40% of the French production in microelectronics components is produced each year.
Last but not least, AMU benefits from the remarkable attractiveness of its territory. Indeed, Aix-Marseille is located in the heart of the Provence Alpes Côte d'Azur Region, which is the third French Region for its Gross Domestic Product and for its population. With more than 1,700,000 inhabitants, the urban area of Aix-Marseille is also ranking third in France, after Paris and Lyon. Moreover, the Aix-Marseille site boasts about an international airport, two TGV stations (Aix and Marseille), and a harbor, which make it a true hub on the Mediterranean Sea. The traditional lack of industry in the region is partly balanced by the development of services and by a voluntarist policy to attract investors and energize the local economy (e.g. through the support to competitiveness clusters).

Indeed, for the last decade, the local authorities have been leading a dynamic policy to renew the center of Marseille and to display a more positive image of the city.
These efforts have been paying off, as shown in the jobs creation (5,000/year in Marseille) and through the upcoming international events such as the organization of the 6th World Water Forum in 2012 in Marseille and of "Marseille, European Capital of Culture" in 2013. With other arguments such as the proximity of the sea, a nice climate, Aix-en-Provence's "dolce vita" and Marseille's cosmopolitan reputation, Aix-Marseille has become an attractive spot for French people as well as for national and international companies. No wonder if Aix-Marseille is a first choice place for students, ranking at the top of the most pleasant sites to study in, according to the last surveys.
In this already favourable context, the merger of the three Universities into one single AMU has several advantages:

- a better visibility through the recent implementation of a single signature for publications;
- an improved ability to rally socio-economic partners;
- a simplification of the administrative landscape;
- a pluridisciplinary University facilitating the achievement of an interdisciplinary strategy, the Labex projects being an example of the concrete extensions of the latter;
- a critical mass, especially in sciences which were dispelled between the three Universities;
- Better performance through the pooling of resources, enabling AMU to get room for manoeuvre, e.g. to develop support functions for research and education.

Hence our conviction that this merger is a real asset in the Idex contest and that the tandem AMU + A*MIDEX will stand as a war machine to fulfill our ambitions in the international competition.

A*MIDEX bedrock: the IA projects. During the first round of the IA program, the rich potential of the Aix-Marseille site in research and higher education allowed the emergence of numerous applications and participations to different types of project calls. The various projects presented were born from considerations developed by interdisciplinary working groups, and have been built in order to strengthen our areas of excellence. The international juries have already acknowledged their quality, since 29 projects (among 52 applied) have been selected, including major ones such as the IHU "Méditerranée Infection" and the SATT PACA Corse. These projects, along with the ones submitted to the second round, are the bedrock of A*MIDEX.

A*MIDEX partnership & governance. This new version of A*MIDEX is conceived in partnership with all the major players in research and higher education in the region, with the support of local authorities and several important companies. Governance will be entrusted to a Steering Committee and the financial management to a specific University Foundation. All partners/founders will be represented to ensure a participation of each stakeholder in the decision process. However, to favor efficient governance, the number of members in the Steering Committee will remain limited to 9 with voting powers.

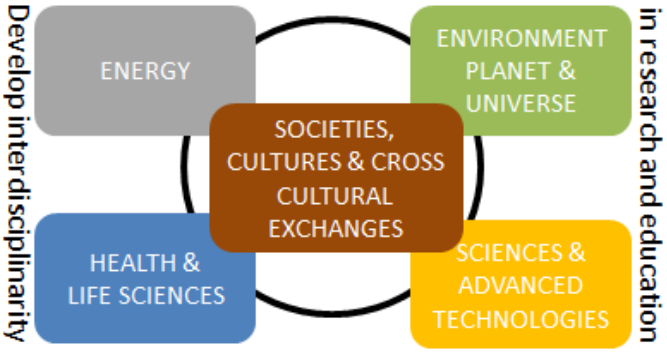
Beside AMU, each partner in the A*MIDEX consortium will bring an important added value:

- ✓ **the 4 national research organizations** (*CNRS, Inserm, CEA, IRD)*: we are pushing the limits of research innovation, improving with the common reflection around IA projects and A*MIDEX the mutual knowledge that is experimented daily in the joint research units.

- ✓ **the 2 higher education - graduate establishments** *(École Centrale de Marseille, Institut d'Études Politiques d'Aix en Provence)*: we are developing together synergies and pushing the limits of education innovation, as well as sharing best practices and proposing new orientation bridges and original courses to students, be they internal or international.
- ✓ **1 healthcare establishment** *(Assistance Publique des Hôpitaux de Marseille)*: we are developing together and pushing the limits of innovation in research in health and clinical applications, along with IA promising projects such as IHU "Méditerranée Infection".

A*MIDEX strategy. The Peridex is articulated around our best potentials (already identified by our Scientific Orientation Committee in 2006, supported by major scientific platforms and infrastructures, and showing an increasing number and quality of publications for the last years), pooled in five main areas of research and higher education, and initially focused on Labex and other IA projects, labeled by international IA jurys. The size of the initial research Peridex has been set at 30% of the total number of academic staff involved in these five areas.

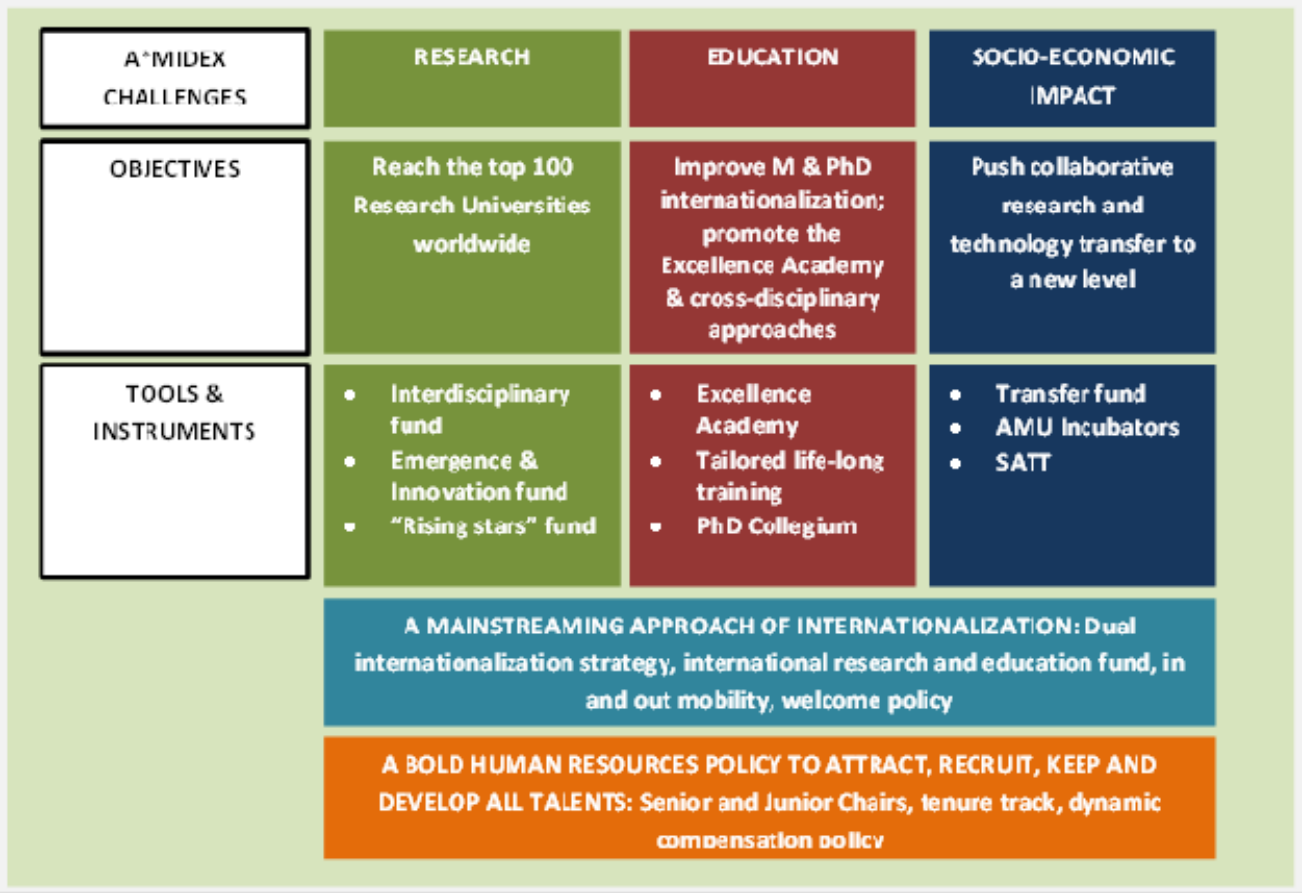
The A*MIDEX' peridex is articulated around five main areas of research and education



In and throughout these five areas, research will be energized through 3 funds aiming at promoting: interdisciplinarity, innovation and emergence, and new talents. The development and transfer of technology will be improved and renewed through the SATT and other structures, in collaboration with private companies, with the support of a dedicated transfer fund.

Education will be closely coupled with research and socio-economic partners through the project of "Excellence Academy for Higher Education". Indeed, French universities must train professional short courses as well as long, general high level doctorate courses. To combine a large range of courses to all levels of students with an attractive offer to top students, AMU and its partners will implement a better segmentation policy, thanks to the creation of an Excellence Academy. Mixing the selectivity, reputation and support standards of *grandes écoles* with the academic standards of university education, this new concept will be both a label for selected degrees of excellence and a framework structure coordinating an additional service offer for students in these degrees.

The implementation of an international research & education fund will enable A*MIDEX to develop a mainstreaming approach of international cooperation, with two main objectives for the site: attract and shine. AMU's Euro-Mediterranean ambition will be enlarged beyond this area, through the development of strategic relationships with some of the best universities in the world. Finally, a bold human resources policy will be implemented, so as to encourage a global dynamic that will be of benefit to the Peridex but also to the whole Aix-Marseille site.



*To sum up, A*MIDEX is conceived as a major empowerment tool for AMU and the Aix-Marseille site to boost its excellence and to implement a relevant interdisciplinary strategy to take up local and global scientific challenges. AMU and A*MIDEX aim at moving forward hand in hand towards the same global goal: preparing the future by building an internationally competitive site in research and higher education.*

3.2. RESUME OPERATIONNEL

Aix-Marseille Université: un potentiel exceptionnel au cœur d'un territoire dynamique. Lors de la première présentation du projet d'Initiative d'Excellence d'Aix-Marseille (A*MIDEX), la fusion des trois universités d'Aix-Marseille (Université de Provence, Université de la Méditerranée et Université Paul Cézanne), un défi ambitieux lancé en 2006, était encore en cours. Le processus est désormais achevé et la création de la nouvelle université unique : Aix-Marseille Université (AMU) a été légalement approuvée par un récent décret (n° 2011-1010 du 24 août 2011). La fusion des trois universités d'Aix-Marseille met ainsi un terme à une partition inappropriée qui aura duré plus de 40 ans, en faisant naître une université unique, puissante et pluridisciplinaire. L'équipe de gouvernance est connue et sera en place le 3 janvier 2012.

AMU est un acteur majeur du paysage académique français, qui rassemble plus de 4500 professeurs et enseignants-chercheurs, 19000 étudiants en Master et 4000 doctorants. Son budget consolidé avoisinait 610 millions d'euros en 2010.

AMU démontre une véritable qualité de la recherche: ainsi 82% de ses laboratoires sont classés A+/A par l'AERES, plaçant AMU bien au-dessus de la moyenne nationale de 66%. En outre, AMU est la 2ème université française financée par l'ANR, presqu'à égalité avec la 1ère (Paris 6 UPMC), et le 3ème site de province pour le nombre total de bourses ERC obtenues depuis 2008. Cette qualité se retrouve dans la formation, avec 8 écoles doctorales sur 12 et 73% de nos Masters notés A+/A cette année.

AMU figure déjà dans le top 3 des universités euro-méditerranéennes (avec Rome et Pise) et dans le top 150 des universités mondiales du classement de Shanghai 2011. C'est également la 40ème université européenne (sur 250 universités européennes classées) en nombre de publications, d'après le dernier classement de Leiden. Dans les 10 prochaines années, notre ambition est d'intégrer le top 20 des universités européennes et le top 100 des universités mondiales.

Parmi les réalisations emblématiques des équipes d'AMU dans le domaine scientifique, on peut citer quelques exemples comme la découverte de la première exoplanète, la participation à des projets d'envergure unique comme le célèbre ITER ou la construction et la supervision de l'observatoire sous-marin ANTARES en Méditerranée, ou encore la découverte du gène de la Progéria, responsable du vieillissement précoce. La découverte du « Mimivirus » a été une autre avancée fondamentale de nos équipes en microbiologie. Dans le domaine applicatif, la recherche partenariale est une priorité stratégique d'AMU, qui a connu un fort développement ces dernières années. Ainsi, un contrat majeur a été conclu entre Sanofi et les équipes d'AMU en oncologie/immunologie; d'autres chercheurs coopèrent avec les industriels en micro-électronique implantés au sein du pôle de Rousset, où sont produits environ 40% des composants en micro-électronique fabriqués en France chaque année.

Enfin, AMU bénéficie de l'attractivité remarquable de son territoire. En effet, Aix-Marseille se situe au cœur de la région Provence Alpes Côte d'Azur, la troisième région française pour son Produit Intérieur Brut et pour sa population. Avec plus de 1 700 000 habitants, l'aire urbaine d'Aix-Marseille est également la 3ème de France, après Paris et Lyon. En outre, le site d'Aix-Marseille dispose d'un aéroport international, de deux gares TGV (Aix et Marseille), et d'un port, qui en font un véritable carrefour d'échanges sur la côte méditerranéenne. La faiblesse historique de la région dans le domaine industriel est en partie compensée par un développement dynamique des activités de services et par des actions volontaristes visant à attirer les investisseurs et à redynamiser l'économie locale (par exemple via le soutien aux pôles de compétitivité). En effet, depuis une dizaine d'années, les collectivités locales mènent une politique dynamique afin de rénover le centre de Marseille et d'améliorer son image.

Cette conjonction d'efforts a porté ses fruits, comme le montrent les créations d'emplois (5000/an à Marseille) ou l'organisation prochaine d'événements internationaux comme le 6ème Forum Mondial de l'eau en mars 2012 à Marseille et "Marseille, Capitale européenne de la Culture" en 2013. Avec d'autres arguments comme la proximité de la mer méditerranée, un climat agréable, la douceur de vivre à Aix-en-Provence et la réputation cosmopolite de Marseille, Aix-Marseille est devenu un pôle d'attractivité pour les Français comme pour les entreprises nationales et internationales. Il n'y a donc rien de surprenant à ce que les étudiants considèrent eux aussi Aix-Marseille comme un lieu de premier choix, qu'ils classent parmi ceux où ils préfèreraient étudier, selon les dernières enquêtes.

Dans ce contexte déjà favorable, la fusion des trois universités en une seule AMU présente plusieurs avantages:

- Une meilleure visibilité grâce à l'harmonisation récente de la signature des publications scientifiques et à la diffusion d'une Charte de signature unique « Aix-Marseille Université »;
- Une plus grande capacité de mobilisation des partenaires socio-économiques autour d'une seule Université;
- Une simplification du paysage administratif;
- Une Université pluridisciplinaire propre à faciliter la réalisation d'une stratégie interdisciplinaire, déjà à l'œuvre mais dont les projets de Labex sont un nouvel exemple d'extension concrète;
- Une masse critique cohérente, notamment en sciences, un domaine qui était morcelé entre les 3 Universités;
- Une performance accrue grâce à la mutualisation des ressources, qui permet à AMU de dégager des marges de manœuvre, par exemple pour financer les fonctions support en recherche et formation.

Ainsi notre conviction peut se résumer en deux points : d'une part la fusion est un atout important pour notre candidature à l'Initiative d'Excellence ; d'autre part le duo AMU + A*MIDEX constitue une machine de guerre pour réaliser rapidement nos ambitions et nous affirmer comme une université incontournable sur la scène internationale.

Le socle d'A*MIDEX: les projets Investissements d'Avenir. Lors de la première vague du programme IA, le potentiel important du site d'Aix-Marseille en matière de recherche et d'enseignement supérieur a permis l'émergence de nombreuses candidatures et participations aux différents appels à projets. En dépit de leur grande variété, les projets émanant du site présentent des caractéristiques communes : issus de réflexions de groupes interdisciplinaires, tous ont été construits de façon à renforcer nos domaines d'excellence. Les jurys internationaux ont déjà reconnu leur qualité, sélectionnant 29 projets (sur 52 projets soumis), parmi lesquels des projets majeurs comme l'IHU « Méditerranée Infection » et la SATT PACA Corse. Ces projets, avec ceux soumis à la deuxième vague, constituent le socle d'A*MIDEX.

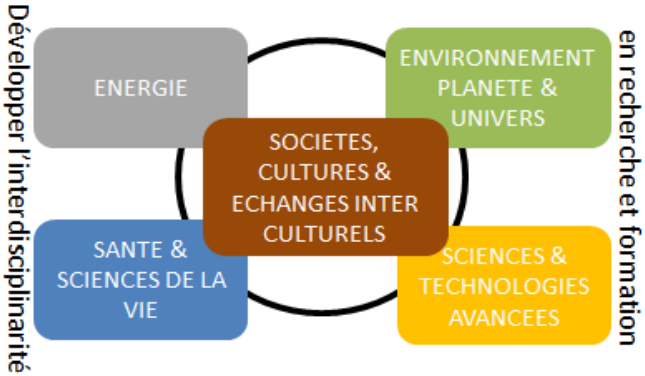
Le partenariat et la gouvernance d'A*MIDEX. Cette nouvelle version d'A*MIDEX est conçue en partenariat avec les acteurs les plus importants en matière de recherche et de formation supérieure du site, avec le soutien des collectivités locales et de plusieurs entreprises majeures. La gouvernance en sera confiée à un Comité de Direction et la gestion financière à une Fondation Universitaire spécifique. Tous les partenaires y seront représentés afin de garantir la participation de chaque partie à la prise de décision. Cependant, dans un souci d'efficacité, le nombre de membres du Comité de Direction sera limité à 9.

En synergie avec AMU, chaque partenaire du consortium A*MIDEX apporte ses atouts spécifiques au projet:

- ✓ **Les 4 organismes nationaux de recherche** (*CNRS, Inserm, CEA, IRD)*: ensemble, nous repoussons les limites de l'innovation en matière de recherche, en améliorant, au travers de notre réflexion commune autour de la construction des projets IA et de l'A*MIDEX, notre connaissance mutuelle déjà expérimentée au quotidien dans les Unités Mixtes de Recherche.
- ✓ **Les 2 écoles** *(École Centrale de Marseille, Institut d'Études Politiques d'Aix-en-Provence)*: avec elles, nous développons des synergies et repoussons les limites de l'innovation en matière de formation supérieure, tout en échangeant nos meilleures pratiques et en proposant de nouvelles passerelles d'orientation et des cursus originaux à nos étudiants, qu'ils soient français ou internationaux.
- ✓ **L'établissement de santé** *(Assistance Publique des Hôpitaux de Marseille)*: nous développons de concert et repoussons les limites de l'innovation en matière de recherche en santé et applications cliniques, en menant ensemble des projets prometteurs tels que l'IHU « Méditerranée Infection ».

La stratégie d'A*MIDEX. Notre périmètre d'excellence s'articule autour de nos meilleures potentialités (identifiées par notre Comité d'Orientation Stratégique dès 2006, fondées sur des plateformes et infrastructures scientifiques majeures, avec une production scientifique dont la qualité et la quantité ont augmenté ces dernières années), regroupées dans cinq domaines majeurs en recherche et en formation, et centrés initialement sur les Laboratoires d'excellence et les autres projets labellisés par les jurys internationaux des Investissements d'Avenir. La taille du « Péridex » initial de la recherche a été fixée à 30% du nombre total de chercheurs et enseignants-chercheurs impliqués dans ces cinq axes.

Le peridex d'A*MIDEX s'articule autour de cinq domaines majeurs en recherche et formation

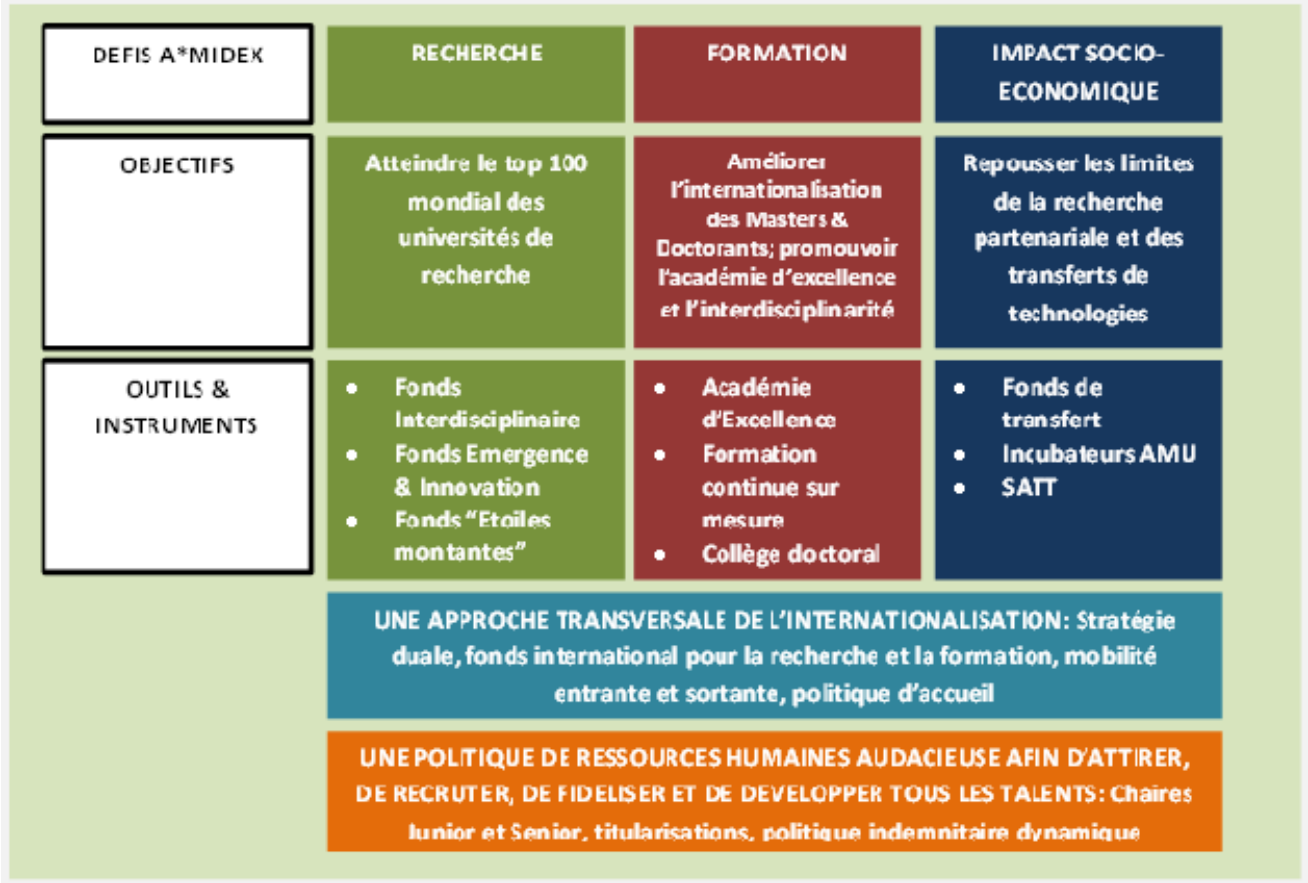


Dans ces cinq domaines et transversalement, la recherche de pointe sera dynamisée au travers de trois fonds destinés à promouvoir : l'interdisciplinarité, l'innovation et l'émergence, ainsi que les nouveaux talents. Les transferts de technologies seront améliorés et renouvelés grâce notamment à la SATT, dans un souci de coopération renforcée avec les entreprises privées et avec le soutien d'un fonds de transfert dédié.

La formation sera étroitement associée à la recherche et aux partenaires socio-économiques via le

projet d'Académie d'Excellence. En effet, les universités françaises doivent proposer des formations courtes professionnalisantes et spécialisées, tout comme des cursus longs, généralistes et de haut niveau menant au doctorat. Combiner cette offre large destinée à des jeunes aux niveaux et besoins divers avec une offre attractive pour les meilleurs étudiants est une gageure. Pour cela, AMU et ses partenaires se proposent de mettre en œuvre une stratégie de distinction de leur offre, avec la création de l'Académie d'Excellence. Combinant exigences de sélectivité, de renommée et de support des grandes écoles et standards académiques de l'enseignement universitaire, ce nouveau concept fonctionnera à la fois comme un label destiné à une sélection de formations d'excellence et comme une structure de coordination de services additionnels pour les étudiants de ces formations.

La création d'un fonds international pour la recherche et la formation permettra à l'A*MIDEX de développer une approche intégrée de la coopération internationale, avec deux objectifs principaux pour le site: attirer et rayonner. Notre ambition euro-méditerranéenne sera élargie au-delà de cette aire géographique par le développement de relations ciblées avec quelques-unes des meilleures universités mondiales. Enfin, une politique de ressources humaines audacieuse sera développée, afin d'encourager une dynamique globale qui impactera le « Péridex » mais aussi tout le site d'Aix-Marseille.



*En résumé, A*MIDEX est conçue comme un outil majeur de renforcement d'AMU et du site d'Aix-Marseille, afin d'impulser une dynamique d'excellence et de favoriser la mise en œuvre d'une stratégie interdisciplinaire propre à répondre aux défis scientifiques locaux et mondiaux. AMU et A*MIDEX visent à progresser conjointement vers le même objectif: préparer l'avenir avec une recherche et une formation supérieure qui compteront dans 10 ans parmi les meilleures mondiales.*

4. "DELTA DOCUMENT": ANSWERS TO THE QUESTIONS AND RECOMMENDATIONS OF THE JURY

4.1. CRITERIA 1 AND 2 - SCIENTIFIC POWER AND INTENSITY OF THE AREA / SCIENTIFIC AMBITION

In terms of scientific power and intensity, we have detailed the strengths of our research teams in the 5 thematic priorities and the infrastructure assets on which they rely (see section 5.3.1). We have in particular processed data provided by OST on the number of publications and the proportions of highly cited publications, and inserted detailed presentations of our key infrastructures for each of the thematic priorities. We have also expanded on our analysis of the key challenges we face in order to fully develop our potential for scientific excellence at the global level in these five thematic areas (see section 2.1).

In terms of scientific ambition, we have revised and increased the targets of the project on research indicators and further elaborated on the role of major scientific platforms in the development of the 5 thematic priorities (see section 5.3.1). Three main A*MIDEX Research Funds have a key role to play to achieve this scientific ambition:

Fund	Objectives	Criteria	Average nb of projects funded every 2 yrs	Average annual amount per project (k€)
Rising Star Fund	To promote young academics with the potential to reach ERC recognition	(i) Ability to reach ERC level considering his/her academic potential and track record; (ii) Coherence of the scientific project with AMU potential and strategy	5	400
Emergence and Innovation Fund	To launch new and innovative projects that may result in pioneering knowledge breakthroughs	(i) Academic potential; (ii) Originality of the approach; (iii) Feasibility in the AMU environment (access to the relevant equipments and scientific teams)	6	667
Interdisciplinary Fund	To support the development of strongly interdisciplinary research projects	(i) Potential of the project in terms of socio-economic impact; (ii) Academic track record of involved researchers; (iii) Relevance and quality of the project in terms of disciplines combination; (iv) Complementarity with an interdisciplinary training project	4	700

Thanks to these funds, A*MIDEX will strongly concentrate funds towards excellence as academic staff within the peridex will receive 8.5 times more funding than those outside the peridex (Labex incl.). Besides, funding outside the peridex will be mainly allocated through calls for projects ensuring promising talents will get their fair share of resources to ensure pull effect.

4.2. CRITERIA 3 AND 4 – ATTRACTIVITY AND COHERENCE OF THE TEACHING OFFER / TEACHING: AMBITION AND INNOVATION

In response to the jury's questions, we have further clarified the perimeter and missions of the Excellence Academy as well as the levers used to develop the EA degrees of excellence.

The Academy will focus strongly on graduate and postgraduate education. However, a limited number of undergraduate programs will also be included in order to compete with *classes prépa - grandes écoles* curricula and attract high potential students. Our target at four years is to label 5 bachelor programmes, 15 master programmes and 8 doctoral schools. At PhD level, given the number and diversity of students within labelled doctoral schools, the Excellence Academy's service offer will be concentrated on the best students (those who have obtained a full time PhD grant). Master and PhD programmes will be backed by recognized labs of the Labex or other IA projects representing the 5 thematic areas of the A*MIDEX project. All programmes are selected by the A*MIDEX Steering Committee following the advice of an Academic Committee (see below). To be eligible, programs have to obtain an A+ grade in national AERES evaluation. Decisions on labelling will be based on the compliance with a "degrees of excellence quality charter" that will be based on the following criteria:

- Coherence with the five A*MIDEX priorities
- A high selectivity rate; rigorous selection procedures including paper based applications and at least one personal interview
- Strong international ambition based on academic partnerships and international recruitments of students and faculty. To encourage students for future international careers, the Academy classes will have to generalize teachings in English language as much as possible when their main branch lends itself to it.
- Innovative and research-based pedagogy of highest quality
- Interdisciplinarity of the teaching offer
- Socio-economic outreach: partnerships with business community and internship opportunities offered to students
- For PhD programmes: respect of EUA recommendations on doctoral education, in particular supervision of theses by an advisory committee, in coherence with the quality charter of our PhD collegium

EA's programs will be progressively upgraded in order to reach international standards in all aspects thanks to extra funding for innovation, complementary services, specific grants and rigorous management and evaluation (see below).

At PhD level, given the diversity of students within labelled doctoral schools, the Excellence Academy's service offer will be concentrated on students having obtained a full time grant by their school. This represents 38% of all PhD students within labelled doctoral schools.

The activities of the Academy will concern both the labelled education programmes and their individual students and teaching researchers.

Firstly, it will foster the **upgrading of the degrees of excellence** on all points of the EA charter (see document B section 5.3.2), in particular through:

- Promotion of the EA label at international level and towards business community
- Support to pedagogical innovation, in particular regarding ICT use
- Support to the development of international dual degrees and exchange programmes
- Monitoring and quality assurance.

Secondly, it will provide exclusive **student support services** within its perimeter through:

- Master classes and residential seminars with internationally renowned researchers
- Mentoring by experienced researchers or professionals
- Career development: exclusive internship offers and individual career counselling.

Thirdly, the Academy will allocate merit based **student grants** for international. Grants will be available for both foreign students admitted in EA programs and for EA students involved in exchange programs. Grant holders will be selected each year by a recruitment committee bringing together Academy staff and teaching researchers of the concerned subject field.

4.3. Criterion 5 - Economic partnerships, result exploitation and technology transfer

In response to the evaluation of the jury and to the question raised in the oral examination, we have been more explicit on the coordination and synergies between the SATT and the Transfer Fund (see section 2.2.3).

Moreover we have detailed the "House of Innovation and Technology" (HIT) dedicated to digital security. This major University to Business project will pool 100 M€ of existing platforms and the relevant support staff in a 5,000 sqm building. It will be open to the approximately 800 public and private researchers of the site. 11.4 M€ will be spent on collaborative public-private research projects each year to boost innovation in this extremely lucrative field. Approximately 100 researchers, post docs and PhDs involved in these projects will be hosted at HIT during the period of their projects. This open and flexible model will facilitate cooperation and cross fertilization between the academic and the business communities and strengthen our leadership position alongside major international clusters such as AIST Tsukuba (Japan), ITRI (Taïwan) and the Fraunhofer Institutes of Secure Information Technologies (Germany). Two thirds of the funding for this project will be contributed by industry, local authorities and AMU (see section 5.3.3.3).

4.4. Criterion 6 - International and European policy

In response to the evaluation of the jury, we have further detailed our ambition for leadership in the greater Mediterranean area, in terms both of partnerships of excellence in our 5 thematic priorities and of wider Mediterranean networks (see section 5.2.4). Beyond this, we have streamlined and strengthened our international strategy around 2 axes and a limited number of instruments. We have decided to remove the initially requested Campus grant ("Campus life" section) in order to concentrate our funding request on the strategic objective of internationalization.

We have identified the Euro-Mediterranean universities with which we intend to develop stronger collaborations on a bilateral basis and for each of them the thematic areas of A*MIDEX in which we need to focus our strategy:

A*MIDEX priority areas	Country	Partners	2011 Ranking (ARWU)
All 5 priority areas	Israël	The Hebrew University of Jerusalem	57th
Health and Life Sciences Sciences and Advanced Technologies Societies, Cultures and Exchanges	Israël	Tel Aviv University	102-150th
Energy Sciences and Advanced Technologies	Israël	Technion Israel Institute of Technology	102-150th
Energy Sciences and Advanced Technologies	Israël	Weizmann Institute of Science	102-150th
All 5 priority areas	Italy	University of Roma – La	102-150th

		Sapienza	
All 5 priority areas	Italy	University of Pisa	102-150th
Health and Life Sciences Sciences and Advanced Technologies Societies, Cultures and Exchanges	Italy	University of Milan	151-200th
Energy Health and Life Sciences	Italy	University of Bologna	201-300th
All 5 priority areas	Spain	University of Barcelona	201-300th
All 5 priority areas	Spain	Autonomous University of Madrid	201-300th

Our leadership in the Mediterranean area can indeed be demonstrated through our active and recognized participation in major projects, networks and structures, such as:

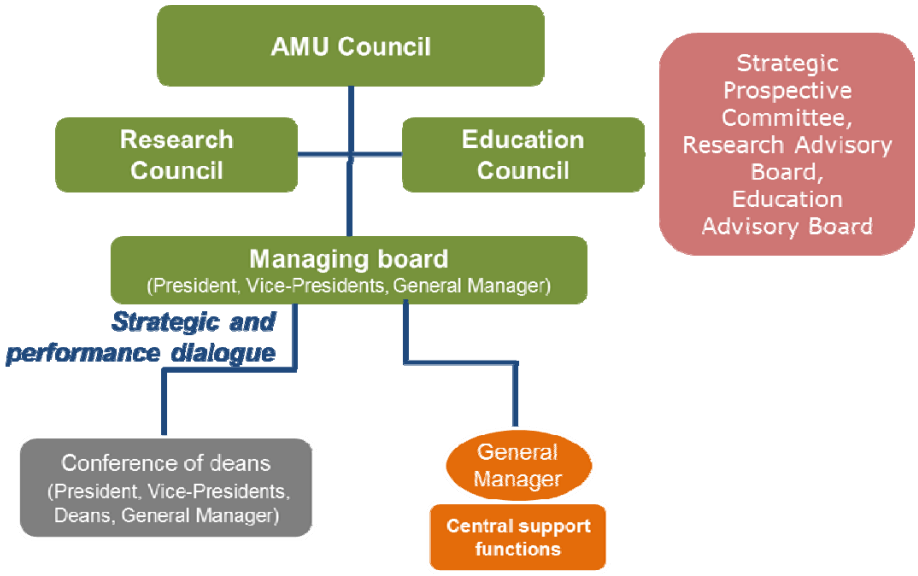
- **The Euro-Mediterranean University Tethys** is a network created in 2000 to develop higher education and research cooperation among Mediterranean countries. It now gathers 34 universities and more than 40 associated partners. AMU has been a leader of Tethys since its very beginning, especially in the development of courses (Tempus), North-South mobility (Erasmus Mundus), laboratories networking (e.g. Mediterranean Neurosciences Network), and the Strategic Aid to Southern Mediterranean Countries (FP7).
- **The Maison Méditerranéenne des Sciences de l'Homme (MMSH)** is a research and education campus in humanities and social sciences, recognized as one of the key players for research on Mediterranean studies. It gathers 10 laboratories, a Doctoral School and several education units. Its transversal research programs and technical competences centers aim at facilitating active and concrete interdisciplinarity in social sciences. The MMSH has coordinated the Ramses^2 network (FP6) and still carries out the implementation of European and International programs in Mediterranean studies. The selected LabexMed and its involvement in MISTRALS (see below) should reinforce its position as one of the best research centers on Mediterranean in the world.
- **The Institute for Advanced Studies IMéRA** (CNRS/AMU) offers residency programs for high-level international researchers, both senior and junior, from all disciplines. It provides them with an opportunity to carry out research requiring several months of freedom from administrative or teaching duties, and strengthen ties with research and higher education centres in the region. This institute is opened to all scientific disciplines as well as to literature and artistic creation. Another originality of IMéRA is its particular focus on researchers from the Mediterranean area.
- **The MISTRALS project (Mediterranean Integrated STudies at Regional And Local Scales)** is a decennial interdisciplinary program initiated in 2008 and aiming at anticipating the behavior of the Mediterranean environmental system over a century. It should therefore help predicting the evolution of habitable conditions and proposing policies and adaptive measures that would mitigate and optimize them for sustainable development. MISTRALS is managed by the CNRS and IRD and involves now more than 1,000 scientists from almost all countries around the Mediterranean and Europe. AMU holds a strategic position in MISTRALS as co-leader of 3 of its 7 thematic programs (oceanography, biodiversity and paleontology) and strong contributor to the Homere program on migrations.
- **The UPM project on infectious and tropical diseases -** Marseille is the French leader in scientific output on infectious and tropical diseases and as develop strong collaborations with other Mediterranean universities, most notably with the creation of the RTRS Infectiopôle Sud. This cooperation has led to the emergence of new teams (e.g. an IRD research unit in Algeria)

and an increased attractiveness of our education (one Master students in three in this field at AMU comes from Southern countries). The « Union for the Mediterranean Sea » (UPM) is planning to associate the selected IHU "Méditerranée Infection" and the IRT LyonBio Tech, to work on the identification of infections around the Mediterranean Sea and the development of proximity diagnosis through new molecular techniques. This project is a true asset to strengthen and enlarge AMU leadership on infectious diseases.

4.5. CRITERION 7 - GOVERNANCE CREDIBILITY AND EFFICIENCY

4.5.1 AMU GOVERNANCE AFTER THE MERGER (JAN. 2012)

Since the set-up of our first A*MIDEX project last fall, Aix-Marseille University has become a reality with the adoption of its statutes by the boards of the 3 pre-existing universities and the official approbation of the merger. The chart below represents the main governance bodies of AMU as precisely described in its statutes (see decree n° 2011-1010 of August 24, 2011).



AMU will be governed by its Council, which composition is detailed in AMU's statutes. The AMU statutory bodies (Research and Education Councils) will be consulted by the AMU Council according to the legal procedures in vigour within the University. AMU's Managing board is responsible for the management of the University as a whole. It is chaired by AMU's President and will include AMU's Vice Presidents and General Manager for support function. It will operate in close relation with the Conference of deans and central support functions. The latter will be headed by AMU's General Manager for support services. All the details are available in AMU statutes (see decree n° 2011-1010 of August 24, 2011).

The Conference of deans will meet on a weekly basis in order to share on the progress in the merger process. The conference will participate in the strategic and performance dialogue with the heads of the research department and faculties in order to define financial and human resources allocated to research units and education departments. Twice per year, we will organize two day seminars bringing together the deans and directors with the AMU governance team.

Among AMU advisory bodies, the Strategic Prospective Committee will play a key role insofar as the overall relations between the University and the socio-economic sector, in particular the business

community, are concerned. Exclusively composed of external personalities, it stands as a bridge between the University and its environment and will therefore provide thoughtful recommendations on AMU's strategic orientations. It will be mobilized by AMU Council at least once per year, before the adoption of the A*MIDEX annual activity program. The AMU Research and Education Advisory Boards will also be solicited for advice in their respective fields of competence. The Research Advisory Board will include R&D experts (coming from A*MIDEX partner companies) whereas the Education Advisory Board will notably include HR professionals (also from A*MIDEX partner companies), in order to complete their academic composition.

4.5.2 A*MIDEX STEERING GOVERNANCE

In response to the evaluation of the jury and to the question raised in the oral examination, we have further clarified the relations between AMU President and the A*MIDEX top executive previously referred to as the "A*MIDEX Chairperson". In order to prevent any governance conflict between AMU and A*MIDEX, two changes have been made:

- A*MIDEX Steering Committee will be chaired by AMU President. Meanwhile, considering the transformation challenges ahead related to the merger's implementation, AMU President will propose an Executive Vice President of the steering committee. The Executive Vice President will be fully dedicated to A*MIDEX management so as to ensure its responsiveness and efficiency. He or she will report to AMU President.
- A*MIDEX Executive Vice President will not be elected as proposed in the previous version but appointed by AMU Council by proposal of AMU President after consultation with A*MIDEX partners. He or she will act as the President in both the Steering Committee and the A*MIDEX Foundation and will chair A*MIDEX Office.

It has been decided to create an **A*MIDEX Office** to steer A*MIDEX implementation. Its organization is based on three operational units dedicated to Research & transfer (previously called RIEX), Excellence academy and Support & development. Its composition is described in section 4.7 (see below).

4.6. CRITERION 9 – QUALITY OF THE ROADMAP, PLANNING AND ASSOCIATED MILESTONES

The planning of the implementation has been thoroughly fleshed out in section 2.3. and integrated in section 5. Besides, milestones have been slightly anticipated compared with the previous version. It is very important for the credibility of A*MIDEX that new projects actually happen on the field. Most calls will be issued and first projects selected and funded by early 2013. This implies a quick set up of strong steering and implementation capabilities consistent with the increase in our governance costs.

4.7. CRITERION 10 – PROCEDURES AND MANAGEMENT

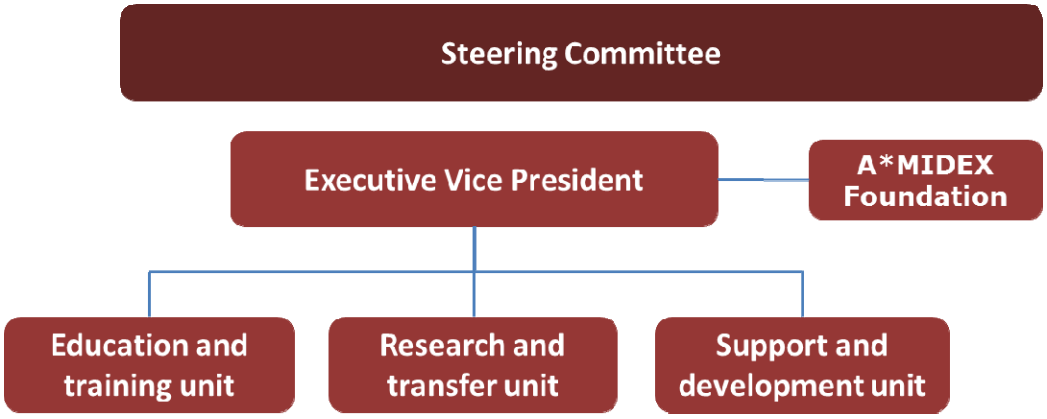
AMU strategic management and A*MIDEX steering procedures are designed in an integrated manner in order to guarantee the consistency of A*MIDEX project implementation with AMU's merger process. In response to the Jury's questions we have added:

- a detailed presentation of the A*MIDEX Office, an operational team fully dedicated to A*MIDEX implementation (Section 4.7.1.)

- a presentation of Transformation governance in order to adress and solve in a coherent way organisation or people issues related to the merger or Idex implementation. (Section 4.7.2.)

4.7.1 MANAGING THE IMPLEMENTATION OF A*MIDEX PROJECT

The chart below outlines the A*MIDEX operational management system incorporated by the A*MIDEX Office:



The **A*MIDEX Executive VP** will coordinate the operational implementation of the project. His or her missions and competencies are precisely described in the submission document (section 5.4). He or she will lead the **A*MIDEX Office** composed of **three operational units**. Each unit will be led by a director directly accountable to the Executive VP. The units will work with AMU services to ensure coherence and synergies:

- The **Education and training unit** will be headed by the director of the Excellence Academy, supported by a personal assistant. This unit needs more staff than the two other A*MIDEX operational units, as it is in charge of the operational management of the Excellence Academy itself, including the following tasks: promotion of the EA label, quality assurance and monitoring, coordination of student services and management of student grants.
- The **Research and transfer unit** will be implemented and managed by a R&T Director, a deputy director in charge of coordinating the relations between A*MIDEX and other IA projects (Labex, Equipex, IHU, SATT, etc.) and specialized staff in charge of operational management of selection and monitoring of the projects financed through A*MIDEX calls for projects.
- The **Support and development unit** will be headed by the CFO of A*MIDEX foundation. Staff will be in charge of project management and progress review as well as the operational management of A*MIDEX HR policy.

The financial management of A*MIDEX will be entrusted to the A*MIDEX Foundation (see section 5.4.3).

4.7.2 MANAGING THE TRANSFORMATION

The historic transformation ahead for AMU will be both large and deep:

- New structuring of research potential : from 150 to 115 research labs;
- New structuring and mergers of faculties especially for overlapping ones;
- An integrated teaching offer;
- An integrated and upgraded administration: consolidation of functions and organizations, new HR policy.

The quality of our preparatory work since Sept. 2010 and the renewed legitimacy of AMU President (cf. success in the Nov. 2011 elections) will be precious assets to lead this transformation. In order to ensure maximize chances of success, AMU's transformation will be based on a clear target, strong steering capabilities, a dynamic transformation model and significant investments in training and communication:

A clear target:

More than 90 experts from the three universities have been mobilized in 8 working groups for the past 15 months in order to define a clear target of AMU structure (see Additional Document section 2.5) as well as a consistent roadmap (see Additional Document section 3).

A strong steering governance and capability

As shown by the results of nov. 28th/29th 2011 university elections, AMU's community has confirmed its strong commitment to both AMU and A*MIDEX that were explicitly at the core of the winning list's program. The AMU President benefits from the legitimacy of this vote and a full 4-year mandate, both of which will facilitate steering of the transformation process.

The current progress review process will be strengthened:

- A Transformation Committee for AMU's transformation will oversee all organizational issues related to the merger and A*MIDEX implementation. Considering the interactions between support functions, teaching, research and technology transfer, it is vital that a common instance gets the whole picture and ensures the coherence of the dynamic. The Transformation Committee will be chaired by AMU President and composed of A*MIDEX Executive VP, the VP for research, the VP for education, the VP for facilities, deans and support functions directors. It will hold weekly meetings during S1 2012, monthly meetings during S2 2012 and quarterly meetings in 2013.
- A Transformation Office will prepare the progress review and the decisions and actions to be taken by the Transformation Committee. The Office will be chaired by the Chief Support Officer and include 4 FTE. A*MIDEX Support and development officer will actively participate in the Office activities in order to ensure coherence between A*MIDEX and more global AMU's transformation streams.

A 3-phase transformation dynamic

See Additional document, section 2.3.2

A significant effort in training

Each person has to know what is expected from him or her and be prepared for the concrete changes. Functional and operational continuity are key for the transformation dynamic. An internal executive academy will be set up in 2012 to manage skills adjustments and upgrade.

An effective communication

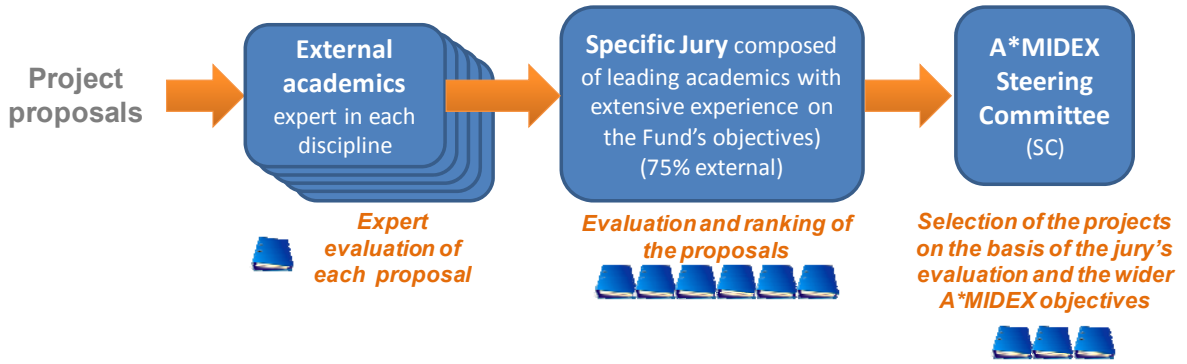
A newsletter on the merger was launched in September 2010. It has been broadcasted to the university communities each month since then. It will continue to inform AMU's staff for the next 10 months and will be enlarged to A*MIDEX progress in order to balance communication on organizational, strategic and operational changes. Over time, the communication on A*MIDEX achievements such as top recruitments, high level projects funding, etc. will take over from organizational issues.

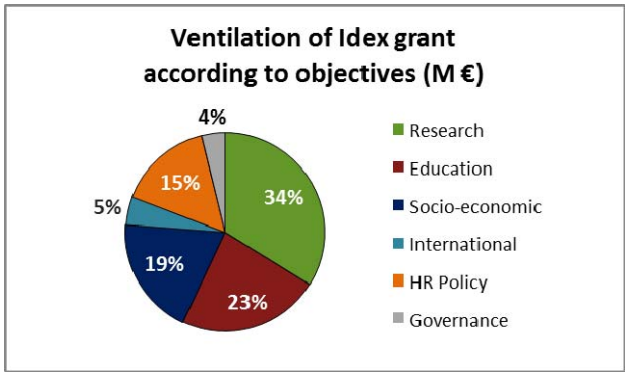
4.8. Criterion 11 – Resource allocation system

We have further detailed the resource allocation system for the Funds (section 5.4.6) and clarified the budget structure (section 5.5) in view of the assessment of the jury.

Preparation of the Calls - The Steering Committee will prepare the Calls for Proposals for each fund, after consultation of the Strategic Orientation Committee (which is composed exclusively of external personalities). The criteria will reflect the strategic objectives of each fund (e.g. ground breaking research, young promising talents, public-private research…) and will not be focused on particular disciplines so as to allow everyone within the university and its partners to answer.

Selection of projects - Proposals submitted to the calls will first be assessed by external academic experts in their disciplinary fields. Then a specific jury for each fund will rank the projects. These juries will be composed of lead academics with extensive experience related to the specific goals of each fund (75% external). For instance, the Interdisciplinary Fund jury will be composed of scientists renowned for their interdisciplinary achievements. The Steering Committee will make the final decision on the basis of the jury's evaluation. The Steering Committee will take into account both the jury's evaluation and the wider A*MIDEX objectives (e.g. concentration on the 5 priority domains, concentration on the Peridex…). This allocation process is deemed optimal as both the jury's evaluations and the SC's justifications will be made public.





Structure of the budget - The A*MIDEX budget lines have been restructured so as to better fit with the strategic matrix presented in the executive summary (but they have not been significantly modified). The budget is therefore now broken down along Research (34%), Education (23%), Economic impact (19%), Internationalization (5%) and HR Policy (15%). One must note that the Research, Education and Economic Impact budgets will also contribute to the Internationalization and HR Policy objectives. Conversely, the International and the Transfer Funds are meant to support research projects with strong international or applied dimensions, which means the total research effort of A*MIDEX amounts to 43% of the budget.

5. DETAILED DESCRIPTION OF THE PROJECT

5.1. AMBITION AND STRATEGY OF THE PROJECT

5.1.1 A MERGED, EMPOWERED, MULTIDISCIPLINARY AIX-MARSEILLE UNIVERSITY

The response of Aix Marseille University and its partners to the "Initiative of Excellence" (Idex) call for proposals is not an isolated initiative, but the result of the transformation process that we have undertaken, in order to make the Aix Marseille University a site of excellence in training, research, and development. Our answer is part of the continuation of a series of decisions that were made in both a national and regional context that we briefly remind below:

- A national context of gradual modernization of the system of higher education, research and innovation, in order to reach the level of international standards. At first the autonomy of French universities has been promulgated on 2007 (Libertés et Responsabilités des Universités LRU, August 10, 2007). Then the Expanded Responsibilities and Competencies (RCE) obtaining, as well as the teacher – researcher status reforming have thoroughly transformed the functioning of universities. More recently, Operation Campus (2008) and finally the "Investissements d'Avenir" (IA) program came to complete French efforts in favor of a more efficient university, better equipped for research, education, professional integration, and development towards the international competition.

- Alongside these reforms at the regional level, the three Aix Marseille Universities have committed themselves to the realization of a large scale project: the merger of their institutions. They first met together at "Operation Campus" 2008 and were selected as one of the 12 national recipient sites. Finally, in view of the merger, the three universities have developed a single "Contrat d'Établissement" 2012-2016 with our government where we have structured our research potentials and offered a unified, pooled panel of training courses. It is in the context of the constitution of the single university that the three universities respond in concert to the various calls for proposals of the IA program, which constitute the building blocks of the Excellence Initiative (Idex) of the Aix Marseille site.

THE MERGER STORY	
2006	The first international common Scientific Steering Committee (Comité d'Orientation Scientifique - COS), bringing together 40 scientific experts from abroad on our site, drew up an inventory of the three universities and made recommendations for the future unique university
2007	A "premerger" metropolitan Pole for Research and Higher Education (PRES Aix-Marseille University) was created. It is responsible for the accomplishment of shared missions and is aimed at setting up and coordinating various interuniversity working groups (governance, control, research organization, education, administration, campus management…) to prepare the three universities merger
2009	Adoption of the text founding the single university by the boards of the three universities
2010	Adoption of the statutes of a single university by the boards of the three universities

Summer 2011	Adoption of the government decree formalizing the universities merger (decree # 1010-2011, 24th August 2011)
November 2011	Election of the 3 AMU councils, with a large majority given to the team led by the initiators of the merger and leaders of A*MIDEX project[4]
January 1st, 2012	The single Aix-Marseille University will officially operate with the new elected AMU Council (Jan. 3rd 2012)

We can thus realize the magnitude of the dynamics of change underway, the path taken and the true "Cultural Revolution" experienced by our institutions over the past decade. The three Universities of Aix-Marseille, by becoming a single one, have already amply demonstrated their ability to renew themselves, to question their practices, to open up and give themselves the means to achieve their ambitions.

The merged AMU, with 4,500 full time lecturers and teachers, is now among the top three research intensive French universities (Leiden 2010 ranking with scientific output criteria, together with Paris 6 and Paris 11). Moreover, in the 2011 ARWU ranking, only six French universities belong to the top 150. Among these six universities, it is noteworthy that four are in Paris and only two outside of Paris: Aix-Marseille and Strasbourg.

We share with our main A*MIDEX partners (CNRS, Inserm, IRD, CEA) our 90 A+/A graded joint research units working in all disciplines, making AMU a powerful multidisciplinary research university.

AMU and its high–education partners (École Centrale, École des Mines, Institut d'Études Politiques) offer a complete academic programs in all disciplines, both general/fundamental ones and technical/ engineering professional ones more dedicated to industrial employment. We should not forget our renamed health and sports curricula.

AMU has also strong links with economic partners. We co-founded and presently manage two regional incubators labeled at a national level. We are partners of several competitiveness clusters (labeled at a national level), develop collaborative research in partnership with the economic world through our Carnot Institutes and exploit scientific results through our co-funded ValorPACA association (now transformed into an IA labeled SATT).

AMU is becoming attractive at an international scale as testified by about 10,000 international students coming from more than 100 countries over a total of 65,000 students (AMU being the greatest French university in terms of students' number). At doctoral level, the ratio is more significant (34%) since about 1,350 international PhD students are preparing their thesis inside our PhD collegium (among a total of about 4,000 students).

5.1.2 Our ambition and strategy

Through A*MIDEX, our ambition is to reinforce our site and to assert AMU as a high level attractive and influential research and teaching university, both as a European and international reference. Our original geopolitical situation naturally imposes AMU as a main actor of an envied Euro-Mediterranean cooperation, becoming an essential go-between in partnerships with Mediterranean, southern countries and northern ones. Our ambition is based on the following objectives:

[4] Everything that has been added in this document since the pre-selection version appears in blue color.

- **Reinforcing and improving our position as a research-intensive leader** (aiming at reaching the top 20 European universities and the top 100 world-class universities);
- **Obtaining an increased international acknowledgement as a high standard education establishment** (see indicators for the Excellence Academy in section 5.3.2);
- **Increasing our economic and social utility at a national and international level** (aiming at increasing our collaborative research turnover of 15% after 4 years),
- **Confirming our leader position as one of the "knowledge capital of the south of Europe" and our international recognition** (see indicators section 5.3.4).

To fulfill these objectives, **several challenges** have to be overcome by A*MIDEX:

- In the context of globalization and international competition, to attract and retain students and talented staff, French universities suffer from constraints of rigid regulations of their high education system (HR recruitment regulations, inappropriate salary scale as to compare to the best international universities one, lack of fund to recruit endowed chairs, "packages", incentives and bonuses with performance…). **A more attractive HR policy** (see section 5.6) has to be proposed to overcome this drawback in order to have talented staff, to prepare also the renewing of our actual scientific leaders in the next future.
- Regarding education, AMU, although having already structured its teaching offer during its merging process, still has too diversified a training panel (40 general bachelor degrees, 35 professional bachelor degrees with 84 specialties, more than 80 master degrees with 350 specialties…) which appears to be inextricable to students, particularly foreign ones, when they have to make a choice in accordance with their aspiration. This is inherent to the French system of high–education where large universities must train professional short courses as well as long, general high level doctorate courses. Therefore AMU and its partners will implement **a better segmentation policy** in their degrees in order to be more visible and more attractive to top students, through the creation of an Excellence Academy.
- Although AMU already set up with economic partners an abundant network of support systems for innovation and development of results (incubators, competitiveness clusters, Carnot institutes…) the results are still poor, compared to the existing potentials. **A more performance-orientated and reactive policy** has to be introduced. Collaborative projects and creation of joint research units, sharing open, pooled technological platforms will be strongly encouraged by A*MIDEX.
- In order to increase our international influence, AMU and its partners have to implement **a dual internationalization strategy by** coupling our site's Euro-Mediterranean identity to a declared international ambition. Pooling the 3 international departments of the 3 former universities, AMU will benefit from an empowered, efficient department to support its new mainstreaming approach of internationalization.

To overcome these challenges and meet our objectives, A*MIDEX strategy is **threefold**:

- A rigorous selection of 5 priority scientific themes where AMU can make a difference at an international level within 10 years. These themes have been recommended by our first common international COS (formed with 40 international experts of all disciplines to review the merged AMU research potential and to help the new university in its research structuring and orientation).
- Develop excellent research and transfer projects promoted by our best academics in the frame of the IA program
- Set Idex specific tools and policies that will support in the long run the development of an innovative research, an excellent teaching, an impactful contribution to society and business,

internationalization and talent renewal. We have designed both rigorous and flexible tools in order:

- To ensure continuous concentration of our resources on most promising projects and teams without granting permanent privileges to current excellent teams,
- To keep adaptability and reactivity of the Idex program that may be impeded by a sole collection of specific projects,
- To maintain on a permanent basis our development strategy. Indeed with time passing, instruments remain relevant whereas a set of projects should be renewed. This would be too constraint and too difficult to manage within the next decade,
- To focus on the excellence perimeter while remaining open to "outsider" projects in order to increase its initial boundary and to spread excellence over the whole site.

Our strategy is mainly – though not exclusively - based on funds that will ensure a rigorous concentration of A*MIDEX resources on most promising projects supported by the most talented teams:

- Three funds dedicated to boost research especially on 5 thematic priorities:
  - **"Rising Stars fund"**: to attract and retain promising and talented young researchers on our site, a fund will be reserved to calls for proposals under endowed chair package
  - **"Emergence & Innovation fund"**: to diffuse excellence over the site, a fund will be dedicated to calls for proposals aiming at new emergent and innovative projects.
  - **"Interdisciplinary fund":** to favor interdisciplinarity between priority themes in A*MIDEX project (see section 5.3)
- **A "Transfer fund" and a House of Innovation and Technology,** to extend collaborative research and links with the socio-economic world.
- **An "International fund":** to develop the A*MIDEX internationalization strategy, support promising international collaborations and enhance AMU's attractiveness
- **An Excellence Academy Fund** devoted to the constitution of a framework HE institution that will upgrade AMU best education programs, enhance student's attractiveness and support in these programs and develop brand recognition to develop top level international partnerships.
- A bold talent management policy will be used as a powerful leverage to fulfill the main A*MIDEX HR challenges.

These tools and projects represent a significant change in the way resources are allocated and will spur a new culture in the whole university.

5.2. Structure and characterization of the Initiative of Excellence

5.2.1 Presentation of the project leader (including the legal status)

A*MIDEX file is submitted by Aix-Marseille University, which will lead the project during the application period. A University Foundation will be specifically devoted to A*MIDEX and an A*MIDEX Steering Committee, formed of representatives of all A*MIDEX founders/partners and external members, will govern and manage the project.
Professor Jean-Paul CAVERNI has been committed to be the official AMU representative in charge of coordinating the A*MIDEX project.

➢ Aix-Marseille University, a research-intensive university

The merger has now transformed Aix-Marseille University into an empowered establishment holding an enormous and multidisciplinary potential of scientific research and education, in Humanities and Social Sciences, Life Sciences and Health, Law and Politics Sciences (the 3 disciplines which were the main identity specialties of the 3 former universities). AMU has also Economics/ Management sector and a very strong Sciences/Technologies area, that were formerly shared between the 3 universities and are now unified in AMU.

It is noteworthy that, in a context of global competition in the area of the economy of knowledge, Aix-Marseille University will have a **critical mass, great potential and a number of significant advantages** briefly summarized in the following non exhaustive list:

OVERVIEW OF THE MERGED AMU POTENTIAL	
1.Substantial human and financial resources:	• A human potential of nearly 7,700 employees, including over 4,500 teachers, teacher/researchers and 3,200 administrative staff, engineers and technicians. Among them, 3,500 scientists and 1,400 engineers and technicians are devoted to research • A payroll of around 430 million euros • A consolidated budget of around 610 million euros in 2010 • Approximately 65,000 students (including 4,000 doctoral students, 19,000 Master students, 10,000 international students), harmoniously divided up into all disciplines, making it nowadays the largest university in France in terms of students number.
2. Rich in terms of research and education:	• A significant and structured research activity, with 115 Joint Research Units (UMR, UPR…, University Teams) and 12 Doctoral Schools covering all disciplines • An Institute for Advanced Study (IEA), the Institut Mediterranéen de Recherches Avancées (IMéRA), a component of a national Thematic Advanced Research Network (RTRA) and a Thematic Centre for Research and Treatment (CTRS) (Infectiopole Sud) whose head offices are in Marseille. The latter is now enlarged and transformed into an IHU recently labeled in the IA program • An international Meeting Centre for Mathematics (Centre International de Rencontres Mathématiques - CIRM), one of only three such centers in the world, which hosts seminars for more than 50 weeks per year and international researchers in an idyllic setting at Marseille Luminy. This center is now labeled as a LABEX through the project “CARMIN” in the IA program • A diversified education at all levels and in all disciplines: 40 bachelor degrees, 35 professional degrees (84 specialties), 81 masters (352 specialties), 21 two-year technology degrees (DUT), 9 engineering degrees (delivered by high education graduate engineer schools), 12 doctoral programs • A high performance potential in open platforms, technical facilities in life sciences and health, microelectronics (CIMPACA platforms), optics, nanotechnology, etc.

	• The ANTARES international underwater observatory in the Mediterranean sea for astro-particle science and oceanology • Very Large Research Infrastructures (TGIR): ITER (International Thermonuclear Experimental Reactor), TORESUPRA and the Jules Horowitz reactor at Cadarache, where extensive collaboration with our universities has been interwoven in terms of basic and technologic research, and in education • Very large Research infrastructures in the SHS sector like: - ADONIS. TGE Adonis is a very large infrastructure for the use of all the social and human sciences (SHS) - Médiathèque des sciences humaines et sociales (structured around a library, sound archive and image library) - Centre d'Expérimentation sur la Parole (CEP). The CEP is a joint platform open to the international community interested in the study of speech and language - Fenouilleres library; an original enlarged university library (10000 sqm) contributing to a much more sustained campus life.
3. Development tools and major achievements:	• A variety of interfaces (business incubators, business development centres, subsidiary and development services, competitiveness clusters, etc.) enabling technology transfer and development • 3 technocentres, geographically contiguous to research sites (Château-Gombert, Luminy, Arbois) • 60 patents in the last 3 years • Over the same period, 30 innovative projects related to our University, which have spawned the creation of as many start-ups • The creation of 12 spinoff projects from our research teams.

The merged AMU is now placed **in the top 150 world-class university 2011 Shanghai ranking**.

Moreover the Leiden ranking of scientific output can be estimated to 11,634 between 2001 and 2008 by summing the data of the three universities and should rank AMU among the top three French universities[5]. This brings AMU to the 111th position worldwide, 40th in Europe and 3rd in France.

As shown by the key data from Strater (last Ministry study), the PACA region ranks between 3rd and 4th in the ranking of French regions. All the studies that have been recently carried out are leading to the same conclusions: **the PACA region has an outstanding scientific potential thanks to the important number of researchers and variety of research laboratories (Aix-Marseille area contributes for 2/3 of the regional potential).**

The quality of our laboratories is outstanding, according to the most recent AERES review (March 2011). **The following table shows that 82% of our laboratories are ranked A+/A, setting Aix-Marseille well above the national average of 66%[6].**

[5] *Source:* site http://socialsciences.leiden.edu/psychology/students/news/leiden-ranking-2010-cwts.html – for AMU, estimation of the ranking through available data about the 3 Universitie

[6] This figure corresponds to the national average of laboratories reviewed in 2010 A round (vague A).

Statistics of global marks per scientific area of Aix-Marseille University			
Number of AMU units	Mark	AMU %	National %
Human and Social Sciences			
47	13 A+	28%	12.3%
	20 A	42%	43.5%
	13 B	28%	36.2%
	1 C	2%	7.6%
Sciences and Technologies			
25	14 A+	56%	29.4%
	9 A	36%	43.1%
	2 B	8%	24.9%
Life Sciences and Environment			
37	10 A+	27%	12.6%
	24 A	65%	60.7%
	3 B	8%	24.3%

Source : AERES 2011

The significant number of 37 research units ranked A+ (i.e. 34% of our laboratories) clearly indicates that Aix-Marseille holds a hard core of high level research units, with an unquestionable international influence and at the cutting edge of scientific progress.

Aix-Marseille University, already member of the CURIF[7] through Aix-Marseille 2, can now aspire to be recognized among the most performing European Research Universities (i.e. candidate to enter the LERU[8]) as testified by our simulations of our scientific output, where AMU is producing a better output in most of the main scientific areas than the mean average French part (Biology, Mathematics, Physics, Sciences of the universe…). This ranks us among the top three national scientific outputs (see above the table of the Leiden ranking).

AMU has also great potential to successfully propose innovative projects in order to get funds from our national research agency ANR [Agence Nationale de la Recherche]. This can be estimated through the funds, attributed to AMU projects after selection by international jurys. Thus, looking at the ANR 2010 preciputs given to French universities, one can measure the total funds amount obtained by each university. The three universities composing AMU have collected a preciput of about 2.5 M€ in 2010, making us **the second university financed by ANR, tying for first place with University Paris 6 UPMC, far ahead of other universities.**

In the same way, AMU's reputation is recognized through its partnership with prestigious European

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[7] The CURIF is the Coordination of French Research-Intensive Universities, an association of 18 Universities, i.e. French equivalent of the Russell Group in the United Kingdom, the Association of American Universities in the USA, or the "Exzellenzinitiative" labeled Universities in Germany.

[8] The LERU is the League of European Research Universities, an association of 21 leading research-intensive universities, including 3 French ones: UPMC Paris 6, Strasbourg and Paris-Sud 11.

universities: the **current funds obtained each year through our proposals submitted to the EC (i.e. already more than 20 M€ for the FP7). By the same token, AMU is the third site outside Ile de France for the total number of ERC grants obtained since 2008.**

IUF [Institut Universitaire de France] members are teachers/researchers that have "distinguished themselves for the excellence of their scientific activity, testified by their international influence". **The Aix-Marseille site is the 5th French site for the total number of IUF members, and the 4th for the number of junior members**, the latter being an interesting indicator of a true scientific potential and opportunity to improve our international visibility in the future.

- **Aix-Marseille University, the main regional institution in general and professional higher education**

During the merger process, the three universities have decided to unify their teaching curricula into a coherent and promising portfolio, with the following objectives:

- Favoring a real culture of quality university pedagogy effectively combining research, teaching and vocational integration;
- Structuring, rationalizing and mutualizing educational practices;
- Developing original educational initiatives and stimulating students' curiosity and creativity;
- Internationalizing and professionalizing courses, improving their attractiveness;
- Promoting our research and educational expertise in the context of lifelong learning.

This is basically a question of training autonomous students who can adapt to changes, develop their creative talents, adapt well to the knowledge economy and are effectively prepared to face the challenges of tomorrow, being able to innovate, develop, manage and capitalize their knowledge.

Aix Marseille University has been able to structure and merge all various degrees delivered separately by former universities. A large panel of degrees (Bachelor, Master, PhD), both for research and for professional curriculums is now proposed on the AMU site:

- **A diversified education at all levels and in all disciplines**: 40 bachelor degrees, 35 professional degrees (84 specialties), 81 masters (352 specialties), 21 two-year technology degrees (DUT), 9 engineering degrees (delivered by high education graduate engineer schools), 12 doctoral programs.
- **A total coverage of all training sectors:** AMU proposes courses in Art-Literature-Language sciences, Law-Economics-Management, Human and Social Sciences, Health, Sciences and Technologies. This disciplinary exhaustively, unique in the French landscape, allows AMU to design and offer several multidisciplinary and innovative training lectures. Moreover, AMU displays a specific and large panel of training in Health Sciences, apart from the Sciences and Technologies. It allows the university to be at the front line in almost all training courses in professional jobs dealing with health. AMU achieves to anticipate the evolution of the training system in health sector and is the first French university to integrate most of paramedical schools into its university education system.

A few example of our best master courses are given here since they rely on our well-known laboratories and they will form the bedrock of our excellence degrees for A*MIDEX education project: the "Neurosciences" master, the "Anthropology" and "Sociology" masters associated to the labeled "LabexMed", the master "Micro and nano electronics", the "Physics" master, the "Fusion Sciences" master associated to the ITER project, the masters "Microbiology, Vegetal Biology,

Biotechnologies" and "Bioinformatics, Structural Biochemistry and Genomics" both linked to almost our IA labeled projects, the master "Sciences of the Terrestrial Environment", the master "Aix-Marseille Economic Sciences" associated to the labeled Labex "Aix-Marseille School of Economics"… These courses provide high quality teaching fertilized by the latest advances of research in their domain; they are very attractive internationally. To different degrees according to the domain and the discipline these courses are continually adapted in their contents and teaching practices to reach the highest international standards and remain close to developments of the academic and professional market.

- **A constant involvement in the development of high-education graduate engineering schools and technician training:** AMU offers two academic major high education graduate engineering schools (Polytech & ESIL), three IUT [Institut Universitaire de Technologie] among the biggest in France, covering all professional technician curriculums. We should not forget to mention also our specific and coveted Sciences of Sports and Human Movement (top 3 in France), which has international exposure, with world and Olympic champions in swimming, water sports, and cycling; a chair of excellence in the "Health, Sport and Sustainable Development" foundation with the Decathlon/Oxylane company, with the 2nd best Master in management of sport, with the A+ graded PhD School in the Human movement. As a course of excellence with strong identity and designed closely with the needs of the socio-economic world, we can also cite the master of fashion and textile professions. This is currently being authorised for opening in September2011. This is one of the leading projects of the Maison Méditerranéenne des Métiers de la Mode, a unique structure in Europe which brings together in one place the creators and partner businesses in the excellence of a university education. Moreover, we agreed very recently the statistics and finance Master to be implemented in partnership with AXA company.

- **One of the largest multidisciplinary PhD college in France**: Since 2008, with the merger objective in view, we have also reorganized our 12 PhD schools (4000 students, 1350 international students) into **a unique PhD college** delivering a unique **label "Aix-Marseille University doctorate"**. Managed by one Director, this college has produced a charter detailing all procedures to be applied to the 12 PhD schools in order to obtain this label (PhD students selection criteria, selection and grant offer, general common advanced courses, internships in international research private and public bodies, PhD defense criteria…). The doctoral college also organizes at the end of each university year a common, interdisciplinary and professional event, **the Doctoriales**, which pursues several objectives: enabling doctorate students to exchange in interdisciplinary groups, offering them the opportunity to discuss their research work to a large public, promoting their skills and having them meet many professionals…

AMU degrees of almost all disciplines taught by AMU and Idex partners have been submitted to the AERES evaluation whose report has been very positive, including the top group doctoral schools (12 doctoral schools covering all disciplines among which 8 were graded A+ or A, and 4 B).

Statistics of A & A+ marks per type of degree of Aix-Marseille University

Type of degree	AMU % of A/ A+	National % of A/ A+
Bachelor's degree	41%	36%
Professional bachelor's degree	41%	-
Master degree	73%	-

Source : AERES 2011

With 73% of Masters rated A or A+, Aix-Marseille is above other sites (e.g. for the A round, the PRES of Lyon scored 69%, Toulouse 67%, Bordeaux 69% Grenoble 58% and Montpellier 47%). Moreover, the AERES has pointed out the "outstanding connection with research" of our Masters in Health, Life and Environmental Sciences.

- **Aix Marseille, the main academic coordinator in socio-economic partnerships**

At the PACA region level, there is a complete support system for partner research, technology transfer and business creation. The public structures have come together in the Réseau Régional de l'Innovation combining 68 institutions and 300 people in FTE (Full Time Equivalent). **For the last 3 years, the results have been noteworthy: 60 patents, 30 innovative projects related to our University (which have spawned the creation of as many start-ups), and creation of 12 spinoff projects from our research teams**. Some elements of this whole, located on the Aix-Marseille site are given below: (non-exhaustive list)

Competitiveness clusters. There are 9 competitiveness clusters in the PACA region out of the 71 national clusters. With more than 10% of the national labels the thematic fields are very wide with one international cluster Solutions Communicantes Sécurisées (SCS), one with a global perspective MER PACA and seven regional clusters CAPENERGIES (énergies non génératrices de gaz à effet de serre), PEIFL (Pôle Européen d'Innovation Fruits et Légumes), EUROBIOMED (Santé), OPTITEC (Photonique, systèmes complexes d'optiques et d'imagerie), PASS (Parfums Arômes Saveurs et Senteurs), PEGASE (aéronautique et spatial), Risques et vulnérabilité des territoires.

Pôles Régionaux d'Innovation et de Développement Economique Solidaire (PRIDES). The Regional Economic Plan adopted in 2006 by the PACA region gave rise to PRIDES. Now, in the PACA Region nearly 30 networks have the PRIDES label which is formalised by a multiyear contract of objectives between PRIDEs and the Region, which comes with an annual financial agreement which ensures help in operation (coordination, service provision, local authorities) and the realization of cooperative projects.

ValorPaca. Set up by the six universities of the region: Aix-Marseille 1, 2 and 3, Avignon, Nice Sophia-Antipolis and Toulon, the ValorPACA association guides the researchers in promoting their inventions to meet the innovation needs of industrialists and support the creation of innovative businesses. The main objective beyond exchanging methods is to fill in a lack in terms of completing research projects in order to facilitate the transfer towards the socio-economic world and the creation of start-ups in close relationship with the PACA Region. Taking benefits from the employees and the know-how acquired during the 4-years ValorPACA experience, ***the SATT PACA Corse***, joining together AMU, the 4 other PACA Universities, Corsica University, ECM, CNRS and Inserm (together with AP HM and research organisms) aims to leverage and extend the activities of technology transfer.

L'Institut Carnot "Science et Technologie pour les Applications de la Recherche " (STAR). Firstly labelled in 2007 around four themes: micro and nano electronics, Information and Communication Sciences and Technologies, materials and energy mechanics; the IC STAR mobilises a significant academic research potential to answer the scientific and technological challenges that arise in the industrial world and more widely in society. It obtained a second labeling in 2011 together with

three new ones, coordinated by other institutions, where we are partners (ARTS, LISA, CALYM).

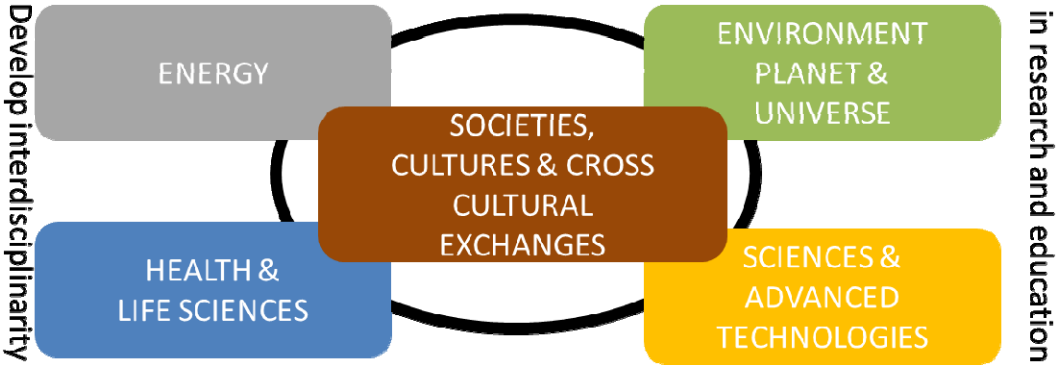
➢ **Around AMU: building a relevant partnership for A*MIDEX**

The A*MIDEX project has been designed together with several national organisms, high education graduate schools and a healthcare establishment, independent from AMU's supervision authority, and located on the Aix-Marseille site. We already have many concrete collaborations, through laboratories (joint research units), several teaching courses, international and innovation policy. Nevertheless, **to go further, we need to share a vision for the future of Aix-Marseille, with a common strategy and commitments in a same governance structure dedicated to the realization of our objectives.**

PARTNERS AND ADDED VALUE IN THE A*MIDEX CONSORTIUM	
4 national research organizations : *CNRS, Inserm, CEA, IRD*	Developing together and pushing the limits of research innovation in coherence with the SNRI national scheme (Schema National de Recherche et Technologie). Aix-Marseille is the 2d site after Ile-de-France for CNRS (67 joint research units) and Inserm (21 joint research units) establishment. The collaborations with CEA are numerous especially with the proximity of the Cadarache site (ITER), 4 agreed research laboratories and 1 joint laboratory. IRD headquarters are now situated in Marseille, which is a true asset in the framework of A*MIDEX Euro-Mediterranean orientation, with many collaborations through our joint research units, especially in health, economics and cultural exchanges.
2 higher education - graduate institutions: *Ecole Centrale de Marseille, Institut d'Etudes Politiques d'Aix en Provence*	Developing synergies and pushing the limits of education innovation. Sharing best practices and bringing additional assets into the Idex offer, proposing new orientation bridges to our internal students as well as opportunities to external, international students attracted by their high professional graduate education (Grandes Écoles d'Ingénieurs, a French "cultural exception")
1 healthcare establishment : *Assistance Publique des Hôpitaux de Marseille*	Developing together and pushing the limits of innovation in research in health and clinical applications, along with IA promising projects such as IHU "Méditerranée Infection", with the share ambition of reinforcing Marseille's leading reputation in health and life sciences. The APHM/ AMU collaborations are numerous through common staff in AMU research units and the CIC (Centres d'Investigations Cliniques).

5.2.2 APPLICATION TO THE ACTIONS OF THE PROGRAMME « INVESTISSEMENTS D'AVENIR »

In order to keep all applications to the IA program in line with the Idex project, we have organized meetings and discussions with researchers, directors of laboratories, boards of faculties and universities, partners… under the coordination of the University "Investissements d'Avenir" committee.
In A*MIDEX, together with our partners located on the site, we have selected only 5 areas where interdisciplinary and pooled innovative programs, in research, innovation and education, have been encouraged to apply to various IA calls, in coherence with AMU's potential and future strategy.



A*MIDEX will focus its research and education efforts within five scientific areas where our cutting-edge research teams and best education programs are concentrated.

Then we suggested and selected projects to be submitted to the IA calls of proposals. These projects became the Labex, Equipex, National Infrastructures, Pre-industrial Demonstrator, Cohorts, IHU, SATT, Carnot 2 … which constitute the raw material to build up A*MIDEX.
Our global and comprehensive A*MIDEX project is resting upon two main principles, which also drive Aix Marseille University:

- From fundamental research to applications following the "value chain" (research/ education/ innovation/ development/ scientific culture spreading)
- From the interfaces, promoting interdisciplinarity projects in order to solve complex problems, to respond to new societal expectations.

Concerning the results obtained at the first IA phase, our site got an honorable score compared to other sites whose Idex projects were pre-selected. Thus Aix-Marseille site has been successful through 29 IA labeled actions (8 with AMU as coordinator, including one IHU and one SATT, and 21 networked projects with AMU as partner, coordinated by national organisms or partners from other sites).

A*MIDEX is based on different projects, issuing from or contributing to our priority themes. In return, these projects, often complementary to each other, or multipurpose, will benefit from additional resources and the overall dynamics driven by A*MIDEX's policy (HR, international, higher education, exploitation of results) and winning image. **This eco-system includes the projects already selected in the IA first round and the projects (re)applying to the IA second round.**

The 17 **Labex** projects (with AMU as coordinator) submitted to the 1st and 2nd IA rounds have been conceived as the core driving force for our university strategy, within the priority areas of research circumscribing the Idex perimeter. Therefore they may be considered as the pillars of the Idex house under construction. Within each of the 5 priority domains where our best skills are concentrated, strategic thinking that we have conducted has allowed us to identify a number of needs in

equipment, structuring, and development potentials. In response to these needs and perspectives, we have developed a consistent strategy through projects presented in the context of different calls for proposals in the IA program, as showed in the above figure. Indeed:

- The **Equipex** will provide our areas of excellence with high level intermediate equipment. Those we have chosen to support serve different purposes: indeed, some complement an existing infrastructure (e.g. the labeled Aster-CEREGE project, or the 2d application of PSO and EMSOLIGURE) or other projects (thus, Phenomix is related to Phenomin, BSL3 is designed as a complement to the IHU, 7T-AMI is linked to the France in Vivo Imaging Infrastructure). Others aim to give our researchers the resources necessary for the continuation of their work (e.g. with our participation in Equip@Meso), or are tools destined to lead innovative and structural projects (cf. DILOH [ex Open Edition], Seeing or PRIMED).

- In the **Health and Life Sciences** domain, IHU "Méditerranée Infection" in infectious diseases will provide additional resources and visibility to the work already done by the Marseille teams working with Prof. Didier Raoult, an internationally recognized specialist. This IHU is **one of the 6 IHU recently IA labeled in France**; it will serve as a model and is one of the gems of A*MIDEX.

IHU "Méditerranée Infection" in figures
On the Timone Health campus, a new building will gather in 2014 clinical care, medical and technical activities, fundamental and clinical research in the field of infectious and tropical diseases. The latter remain the first mortality cause in the world, with AIDS, tuberculosis and malaria.
Surface: 20,000 sq. meters including 10,000 sq.m dedicated to research
Funds granted through IA: 73 200 000 €, i.e. the greatest funding granted for an IHU
Number of beds: 90 (under way)
Total staff: 300 researchers, PhD students and university staff, financed by partners CNRS / INSERM / IRD for an annual cost of 60 M€, and about 350 positions financed by AP-HM.
Amount of the construction work (i.e. of the investment): 70 M€
Number of partners : 14 institutional partners (AMU and APHM are leaders of the project ; IRD ; Inserm ; CNRS ; École des Hautes Etudes en Santé Publique ; Fondation Infectiopôle Sud ; Établissement français du sang ; la Croix Rouge ; 17 private partners (2.5 M€)
Number of granted patents: 25 (among which 20 are currently licensed to French industries)
Number of publications: close to 1,300

- "**Health and Biotechnology**" projects, through their transdisciplinary aspects, are in support of several of our priorities in this sector like:
  - National Infrastructure Projects (PHENOMIN, Bio-Banques, F-Crin, F-BioImaging, F-Genomique, FRISBI: all projects already IA labeled) and the upcoming NAIVI Marseille multimodal node of the national project France In Vivo Imaging to be applied to the National Infrastructure 2d call)
  - Cohort projects (RADICO, OFSEP, CRYOSTEM, HOPE-EPI: all projects already IA labeled) and CIMTECH pre-industrial demonstrator (to be submitted again)

- The **SATT PACA Corse**, joining together AMU, the 4 other PACA and Corsica Universities, ECM, CNRS and Inserm (together with AP HM and research organisms) aims to leverage and extend the activities of technology transfer, through a main activity dedicated to the funding of inventions, technology maturation and development, and a second activity dedicated to

providing support services to local research and development (R&D) entities which create scientific and technological added value. It will take benefits from the employees and the know-how acquired during the 4-years ValorPACA experience. This SATT PACA Corse is one of the 5 first SATT recently IA labeled in France, and an important assess to support A*MIDEX ambition of fueling the Aix-Marseille site's economic growth.

5.2.3 EXCELLENCE PERIMETER, ENVIRONMENT, PROSPECTS AND ADDED VALUE

Our selection of the initial excellence perimeters (research and training Peridex) has been inspired by **the following guidelines:**

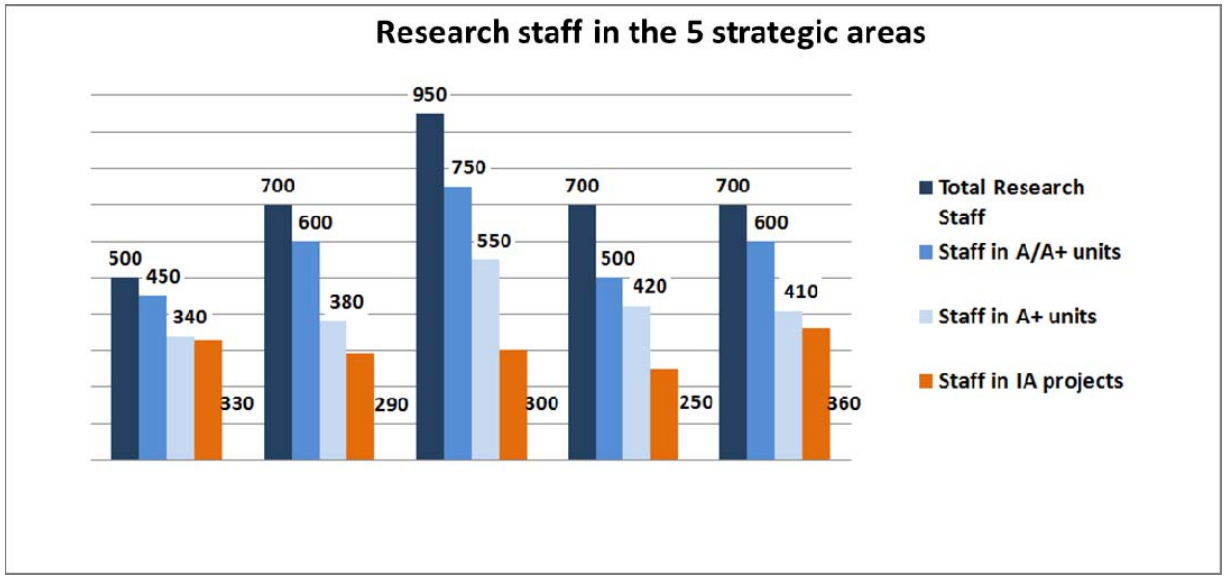
- The severe selection of both initial Peridex to be used as "initial nucleation centers" for excellence "cristallization",
- The strong connection between the Research and Education Peridex as evidenced by masters degrees supporting the 5 priority scientific areas, Labex projects, and by the PhD collegium, ensuring the coherence of the project,
- The evolutionary character of the Peridex, to guarantee the emulation and to support emergent projects, inside and outside the Peridex. This avoids the pitfall of a two speeds-university and encourages the involvement of the whole university in the quest towards excellence.
- The concentration of 60% of Idex grants on the Peridex which represents only 30% of our whole staff, thereby maximizing the impact of Idex funding,
- A delimitation of the excellence perimeter relying strongly on external evaluations so as to ensure its relevance and objectivity: the evaluation of the *Comité d'Orientation Scientifique* (2006), the IA international juries (2010-2012) and the AMU Strategic Orientation Committee.

➢ **A research initial excellence perimeter based on our best research units and selected by international juries**

The A*MIDEX perimeter of excellence (Peridex) will represent a maximum of 30% of the total academic staff of the site. As such, it is far more selective than the proportion of researchers/lecturers involved in A/A+ teams (82%). It is built around 5 thematic priorities and encompasses the teams involved in the IA projects. It has therefore been defined in terms of research teams and innovative projects, and not disciplines *per se*.

The 5 priority areas have been identified according to the recognized forces of our site, as shown in the table below. They correspond to the key scientific strengths our Scientific Orientation Committee (COS, composed of external academics) had already identified in 2006. It must be noted that since then the number of our publications in these 5 areas has been steadily increasing over the last 5 years (cf. OST study for A*MIDEX).

Up to 700 researchers/lecturers are involved in PIA projects selected in the 1st round, and will therefore belong to the Peridex. The projects submitted in the 2nd round involve around 900 other academics. Among the latter, all the teams from the projects selected in the 2nd round will also be included in the Peridex. The others will be ranked taking into account the detailed evaluations of the IA juries and advice from the Strategic Orientation Committee, and submitted to the decision of the A*MIDEX Steering Committee, so as to reach the 30% limit. The diagram below gives an insight into the composition of the excellence perimeter, based on our estimation of success in the IA calls:



Source: AERES and internal data

➢ **A dynamic evolution of the excellence perimeter through emulation**

To induce a "pull effect" towards excellence, calls for proposals for innovative, interdisciplinary projects that prove to bring an added value to our priority areas may be launched in the framework of the A*MIDEX Steering Committee. All research teams on our site (inside or outside the initial Peridex) can apply to those calls for proposals. After strict selection by the Steering Committee assisted by external international experts, funds will be attributed to implement the selected projects. If an independent evaluation demonstrates that milestones and results are achieved by these teams, then they may integrate the initial Peridex. This is a means to amplify and to renew our initial Peridex, which is essential since a fossilized scientific excellence is nonsense.

To preserve a natural competition towards excellence inside the Peridex teams and to avoid the "annuity effect" the same evaluation is asked to teams from the initial Peridex. If their workpackages and milestones are not achieved, they can be pushed out of the Peridex and have to prove again their capacity to manage successfully their projects in order to reintegrate the Peridex, after an established international evaluation.

The selection respects the spirit of an Idex since by definition, all research activities and education conducted within the institutional boundaries are not intended to incorporate the Idex perimeter of excellence. However one of the A*MIDEX core missions is to spread excellence throughout AMU and its partners thanks to its additional means and pull-effect.

➢ **A concentration of A*MIDEX grant to the Peridex**

About 60% of A*MIDEX grant (apart from Labex grant) will be focused on the initial Peridex (30% of research staff). It means that the funding by researcher will be 3.5 times higher inside the Peridex than outside and 9 times higher when A*MIDEX total budget (incl. Labex) is considered. This is to ensure that resources go to the very best innovative and dynamic research teams and consequently maximizing the impact of Idex funding.
The remaining 40% of fund will be dedicated to selected projects of Peridex-outside teams who have successfully answered to calls for proposals launched by the A*MIDEX Steering Committee. Of

course a part of the grant will be dedicated to other transverse actions (campus upgrade, pooled platforms...) and will impact the whole staff of the AMU site. Attention will be paid also to new, unplanned, innovative, risky projects.

- **An education excellence perimeter connected to the development and the attractiveness of the site**

The initial excellence perimeter in higher education includes only the Masters linked to Labex projects with A/A+ assessment, the 8 Doctoral Schools with A/A+ grade, and education curriculums of excellence, with notable international exposure, offered by AMU and the 4 higher education partners of A*MIDEX. Will be included all education projects proposed in this application in order to promote pedagogic innovation, leading to new jobs and stressing on digital expertise, in order to boost our socio-economic utility, our attractiveness and our international visibility (e.g. through the creation of an Excellence Academy).

This perimeter covers about 2,500 students i.e. 4% of AMU student population. Indeed we will concentrate the IA financial and human support on the actions proposed within the Excellence Academy (2,500 students) in order to spread out our reputation of excellence in education. As discussed for the research Peridex, our teaching Peridex has to evolve. The selection process is described in section 5.3.2.

5.3. PROJECT AND PROSPECTS

5.3.1 A GLOBAL AND COMPREHENSIVE RESEARCH AND INNOVATION STRATEGY

This section presents (i) the 5 priority areas identified by AMU as its most prominent research strengths and composing the excellence perimeter, (ii) the 3 Research Funds which will be set up in order to develop excellence in these 5 areas, and to ensure a pull-effect throughout AMU and (iii) the target indicators set to monitor the A*MIDEX achievements in terms of excellence.

5.3.1.1 A STRONG FOCUS ON 5 THEMATIC AREAS

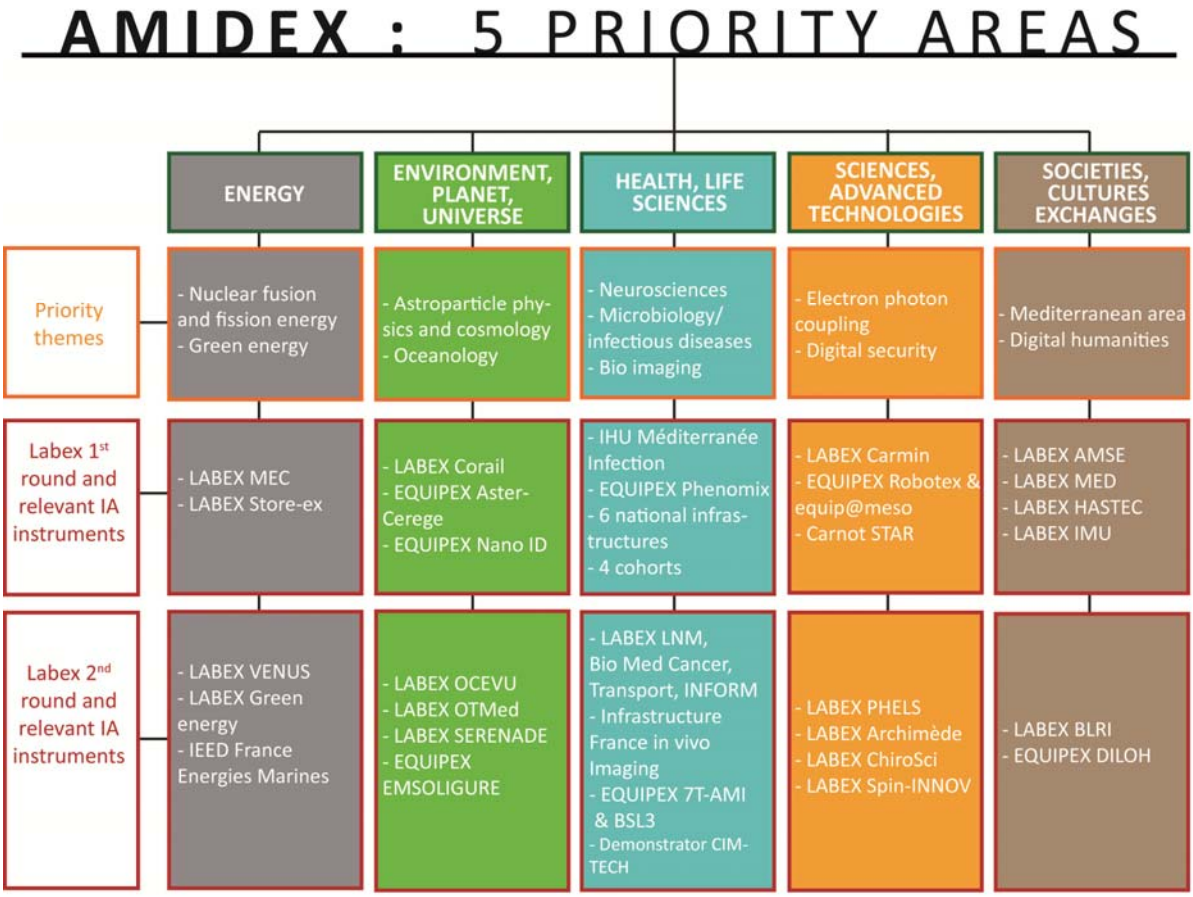
These 5 priority themes [Energy; Environment, Planet and Universe; Health and Life Sciences; Sciences and Advanced Technologies; Societies, Cultures, Cross-cultural Exchanges] have been identified to be the workhorse of our site and create a world-class university. The Idex Research Funds will be concentrated on these 5 priority areas (to the level of 75%).

Within each theme, Labex have been conceived jointly with national research institutions as clusters of research teams (from A/A+ units) and with strong links to socio-economic actors. Each Labex addresses new and complex research topics to improve our knowledge and suggest prospects of development in technology transfer. In addition, Labex rely on a complete B/M/D curriculum so that they may reinforce the international attractiveness for high potential students and researchers.
17 Labex have been conceived and led on our site: 3 have been labeled during the first call, 14 are under selection at the 2nd Labex call (see section 5.2.2).

AMU has now two main challenges that are common to the 5 priority areas:

- A stronger structuring of our research potential is needed to overcome the counterproductive inheritance of the 3 former universities. Our merger project includes the diminution from 150 to 115 research units (-23%), which will come into effect in 2012. This will therefore have a major impact on the structuring of our research potential and the international visibility of our research.
- A campus upgrade policy is needed to endow each campus with a critical mass of technical, financial and human resources to achieve to international standards. The current Opération Campus as well as the funding requested for the International attractiveness of our site is precisely meant for that purpose.

Therefore a part of the other requested Idex grants (apart from Labex grants) will be concentrated into the structuring of projects inside the 5 priority scientific areas, with the view to boost their development, favor multidisciplinary exchanges, strengthen their scientific output and their competitiveness through new and high performing equipments and technical platforms, upgrade the campus life to international standard in order to increase their visibility and attractiveness towards international students, junior and senior researchers.



Energy

Supplying the essential energy services to support human needs while understanding and addressing the environmental consequences associated with energy production and energy use is

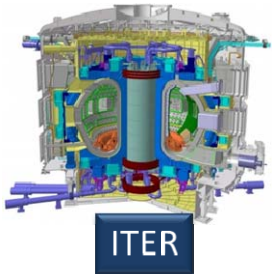
perhaps the greatest challenge ever faced by humankind. An "Energy transition" is needed and the energy demand of today's and future generations requires the development of new technologies, from which competitive innovations can grow. Scientists investigate the potential of sustainable energy sources such as solar energy, biomass or geothermal energy, they work with increased effort on raising the efficiency of conventional power stations, on energy storage and the economic use of energy. The work on generating energy by way of nuclear fusion develops a new source of energy in the long-term. This path is a major scientific and technological challenge, which is being put forward in international cooperation. The decision if, and which, technologies provide solutions for societal problems is also related to the systemic interaction of technologies and societal aspects like political or economic framework conditions, social acceptance, ethical or legal questions.

The ambition of A*MIDEX is to increase significantly the scientific contribution of the Aix-Marseille site to the "Energy transition". For this, it can rely on its actual research potential, with **~500 researchers (300 in A+ labs, and 450 in A/A+ labs)**. In the PIA framework, **two Labex projects** have already been selected (one being AMU-led). The number of publications and of those in the 5% most cited in the world in many disciplines at the core of this thematic area demonstrates our strong international presence:

	Nb of publications in the 5% most cited (2008)	Nb of publications (2008)	Specialisation Index (2008)
Nuclear and particle physics	16,7	222,7	1,06
Energy, chemical and industrial engineering	8,3	154,3	0,92
Biotechnology, genetics	9,3	260	1,22
Biochemistry	12,7	232,7	1,15

Source : OST, novembre 2011.

Moreover, we are involved in the EIT (European Institute of Innovation & Technology) InnoEnergy Knowledge and Innovation Communities. The presence of **world-leading infrastructures such as ITER** is another asset of AMU and its partners, notably the CEA, in the field of energy.



The 12.8 billion € ITER project is one of the world's leading research clusters on nuclear fusion. This large-scale scientific experiment (the largest experimental device under construction in France) is a consortium of the European Union, the United States, Japan, Russia, China, India and South Korea. It seeks to build a working fusion reactor in order to demonstrate that it is possible to produce commercial energy from fusion. The ITER project ranks among the most ambitious science endeavors of our time. Building has started on the ITER platform in Cadarache (70 km northeast of Marseille, with an important research center of the CEA, an A*MIDEX partner) where 34 nations are collaborating to implement the ITER First Plasma by November 2019. The TORE SUPRA platform (world largest superconductor tokamak), leading research units such as the "Institute for Magnetic Fusion Research " (IRFM, CEA) and the PIIM laboratory of "Physics of Molecular Ionic Interactions", the Master degree « Fusion Sciences » and the ITER International Summer School, the France-Japan Magnetic Fusion Laboratory or the International Institute for Fusion Sciences make ITER our most renowned and complete scientific platform, firmly innovation- and results-oriented.

Several IA projects on energy have been conceived with the CEA and competitiveness clusters,

including the two labeled Labex MEC (Mechanics, Energy and Complexity) and STORE-EX (Energy Storage) and 2nd round pending Labex like “Green Energy” (Biofuel) and “Venus” (Validation Endeavour of NUmerical Simulations for ITER).

The projects submitted to the A*MIDEX Research Funds will be guided by the following priorities:

- **Nuclear fusion and fission energy**, in partnership with CEA / Cadarache and the ITER project.
- **Alternative energy sources and sustainable development** (partnership with labeled competitiveness clusters such as Cap Energies, MER, PEGASE, RISQUES). AMU is also involved in the EIT project (European Institute of Innovation and Technology) and a new International joint unit (UMI, Unité Mixte Internationale) between CNRS /AMU and MIT (USA) is now established (fall 2011) working on “Multiscale Materials for energy and Environmental applications. Its headquarter will be at Cambridge and a “mirror like” unit will be created at Marseille. Close contacts and collaborative projects are under preparation between this UMI, the US MIT Energy Initiative (MITEI) and the French ”Cap Energy” competitiveness cluster at our site aiming at the creation of a future IEED in the IA programme.
- **Development of research on risks, security and operational control of complex energy systems**. Numerous researches in the whole four Labex come within the scope of the "Energy transition" and A*MIDEX will particularly support interdisciplinary studies on risks, security and operational control of complex energy systems.
- **Development of research on issues related to the "Energy transition" and concerning systemic interrelations between technology, innovation and society: the TOTEM project.** The "Energy transition" on its way is not reduced to new technologies implementation; it is also a social stake, requiring new economic models and a set of process affecting the behavior, uses, territorial organization, production logics, employment and qualifications...Based on research units of LabexMed perimeter, the project "Travaux en sciences sociales pour l'Observation de la Transition Energétique en Méditerranée (TOTEM)", interdisciplinary in scope, will develop research in social sciences on the energy transition in the Mediterranean area.
- **Development and structuring of platforms of large equipments used for energy research**: on the Aix-Marseille site and at Cadarache (CEA), the A*MIDEX teams involved in research on "Energy" have access to an important pool of large scientific equipments.

According to its priorities in the domain of research on energy, A*MIDEX Research Funds will contribute to the development and management of these equipments, installations and platforms, and take part to the purchase of new equipments needed to maintain a competitive research, to widen the scientific perimeter of collaboration and the partnership with industrial sector.

Environment, Planet and Universe

The study of the origin of our universe, its evolution and its impact on our earth is a key research area for understanding our planet and the evolution of its environment. AMU has the research potential to contribute to tackling this major and long term scientific and socio-economic challenge. **380 researchers are in A+ units**, three of which count **among the international leaders in their disciplines** : the Laboratoire d’Astronomie de Marseille (LAM), the Centre de Physique des Particules de Marseille (CPPM) and the Centre Européen de Recherche d’Enseignement des Géosciences et l’Environnement (CEREGE). Again, the number of publications in the 5% most cited in the world in many disciplines within this thematic area demonstrates our strong international presence:

	Nb of publications in the 5% most cited (2008)	Nb of publications (2008)	Specialisation Index (2008)
Astronomy and astrophysics	30,3	176,7	3,36
Nuclear and particle physics	16,7	222,7	1,06
Geosciences	15,7	202,3	1,29

Source : OST, novembre 2011.

These joint research units have submitted **3 pending Labex projects** to the 2nd call on cosmology and astroparticles (OCEVU), oceanology and climate change in the Mediterranean Sea (OTMed) and nanotechnology and environmental toxicology (SERENADE). AMU strengths in this area are also based on its **world-ranging research infrastructures**, such as ANTARES and the LAM Space Platform (Euclid).

ANTARES is one of the first two cosmic high energy neutrino telescopes ever built in the world. It is also a unique deep-sea infrastructure at the forefront of astroparticles, astronomy, and marine sciences. ANTARES is hosted by our CPPM laboratory and involves a collaboration of more than 200 scientists from 25 European universities and institutes. It has been fully operational since 2008 and is planned to run for at least 5 more years. The ANTARES deep sea network is also exploited by the community of marine scientists, with more than 100 researchers and engineers.

The long term future of ANTARES is being prepared with the "Mediterranean Eurocentre for Underwater Sciences and Technologies" (MEUST) project, in which AMU is a major player through CPPM and the Pytheas OSU. MEUST further exploits the synergy between neutrino astronomy and marine sciences by deploying a second generation deep sea infrastructure within the KM3NeT and EMSO European consortiums. MEUST contributes to the development of new technical solutions for these submarine observatories, in close connection with industry within the Mer PACA competitiveness cluster.

The LAM Space Platform / Euclid: Understanding the acceleration of the expansion of the Universe is one of the most compelling challenges of cosmology and fundamental physics. A consortium of more than 700 scientists and engineers across Europe has proposed a space mission named Euclid for this purpose. The Laboratoire d'Astrophysique de Marseille (LAM) has been a leader in this field for many years. In anticipation of new generation cosmology missions, and strong of a 40 years' experience in developing space instrumentation, LAM has built a unique space platform capable to design, assemble, test and calibrate the scientific payload of space missions like Euclid. This platform is in operations since 2010. It is open to internal and external research teams as well as to private companies.

This platform, co-financed by CNES, CNRS, AMU and EU-FEDER funds, is one of the best equipped space platforms in Europe. AMU is the main European university contributing to Euclid in Europe and it will play a central role in a major European space mission for the next 20 years. Science and engineering collaborators as well as private companies will regularly come to AMU laboratories for progress meetings or community-wide large scientific conferences, including the bi-annual international cosmology conference cycle organized by LAM since 1999. The Euclid mission and LAM technology platforms offer as well great opportunities for training AMU students.

Beyond the 3 pending Labex, AMU has **a wider ambition on global "Environment, Planet and Universe"** to reinforce its international leadership in this scientific area, based on the structuring of its research potential and the support of new projects.

A restructuring of the research potential: We have already merged three joint units (UMR) in oceanology with CNRS and IRD into a single Mediterranean Institute of Oceanology (MIO) in Marseille Luminy Campus. The MIO will benefit from advantages from the *Opération Campus* in the near future (about 100 permanent researchers, inside a campus with master and PhD students, with multidisciplinary environment as life sciences, mathematics, physics, instrumentation, and pooled platforms). They will also benefit from the presence of the CPPM (Centre de Physique des Particules) with whom they share the famous ANTARES submarine observatory for neutrino detection and bioluminescence of submarine microorganisms. With the merger of the three universities, AMU will now be able to federate other laboratories like LAM (Laboratoire d'Astronomie de Marseille from the Marseille Étoile campus) and CEREGE (Centre Européen de Recherche et d'Enseignement des Géosciences de l'Environnement, from the Arbois campus) and others, with the MIO and CPPM to form a complete **OSU Pytheas** (Observatoire des Sciences de l'Univers) under the co-responsibility of AMU, CNRS, IRD (all being A*MIDEX partners). They will represent for AMU a tremendous taskforce in the field of Environment, Planet and Universe.

The support of new research projects: Other projects will emerge and be submitted to the calls of the A*MIDEX Research Funds. Particularly we need to improve access to the Mediterranean Sea for astroparticle physicists and oceanographers. Among these projects, one can mention interdisciplinary projects between astroparticle physicists (Universe) and biology / oceanology scientists (Planet, Environment), the improvement of the ANTARES submarine observatory, the development of an oceanographic infrastructure via the installation of a marine antenna in collaboration with the MER competitiveness cluster.

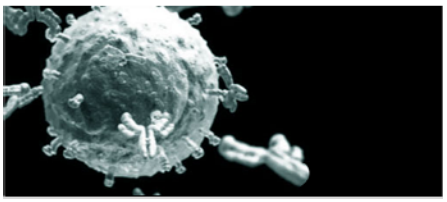
Health and Life Sciences

The Aix-Marseille academic site holds a significant potential in health and life sciences, with ~700 researchers (**550 researchers in A+ labs**) and laboratories ranking among the international leaders in their fields. Our potential has been recognized through **numerous IA labeled projects** in the 1st round of calls, including **the IHU "Méditerranée Infection"** specialized on **infectious diseases** and **one Equipex**, **6 Infrastructures** and **4 Cohorts**. The number of publications and of those in the 5% most cited in many disciplines in this thematic area demonstrates our international influence:

	Nb of publications in the 5% most cited (2008)	Nb of publications (2008)	Specialisation Index (2008)
Neurosciences, behaviour sciences	11	267	1,46
Microbiology and virology, immunology	20,3	241	2,1
Cardiology, pneumology	10,7	158,7	1,41
Diverse Medical	14	159	0,67

Source : OST, novembre 2011.

Health and Life Sciences is also the most lucrative area for technology transfer and exploitation of results as testified by data from incubators, competitiveness clusters and the IA labeled SATT PACA Corse. Moreover, all the research units of this field provide, according to their area of expertise, initial as well as continuing education programs. Several Master's programs are tightly connected to the Doctoral school of Health and Life Sciences (the largest such school in France with 686 PhD students in 2009/2010) and many are recognized at the European level (e.g. our Tempus IV International Master in Health and Development Sciences).



Three structures constitute our "arsenal" in immunology, from fundamental discoveries to exploitation:

CIML: With an outstanding scientific output and major breakthroughs in immunology, the CIML is one of the leading laboratories in immunology worldwide. Key figures: 17 research teams; 22 nationalities; 40 post docs; a Master-PhD Program with Harvard; 90 academic collaborations and 21 industrial partnerships in France, in Europe and in the world (2010); 4 spins off.

CIPHE evolved from a platform dedicated to Immunophenomics to become a laboratory. It will be installed in early 2012 in its own building (3500 m2) and will comprise close to 40 persons. With its cutting-edge expertise in mouse genetics and immunology, it will develop as an open access platform for innovative mouse models and pioneer systemic immunophenotyping of mutant mice confronted to infections.

The **CIMTECH preindustrial demonstrator**, in partnership with the competitiveness cluster EuroBioMed and companies such as Innate Pharma and SANOFI, will lead to the creation of an immunotechnology platform for the validation of new targets and the development of monoclonal antibodies in inflammation and oncology.

A*MIDEX will help to structure and strengthen our potential in **Neurosciences and Oncology** that are still dispersed on various campuses in Marseille, with a priority on **Imaging** which is a major asset for the competitiveness of Health and life sciences.

Our ambition on **Imaging** is to reinforce our international rename in this scientific area. To succeed in this objective we need to complete our potential by endowing our site with top performing imaging technologies necessary to fundamental and clinical research.

Alongside the new Labex BioMedCancer, LNM and INFORM, AMU has other actions planned, including Equipex and Infrastructures projects submitted to the 2nd round of IA calls.

The French Research and HE Ministry has suggested a few sites in France to constitute a national network (France In Vivo Imaging) distributed over 6 regional nodes. These nodes will have to implement together work packages thanks to specialized imaging equipments grouped in open, pooled platforms to be acquired and/ or upgraded. This French network is meant to be incorporated in the European ESFRI EuroBioImaging network. AMU is participating in this network and the regional AMU node, called **NAIVI Marseille (Network for Advanced In Vivo Imaging)** will be centralized on a single campus with hospitals, the new IHU, the new INT (Institut des Neurosciences de Marseille) and the new CERIMED under construction (Centre Européen de Recherche en Imagerie Médicale). The latter will also include clinical diagnostic units, instrumentation industry (AAA Company), spin – off, SME's and professional trainings. A*MIDEX will have the responsibility to manage the regional node NAIVI Marseille in the "France in vivo Imaging" national project.

To fulfill the national network demands and to better structure our health potential, we also submitted a 7T-AMI project (a project of 7 Tesla Nuclear Magnetic Resonance Imaging) to Equipex 2d round, and a PET/NMRI (Positon Emission Tomo-densitometry coupled with NMRI instrument, 50% co-financed by national network, 50% co-financed by A*MIDEX/AMU) to National Infrastructure 2d round. To complete the whole necessary Imaging arsenal of our node, both for

research and clinical treatment in Neurosciences, another functional NMRI will have to be acquired through the Idex grant as one of the main instruments for the new INT.
Therefore A*MIDEX Research Funds may finance specialized and expert staff (chair "packages", high level engineers in instrumentation) post-docs, PhD students, operating costs and investments (such as the ones listed above).

Sciences and Advanced Technologies

AMU and its partners represent a potential of about 700 academic staff (**420 academics in A+ labs**) working in fundamental disciplines such as Mathematics, Computer science, Physics, Chemistry and Biology. Our site is particularly **renowned for its strengths and outreach in Mathematics, Photonics and Nanosciences**. Together they have succeeded in the 1st PIA round with one Labex and one Carnot labeled. The number of publications and of those in the 5% most cited in many disciplines in this thematic area demonstrates our international outreach:

	Nb of publications in the 5% most cited (2008)	Nb of publications (2008)	Specialisation Index (2008)
General Physics	11,3	184,7	1,85
ICT : computer sciences, telecommunications	4	74,7	0,45
Solid state physics	11,3	234,3	0,7
Materials sciences, polymers	6	117	0,52
Mathematics	9,7	158,7	1,3

Source : OST, novembre 2011.

A*MIDEX will target **one strategic action**: communicating mobile systems and their security. The world of Information and Communication Technology (ICT) is driven by an unprecedented wave of digitalization, often considered as a "digital revolution". This is at the heart of new practices, bringing about new lifestyles and quality of life: e-health, e-learning, e-commerce, intelligent networks, home automation, administration, transportation, identity and brand protection, etc. This new digital and virtual world brings with it a certain number of risks and threats: acts of computer system abuse and counterfeiting (stealing, misappropriation and illegal copying of information), and viruses and other forms of attack (threats to our privacy and corporate images). Security and trust therefore represent a major strategic concern for States and their populations and has to be tackled in a socio-economic partnerships. If leading companies and world-class expertise can be found in France, centers of academic and industrial expertise are relatively fragmented and must be strengthened by increased coordination. In this extremely lucrative area, our research units are already playing a substantial and recognized role.

Thus, the action proposed in the framework of the Idex project aims at changing the relations between academic research units and major companies working on this field to become the center for expertise in security and trust for mobile communication devices, both at French and international level. The A*MIDEX will work as a lever to create a balanced partnership between research centers and industrials, thus encouraging industrials to cooperate on this major thematic of research. To do so we want to implement a **« House of Innovation and Technology » (HIT)** in order to create a critical mass that unites these various centers of expertise within one entity. Thus

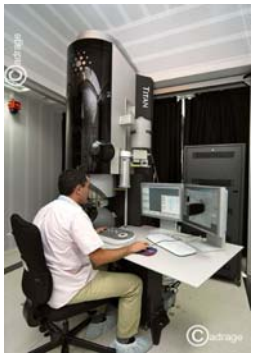
a common research center regrouping public and private researchers will be constituted around the existing technological platforms. This project is further described in section 5.3.3.

This project action will be supported by the **existing CIMPACA technological platforms** ("Digital", "Characterization" and "Micropackaging & Security") with partners such as CNRS, INRIA, University of Nice Sophia Antipolis, Eurecom, Telecom Paris Tech, St Ericsson, Texas Instruments, Association SAME, LFoundry, Biophy Research, IBS, STMicroelectronics, Air Liquide Balazs, Atmel, Biophy Research, Nexcis, Presto Engineering, Probion Analysis, Tera Environnement, Gemalto, NBS Technologies, Smart Packaging solutions, STid, CEA-LETI, LIRMM, Ecole Nationale Supérieure des Mines de Saint-Etienne. These platforms will be gathered in the HIT project.

The **Centre for Microelectronics Provence-Alpes Côte d'Azur (CIMPACA)** is an emanation of a 20-year-long collaboration between our academic research laboratories and the microelectronic industry. It is composed of three R&D platforms shared by industrial groups, SMEs, universities, laboratories and engineering schools of the region. Located between Gardanne, Rousset and Sophia-Antipolis, they form a golden triangle of R&D on communicating objects. Between 2004 and 2008, CIMPACA has attracted **more than 80 M€ in public and private investments**. It is now recognized as a national and European model and as a lever in research, innovation and economic development.

CIMPACA's "Design" platform provides the academic and industrial communities with tools and techniques to meet the challenges of the design of integrated circuits for the next ten years in the field of Secured Communicating Solutions. One of its main objectives is to encourage the sharing of resources, methods and expertise. The platform is targeted on the development of methods of design of integrated systems on chips (SOC) and the reuse of blocks of "intellectual property".

CIMPACA's "Characterization" platform provides with means to support design, test and validation of new pre-industrial technologies which combine performance, quality, efficiency and reliability at the highest level.



CIMPACA's "Micropackaging and Security" platform serves the smartcard community by providing an R&D equipment cofinanced by its members and by synergies between research and industry in order to sustain regional development towards new markets for secure communicating objects. The equipment available on the platform and the cooperative projects will lead to innovative solutions for integration, and for micro-packaging on flexible substrates, while increasing their security, reliability and interoperability.

Societies, Cultures, Cross-cultural Exchanges

AMU and its A*MIDEX partners hold **major assets in the "Societies, cultures and exchanges" area**, with a potential of ~700 academics, especially in Economics (3rd French site), Law (3rd French Law faculty) and Arts, Languages and Humanities. With **2 AMU-led Labex already labeled** (LabexMed & AMSE), a participation in **2 network Labex** (HASTEC & IMU), a strong international leadership in arts and humanities on the Mediterranean and a recognized expertise in Digital Humanities, this

thematic area has been selected as one of A*MIDEX priority domains with a focus on digital humanities and the Mediterranean area. Our leadership on human and social sciences in the Mediterranean area is supported by the MMSH (Maison Méditerranéenne des Sciences de l'Homme), which has made a significant impact, over the last ten years, on the structure and visibility of Mediterranean studies in France and abroad.

A platform of research support services and resources in HSS for the study of the Mediterranean area (MMSH) - The MMSH constitutes arguably the greatest HSS centre on the Mediterranean area, with 11 research units (in archaeology, humanities and social sciences), a media library and three libraries in a 12,000 sq.m. building. It is a member of the national network of Social Sciences and Humanities Research Institutes. The MMSH holds **a leading position in Europe for the coordination of projects and networks of HSS studies on the Mediterranean Area.** As the scientific coordinator of RAMSES^2, a network of research and scientific culture diffusion, it has federated 30 institutions (universities and research institutions) from 15 countries. The digital publication tools developed by RAMSES^2 prefigure the "Digital City of the Mediterranean", a collaborative device of dissemination and valorization for academics, decision-makers and general public. The MMSH is also the coordinator of LabexMed, labeled in the first call for projects.

In a transverse way, research into Humanities and Social Sciences must contribute to the construction of interdisciplinary interfaces on all fronts of research and innovation. Their role cannot be limited to supporting social acceptance of technological changes or taking care of the ethical aspects of scientific research. Humanities and Social Sciences (HSS) are thus essential to understand complex phenomena, make a unique contribution to public debates and have a major role in the relationship between society and science.

Among the research projects that could be submitted to the internal calls of the A*MIDEX Research Funds in the field of Societies, Cultures and Cultural Exchanges, one could mention the following:

To respond to the challenge of disciplinary change in Humanities and Social Sciences (and beyond) A*MIDEX could support research proposals for **interdisciplinary innovation** in partnership with IMéRA. According to the the EU Research Advisory Board, the lack of incentives is indeed one of the major barriers to interdisciplinarity (grants being usually allocated by disciplines on a 'cut the cake' principle). IMéRA develops collaborations with a network of IAS abroad such as CRASSH (Centre for Research in the Arts, Social Sciences and Humanities) of Cambridge, the IAS of Jerusalem and the FRIAS in Freiburg, which could be used as examples for interdisciplinarity.

To contribute to the creation and transmission of knowledge and concepts in an international context, A*MIDEX may support research projects within the planned **Institute of Languages, Cultures and Civilizations**. AMU's ambition is to be gradually identified as a center of excellence with international recognition for development of scientific interfaces (linguistics, literatures, cultural areas, neurosciences…) which would establish an international hub of languages, cultures and civilizations research and which would develop an incentive policy for research in these domains.

To contribute to the **internationalization of research diffusion**, A*MIDEX Research Funds could be used to participate in the development of a mutualized translation and digital humanities platform. Such a platform would coordinate research and development on translation actions, automated translation, production and dissemination of works with a specific to digitalization of corpus (images, sounds, texts). Firstly focused on HSS works, this policy could be extended to others disciplines. AMU holds specific expertise in this area as shown with our professional Master of Translation which belongs to the "European Master's in Translation" network, labeled by the European Commission.

5.3.1.2 THREE RESEARCH FUNDS TO DEVELOP EXCELLENCE AND INNOVATION

The development of excellence in research in these 5 thematic areas will be ensured through **three different Research Funds, each with a specific objective**:

- the "Rising Stars" Fund for the most promising young researchers,
- the Emergence & Innovation Fund to encourage breakthrough research projects,
- the Interdisciplinary Fund to foster collaborations between different disciplines.

The "Rising Stars" Fund for the most promising young researchers

An excellent research university should be committed to strongly develop its most promising potentials. Getting access to the highest international recognition requires academic talent but also a supportive environment in terms of international collaboration opportunities, discharges, access to state of the art equipment, international application methodology, extra funding to leverage on younger PhD students, administrative and technical support, etc... It is both a moral duty and a shared interest of AMU's academic community to boost its most promising young scientists so that they fulfill their potential.

The Rising Star Fund will be set in order to promote young academics (5 to 10 years after PhD) with the potential to reach ERC recognition during the critical periods of their scientific career development. This fund will be opened to both internal and external candidates through an international call for proposals. An international and interdisciplinary committee of former ERC laureates will assess applicants on two major criteria: (i) ability to reach ERC level considering his/her academic potential and track record ; (ii) coherence of the applicant's scientific project with AMU's own potential and strategy. Most applications should target AMU's scientific teams/institutes involved in the excellence perimeter in order to increase their potential and ensure the quality of the pull effect.

Individual packages will be endowed to about 5 "rising stars" (one call every two years) for a period of 2 to 3 years. These packages may be coupled with chairs or research fellowships for external candidates and internal incentives for AMU candidates. They consist in funding for PhD or post-doc hiring, coaching by a goldie (see section 5.6), operating costs and access to most recent facilities of the hosting laboratory and others.

The Emergence & Innovation Fund

To reinforce their leadership in their scientific areas, A*MIDEX will be the driving force behind the diffusion of excellence over the site. Therefore a fund will be dedicated to calls for proposals aiming at new emergent and innovative projects that may result in knowledge breakthroughs in order to reinforce AMU's potential. Although research is intrinsically risky, it is often difficult to get adequate funding to launch a new team and/or a new scientific venture with a strongly innovative approach. This paradox may stem from the growing weight of calls for proposals often based on common wisdom and approaches on scientific issues. The selection process may be also responsible as acknowledged track record in the very field of the call for proposals and is a key assessment criterion. AMU is committed to calls for proposals development and to increase the ability of its researchers to apply and succeed in such national and international calls for proposals. But it is also important to fund innovative scientific ventures.

The "Emergence & Innovation" Fund will be set in order to fund such ventures. The fund will launch one call every two years. The jury will be pluridisciplinary and composed of renowned scientific pioneers. Its selection will be based on 3 major criteria: (i) academic potential; (ii) originality of the

approach; (iii) feasibility in AMU's environment (access to the relevant resources in terms of equipment and scientific teams).
The funding will cover operating costs, PhD and post-doc hiring, equipment and/or access to relevant infrastructure (including outside AMU) and potential incentives. A Go/No Go milestone will be set 18 months after the operational start of the project to explore the relevance of the approach.

The Interdisciplinary Fund
Interdisciplinarity appears often to be fruitful but also painful and unnatural to researchers driven by the recognition of their own disciplinary community. Interdisciplinarity is good to hear and talk about, but much harder to achieve actually. It is most often driven by concrete issues that require a complex set of concepts, knowledge and technics to be solved.
The Interdisciplinary Fund will earmark funding for strongly interdisciplinary research projects. The fund will launch a call for proposals every 2 years centered on each of AMU's 5 priorities, but also opened to other disciplines. The jury will be composed of AMU and external scientists renowned for their interdisciplinary achievements. Selection will be based on 4 major criteria: (i) potential of the project in terms of socio-economic impact; (ii) academic track record of involved researchers; (iii) relevance and quality of the project in terms of disciplines combination; and (iv) complementarity with an interdisciplinary training project. On average, 3 projects will be funded every 2 years.

These 3 Research Funds will be under the responsibility of the A*MIDEX Steering Committee who designs and launches calls for proposals with the help of the AMU Research Advisory Board and the RIEX operational unit (see section 5.4). They will follow stringent guidelines in terms of the selection process (see section 5.4.6).

These funds will be supported by a transversal **Talent Management policy** (see section 5.6). A bold Human Resources (HR) policy will be used as a powerful leverage to fulfill the main A*MIDEX challenges. This will consist in an incentive award policy providing the means to attract and keep the best staff on our site by offering bonuses to talented academics in research, but also in education, transfer technology and development of results. Lecturer/researchers, selected by an external committee, may integrate a "local IUF" with equivalent advantages. The same attractive conditions will be applied to the best IATOS (Engineers, Administrators, Technicians, Laborers and Support staff) and ITA (Engineers, Technicians and Administrative support staff).

Research and Innovation			
Indicators	**Baseline 2011**	**Year 4**	**Year 10**
Number of ERC starting grants	7 (2008-2010)	+40%	+100%
Annual volume of ANR and FP contracts	28 M€ (2010)	+20%	+50%
Number of researchers in A+ units	2100 (2011)	+10% (AERES review 2015)	+25%
Number of publications in the 5 priority areas	3323 (2009)	+ 20%	+40%
Proportion of AMU publications in the 10% most cited worldwide (Source : OST)	15.3% (2008)	18%	23%

5.3.2 TRAININGS OF EXCELLENCE, TRAINING FOR EXCELLENCE: THE A*MIDEX EXCELLENCE ACADEMY

The entirety of the proposed training scheme will fit into a strong global and coherent strategy with the ambition of hoisting the site of Aix-Marseille up to the level of the best university centres in the world as far as higher education is concerned (e.g. Oxford University, University of Manchester, Ecole Polytechnique Fédérale de Lausanne, etc.).

A*MIDEX education strategy pursues the following objectives:

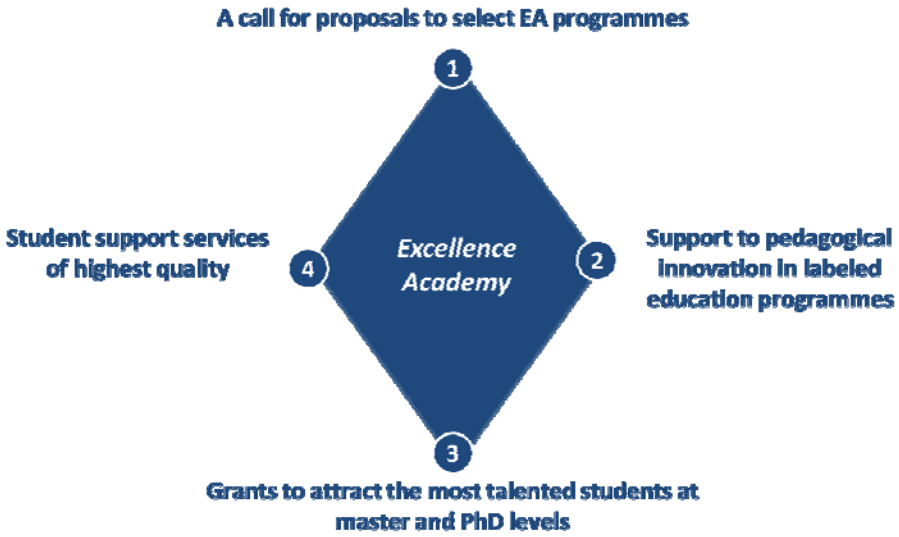
- Promoting the attractiveness of AMU graduate education both internationally and among employers
- Supporting young talents with high potential in building their professional career in the academic or non-academic sphere
- Developing a true culture of academic pedagogical quality by mixing pedagogical practices and encouraging original pedagogical projects; thus developing autonomy, curiosity and creativity among students.

To reach these objectives A*MIDEX will create an Excellence Academy endowed with a specific fund, which concentrates all Idex funding for education. The Excellence Academy will lead the way towards innovation and quality and inspire AMU education strategy. It will be coherent with our Idefi projet presented in a separate proposal.

General ambition of the Excellence Academy

The Excellence Academy aims at combining advantages of the *Grandes Écoles* and Universities. It will bring together a rigorous selectivity, a research-based pedagogy, world class support to students, interdisciplinary curricula, strong connexions with the business community and international visibility. Based on AMU's best and most innovative programs, it will be both a label of excellence promoted at international level and a framework structure coordinating additional services and grants for its students. The model of the Dahlem Research School at *Freie Universität* Berlin can be quoted as an example for such type of organization, although the latter focuses exclusively on PhD programs.

An attractive label based on a stringent pedagogical Chart



Academy perimeter

The Academy will focus strongly on graduate and postgraduate education. However, a limited number of undergraduate programs will also be included in order to compete with *classes prépa - grandes écoles* curricula and attract high potential students. Our target at four years is to label 5 bachelor programmes representing 400 students, 15 master programmes representing 600 students and 8 doctoral schools. At PhD level, given the number and diversity of students within labelled doctoral schools, the Excellence Academy's service offer will be concentrated on the best students (those who have obtained a full time PhD grant). This will represent a total 1500 PhD students by 2016.

Master and PhD programmes will be backed by recognized labs of the LABEX or similar type representing the 5 thematic areas of the A*MIDEX project. All programmes are selected by the A*MIDEX Steering Committee following the advice of an Academic Committee (see below). To be eligible, programs have to obtain an A+ grade in national AERES evaluation. Decisions on labelling will be based on the compliance with a "degrees of excellence quality charter" that will be based on the following criteria:

- Coherence with the five A*MIDEX priorities
- A high selectivity rate; rigorous selection procedures including paper based applications and at least one personal interview
- Strong international ambition based on academic partnerships and international recruitments of students and faculty. To encourage students for future international careers, the Academy classes will have to generalize teachings in English language as much as possible when their main branch lends itself to it.
- Innovative and research-based pedagogy of highest quality
- Interdisciplinarity of the teaching offer
- Socio-economic outreach: partnerships with business community and internship opportunities offered to students
- For PhD programmes: respect of EUA recommendations on doctoral education, in particular supervision of theses by an advisory committee, in coherence with the quality charter of our PhD collegium

EA's programs will be progressively upgraded in order to reach international standards in all aspects thanks to extra funding for innovation, complementary services, specific grants and rigorous management and evaluation (see below).

Missions and tools of the Academy

The operational activities of the Excellence Academy will concern both the labelled education programs and their individual students and teaching researchers. Firstly, it will foster the **upgrading of the degrees of excellence** on all points of the EA charter, in particular through:

- Support to pedagogical innovation: EA programmes will in particular have a pioneering role in the generalisation of ICT use for pedagogical innovation.[9]
- Promotion of the EA label at international level and towards business community
- Support to the development of international dual degrees and exchange programmes
- Monitoring and quality assurance within the EA perimeter coordinated by EA staff and based on regular external evaluation

Secondly, the Academy will provide **exclusive support services for students** within EA degrees:

- Master classes and residential seminars with internationally renowned researchers: The Academy will organize in-depth seminars of one or two weeks at PhD level and shorter seminars of one or two days at Masters Levels. These seminars will provide advanced students with the opportunity to exchange ideas with exceptional researchers, to strengthen their professional network and, if necessary, prepare their post-doctorate stays abroad. Such dispositions will be fixed with, as partners, scientific Societies of the fields concerned. In that same structure another privileged partnership will be considered with our on-site Institut Méditerranéen de Recherches Avancées (IMéRA) which takes, as residents for several months, researchers of international fame (with the Centre International des Rencontres Mathématiques (CIRM) for mathematicians). As IMéRA has a solid cross-disciplinary vocation and a practice of dialogue between "hard" sciences and human sciences, such collaboration with the Academy of Excellence could reveal itself as particularly interesting.
- Mentoring: the Academy's mentoring program will bring together experienced researchers and professionals as mentors on the one hand and promising students or young researchers on the other. This will benefit to both parties by providing individual career support to mentees and an opportunity to develop coaching and leadership skills for mentors.
- Career development: Conventional academic systems in France use to produce good students graduated in a specific discipline and endowed with formal knowledge. They are not immediately adapted to the socio-economic employment demand. To tackle this challenge the Academy will help our most promising talents to build their own career and develop the necessary transferable, professional skills. This will be done through exclusive internship offers and individual career counselling. Moreover, EA students will have access to privileged circles (at the image of clubs already existing on the site) giving them the possibility to have easy contacts with people representing the enterprises most in sight in their field.

Thirdly, the Academy will allocate **merit based grants at both Master and PhD level:**

[9] Generalization and the supervision of the TICE use: It will mainly have to develop numerical banks of lectures submitted to validated qualitative norms, to allow the access to forum and chat structures as well as to multiply the possibilities of teaching sessions at a distance internationally. Quantitatively, the site aims at digitizing 30% of lectures during the first four years of the A*MIDEX period; that significant growth will be associated with a reinforcement of the students accompaniment in the use of TICE and e-learning.

- Master mobility grants to strengthen outbound mobility: These grants will be allocated to a selection of 100 students within EA Master programs. Students who study abroad will be supported throughout the duration of their stay at the foreign university with total of 5000 EUR per year. This will enable us to enhance the international experience and network of AMU's top young talents.
- Master grants for international students to strengthen inbound mobility: These grants will be allocated to top foreign students who come to study in EA programmes. Students will be supported throughout their studies within EA degrees with total of 5000 EUR per year. Bringing their experience from home universities, these students will contribute to enhance diversity and quality of education in the EA degrees.
- PhD grants to further strengthen the international attractiveness of our doctoral education and strengthen autonomy of PhD students: Each year, AMU and A*MIDEX partners are offering about 150 grants (about 12 M€) after severe selection. Local authority (CR PACA) recruits for us 116 grants a year (8.1 M€) with almost the same criteria of selection and favouring collaborative projects with public and private institutions. Together with external resources coming from our ANR contracts, EC contracts, industry, private foundations, etc. the AMU site delivers about 500 grants each year. Thus, about 1500 students of 4000 are paid by AMU and its partners during their PhD studies. Moreover, numerous students in literature, language, social sciences, law, management, economy (SHS field) use to occupy a professional position with appointed salary, and are increasing the number of financed PhD students. To further strengthen this attractive environment for doctoral studies, AMU intends to improve the quality of its recruitment. A specific A*MIDEX grant will enable us to attract the best international PhD students to our site, offering them a 33 000 EUR grant per year and significant welcome bonuses in our best laboratories.

All grant holders will be selected each year by a recruitment committee bringing together Academy staff and teaching researchers of the concerned subject field. Grants for international students will preferably be oriented to students of external institutions with which the academy trainings have developed a partnership. Calls for applications will be published internationally. They will be integrated in the Academy's international communication strategy to strengthen our visibility for top talents who are generally more aware of renowned Anglo-Saxon universities where they tend to apply at "graduate" level.

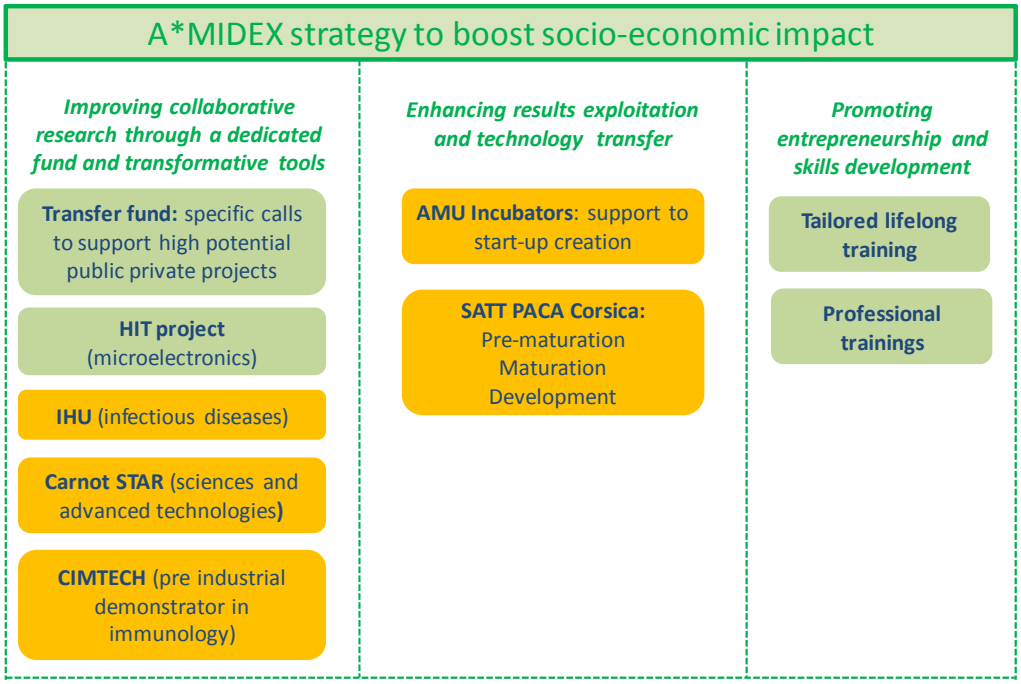
Management and organization of the Academy

The Excellence Academy will be headed by a Director who is accountable to the A*MIDEX Executive VP. Under the supervision of the director, the activities of the Academy will be implemented by an operational unit, which will be staffed with 10 FTEs bringing together the necessary skills to exercise the missions described below. The Academy requires the constitution of an Academic Committee that will regroup eminent international researchers and teaching-researchers, successful alumni and business leaders. The Academic Committee advises the A*MIDEX Steering Committee and the Excellence Academy on strategic matters, such as the elaboration of the EA charter, the selection of the degrees of excellence and the creation of new services for students and labelled programmes.

Excellence Academy			
Indicators	**Baseline 2011**	**Year 4**	**Year 10**
Selectivity rate at entry of degrees of excellence	*Non applicable*	30%	20%
Selectivity rate for EA grants at Bachelor and Master level	*NA*	10%	8%
Selectivity rate for EA grants at PhD level	*NA*	5%	4%
Overall % of international students in degrees of excellence at Bachelor and Master level	*NA*	35%	50%
Number of students in Erasmus Mundus programmes (total AMU perimeter, average number per year)	75	+30%	+60%
Number of master degrees evaluated A+/A by AERES (total AMU perimeter)	54	+5% (in 2015 AERES review)	+ 10%
Study to work transition of graduates from EA degrees: salary at entry, position, nature of employer, etc.	*Indicator to be developed in consistency with current AMU standards*		

5.3.3 EXPLOITATION AND SOCIO-ECONOMIC PARTNERSHIPS

At the PACA region level there is a complete support system for partner research, technology transfer and business creation (see section 5.2.1). There is however still plenty of room for reinforcing our links with the economic world. Our turnover is not large enough, the number of industrial contracts have to be increased as well as the development of results.
AMU and A*MIDEX partners have structured their socio-economic strategy by combining the different instruments as follows:



5.3.3.1 ABOUT OUR SOCIO-ECONOMIC PARTNERSHIPS

Our socio-economic partnerships rely on joint research projects, professional curricula and a new and "tailored" approach lifelong training.

Research and innovation

The stages 1 and 2 based on the raising of public or private funds for basic or applied research are well evaluated as attested by the financial volume of 2010 ANR (**23.1 M€**), 2007-2011 running FP7 (**20 M€**) and 2010 industrials (**18 M€**) contracts. In ANR and European contract there are also many industry partners involved.

Let us remind only few prestigious partners since details of collaboration are already produced in each Labex and other IA proposals from our site.

For the 5 priority areas we have particularly strong collaborations with the following partners:

- Energy: ARKEMA, SOLVIN SA, Henkel, Bruker… ;
- Sciences & Advanced Technologies: PSA (Peugeot) group, Oxylane (Decathlon) group, ST Microelectronics, Gemalto, STS Group…;
- Health & Life sciences: Innate Pharma, Sanofi/Aventis, AAA Company, Ipsen group…

They provide us with funds through collaborative research conventions in the form of joint units or endowed chairs. We are currently developing common joint international research units with industrials (for example the PSA OPEN LAB with China and other French regional sites). It is worth to mention that these companies help us in the fund leverage for our University foundation (eg. the Decathlon/Oxylane endowed chair and the STS chair). A Eurocopter/AMU joint research team has recently been agreed. A common pooled industrial/research and teaching mechanical platform has been created and financially supported by companies, local bodies and academics. This platform is bedrock for research in Mechanics of advanced materials used in aeronautics.

Moreover, within the IA program in a dedicated call for proposals towards the digital economy development (Caisse des Dépôts), AMU is participating in several industrial projects on digital technologies and security (with the STS group), on a software to develop for biomedical imaging, on E-Health and on E-Education. Our university has also submitted the Industrial demonstrator "CIMTECH" with Innate-Pharma as industrial partner in the 2nd round and participating at the IEED "France Energies Marines" which will be submitted again.

A set of high quality professional curricula: the IUT and the AMU Engineering School

Our connection with the economic sphere is not restricted to research and exploitation. We intend to play our key role in professional lifelong teaching by increasing our potential with to planned mergers.

AMU has one of the best IUT (University Institute of Technology) in France, focused on professional teaching at the technician level, which is a constant need of industry in France. The merger of our three IUT is planned and will be completed by 2013. AMU will cover almost all technician curriculums with an excellent professional insertion (more than 3 400 bachelors graduated technicians per year). Most of the lectures are shared out with experts coming from industry, facilitating also students' internships and employment. Another project (see section 5.1.4) is the merger of our two high -education- graduate engineering schools. This merger, planned in the late 2012 roadmap, will result in the biggest University Polytechnical Engineering School in France, with about 320 master Engineers (*Ingénieurs Grande École*) graduating each year, and excellent professional insertion rates, answering to the needs of companies for high-level qualified staff.

A new and tailored approach to lifelong training

Known for its continuous graduating training, which will position it as one of the national leading universities, AMU is developing the "SUFA Entreprise" service[10], specially dedicated to the continuing training of the private sector staff. The objective of this service is to adapt trainings and structures to the constraints of professional people. It is equipped with a HR cell studying, inside the enterprise, the career development of its fellow workers. The university resources are then mobilised to answer the identified needs. This is done in the form of an evaluation of competencies (Evaluation Centre approved by official organisms such as FONGECIF, Uniformation, ANFH, UNIFAF), of collective VAE (Validation des Acquis de l'Expérience) in the enterprise (working inside and between enterprises on the enterprise premises), on specific graduating trainings and short professional trainings exclusively open to a FC (Formation Continue) public. Our modular trainings will deliver knowledge and competency for the entitled degrees, and thereby give a right to ECTS credits. Our professional students will therefore have access to degrees by capitalization of ECTS and validation of their acquired professional competencies.

On example is the training of Qataris fighter pilots: the training combining acquired experience, internships and short trainings is aimed at getting a University Degree in aeronautics and a Bachelor Degree in Maintenance of Aeronautic Pluritechnical Systems (state aircraft course, fighter plane) delivered by AMU's IUT in Aix-en-Provence.

5.3.3.2 EXPLOITATION OF RESULTS: THE SATT

The SATT (Technology Transfer Acceleration Company) PACA Corsica has been one of the 5 selected projects in the PIA call for proposals. It gathers 10 shareholders, the 5 PACA and Corsica Universities, the École Centrale of Marseille, the CNRS and the Inserm, representing 5,720 public researchers, and a 2008 DIRDA (domestic R&D expenditure) of 593 M€. Two types of partners are also involved:

- The AP-HM (government health care - Hospitals of Marseilles) as well as the Nice CHU (University and research associated Hospital) are both historical partners of ValorPACA. Their legal status does not allow them to be shareholders of the SATT, but they represent a potential of 292 non-university hospital practitioners working in research. They will be founding partners of SATT and make the same commitments as the other shareholders. They will benefit from the same level of support from SATT for their technology transfer activities.
- Research organizations such as INRIA, INRA, IFSTTAR, IRD, and ENSAM (through Arts et Métiers ParisTech and the Institut Carnot ARTS) are not part to the SATT capital they will provide expertise and project guidance and will be able to benefit, under certain conditions, from the SATT development activities.

Projects within the SATT will follow the following processes: they will go through a detection phase which will lead to declarations of invention from researchers, then if relevant, to filing a priority patent application and by the PCT extension of the patent accompanied by a pre-development phase.

After pre-development, either the transfer process goes through licensing without development or the project will enter into phase-1 development (standard) followed by phase-2 development for high-potential projects and, for certain projects developed through start-up creations, by a 3rd phase of market development.

[10] http://www.univmed.fr/fr/sufa/SUFAEntreprise

Considering the operational skills existing in the SATT at the time of its creation (January 2012), priorities in terms of detection in the next year will aim at the research teams involved in the following 3 priority thematic domains: **Oncology**, **Environment** and **Multimedia**. This will be done in partnership with competitiveness clusters such as Eurobiomed for Oncology, competitiveness clusters such as Capenergies, Risks and Water for Environment, and SCS for Multimedia. During the second year, the SATT human resources increase will allow for an investigation of 3 other priority domains: **Infectiology** (in coordination with the IHU "Méditerranée Infection"), **Energy** and **Secure Communications**.

The SATT's objectives follow an exponential progression as follows:

	First 4 years	Beyond year 4
Number of patents	90	90 per year
Revenues coming from licensing	800k€	12,000k€ per year
Number of granted licenses	25	37 per year
Number of new start ups created	12	12 per year
New jobs creation	145	2,500 after 10 years

5.3.3.3 A*MIDEX ACTIONS: THE HIT AND THE TRANSFER FUND

A*MIDEX has to overcome several challenges:

- Increase the turnover and number of joint common research with private companies.
- Encourage the creation of spin-offs and start-ups to exploit the results of our research teams. Of particular importance is the support to AMU and its partners' incubator to protect intellectual property.

The « House of Innovation and Technology » (HIT)

Challenges and objectives

The "digital revolution" has brought about new uses of technology providing opportunities to enhance life quality and create new life styles. However, this booming digital and virtual world also creates new risks and threats: computer system abuse, viruses and other forms of attack creating threats to our privacy and corporate images. These threats give rise to trust and acceptance issues making security a strategic challenge for public and private sector organizations as well as individuals. Our research units already play a substantial role in this extremely innovative and lucrative field. In close cooperation with leading private companies, they develop world class expertise. However, the complexity of the challenges we are facing calls for a further integration of academic and industrial expertise in the field of security and trust for mobile communication devices.

The creation of the House of Innovation and Technology responds to this need for further integration. It will strengthen collaborative public and private R&D efforts by concentrating in a single location €100 M worth scientific equipment and about a hundred project related research positions. The 5000 sqm HIT building is provided by the *Communauté d'agglomération du pays d'Aix*

as an emphyteutic lease. This concentration of means and talents will enable us to promote the following objectives:

- Increase critical mass and international leadership alongside initiatives such as the Information Security research center at AIST Tsukuba (Japan), ITRI Taiwan and the Fraunhofer Institutes of Secure Information Technologies in Germany;
- Create new business opportunities and strengthen the market position of stakeholders within the base level technological resources sector;
- Foster innovative research and development by bringing together private and public actors covering the entire value chain of knowledge and a variety of disciplines.
- Provide specialised training for engineers at highest level
- Financial balance of expenditure and income is based on 1/3 from R&D subsidies, 1/3 from the valuation of results and 1/3 from contracts with industry partners. The HIT aims to create 700 to 1000 direct jobs over 10 years (2000 indirect jobs), file 30 to 50 patents per year as an established rate, and create 10 to 20 start-ups over 10 years.

Scientific potential

The HIT project will build upon the scientific and technological potential of one of the major European clusters in the field of security and trust for wireless communication. The international competitiveness cluster “Secured Communicating Solutions” has accredited more than 30 financed projects, representing more than 200 M€ in R&D costs, involving over 800 researchers per year for the duration of the projects. HIT will benefit from the experience of our three existing technological platforms, which are labelled by the French ministry of industry and which are already bringing together public and private researchers in this field (“Digital”, “Characterization” and “Micropackaging & Security” platforms forming the academic –industrial CIMPACA network; the platforms are described in detail in section 5.3.1).

The project brings together the following partners:

- Academic partners: AMU, École Centrale de Marseille, Institut Supérieur d’Electronique et du Numérique, Ecole Nationale des Mines - Centre Charpak de Gardanne, French National Research Centre (CNRS)
- Industrial partners: STMicroelectronics, Gemalto, InsideSecure
- The regional trade association for the microelectronics and semiconductor activities (ARCSIS) which has managed CIM PACA network (Integrated Microelectronics Center) since 2005
- The National interest group for coordination of training in micro- and nano-electronics (CNFM)

Moreover, HIT will be supported by the pending Labex projects PHELS, Archimède and Serenade, whose research teams have a worldwide reputation in the areas of security for digital nomads, the integration of basic building blocks into solutions that address the pressing security needs of new uses/applications, confidence building and data protection.

Research and education strategy

HIT will focus on two major research areas. There is a huge innovation potential in these two areas and in the exploitation of synergies between them:

- *"Hardware Security":* This research area focuses on the architecture and design of circuits and secure sub-systems, the control of hardware used in components and algorithms for biometric applications and in the field of contactless technology. It will also deal with hardware and software cryptography – testing against attacks and countermeasures – the validation and certification of new standards – security and trust added to a generic system;
- *"Applications and Uses":* This area focuses on the analysis of new uses and the associated risks. New architectures also need to be developed, integrating and experimenting solutions across a wide range of key areas. The level of protection of new products and systems must be assessed as well as the robustness and the possible countermeasures. Finally, other

issues will be addressed: selection factors of users – energy independence – generic solutions – adaptation between risks, security and costs.

The interdisciplinary research conducted at HIT will also impact on the 4 other A*MIDEX priority areas.
Drawing from its excellence in technological research, HIT will develop cutting edge training programs for engineers. The focus of this training offer will lie on executive education. However, researchers at HIT will also be involved in teaching, particularly within Master programs labeled by the Excellence Academy within related subject fields. Moreover, HIT researchers will closely collaborate with our doctoral schools in the sector.

Actions and means
The total budget of the HIT project will be 11,4M€ per year. This budget is split up as follows:

- One third will account for the HIT's running costs (building, maintenance of scientific equipment, support staff for the management of the equipment, etc.) allocated on the basis of contract agreements with A*MIDEX and the other partners;
- Two third will be allocated to collaborative research projects on the basis of calls for projects.

Two types of scientific projects will be financed by the HIT fund:

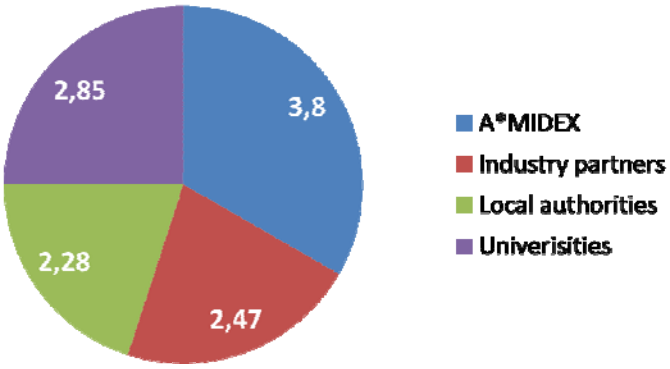
- Strategic collaborative projects with an average duration of 3 years and a budget of up to 5 M EUR;
- Smaller actions with a budget of 200k€ to 300k€ focused on SMEs to facilitate their access to scientific equipment and expertise.

All projects will be selected on the basis of a call for proposals by a selection committee composed of external academics and socio-economic experts. The main criteria for the selection will be (i) the research and innovation ambition of the project, (ii) a significant financial and HR commitment from the private partners and (iii) the transfer potential and the socio-economic impacts envisaged. To establish the juries selecting HIT research projects, we can draw from a large pool of experts who have participated in the expert committees of the SCS regional competiveness cluster.

Project budgets will be composed as follows:

- *Human resources:* 70% of the allocated funds will be dedicated to the recruitment of new staff. This includes technological support personnel on the one hand and top researchers at all stages of career on the other. All recruitments will follow the same procedures as those described for A*MIDEX contract personnel (see section 5.4.6).
- *Equipment:* 20% of project budgets will be dedicated to investments scientific and technological equipment. This will enable us to provide HIT researchers and their partners with working conditions of highest international standard.
- *Operational costs*: 10% of project budgets will be dedicated to operational costs.

The graphic below shows the annual financial contributions of the HIT partners (in M€):



Organization and governance

HIT will be governed by a board representing its main investors. It will be headed by A*MIDEX Executive VP or a person he/she appoints to represent him/her. The board will be composed of the following members:

- Two representatives of AMU (one of AMU Presidency and one of A*MIDEX)
- One representative of the CNRS
- Three representative of the major industrial partners, one for each partner: STMicroelectronics, Gemalto, InsideSecure
- One representative of the associated professional unions
- One representative of the international competitiveness cluster "Secured Communicating Solutions")
- One representative of a local authorities (*Communauté du Pays d'Aix*)

The board will be responsible for the following tasks:

- Approving the annual HIT budget
- Approving agreements between HIT and external partners
- Approving the calls for scientific projects

The HIT director will coordinate the operational management of the House. He reports directly to the board. His main tasks are:

- Publishing the calls for projects and adopting the contract agreements with the selected projects
- Coordinating the monitoring and evaluation of funded projects
- Supervising HIT support staff (9FTEs)

The Transfer Fund

Several high-level reports have underlined the relative deficit in France of R&D investment in the private sector and public-private research projects in comparison to the situation in other OECD countries. Developing joint research programs in this respect is both a crucial stake for the economic growth and sustainable development of the country and a major challenge for academics and private actors. While AMU and A*MIDEX partners already have a significant achievements in this field (see section 5.2.1), A*MIDEX will strive to boost their relationships with the private sector so as to maximize the impact of public research on economic development and innovation.

The Transfer Fund will focus in this context on joint public-private research projects, acting in this respect as a complementary instrument to the already labeled SATT, which concentrates on technology transfer (maturation and development). It will act as a powerful leverage to mobilize and attract external research funding from the private sector in order to launch innovative research and innovation projects.

These projects will be selected on the basis of a call for proposals by a selection committee composed of external academics and socio-economic experts. The main criteria for the selection will be (i) the research and innovation ambition of the project, (ii) a significant financial and HR commitment from the private partners and (iii) the transfer potential and the socio-economic impacts envisaged.

Up to three research projects will be funded through a call launched every two years, with an average duration between two and four years. The funding will mainly cover operating and travel costs, PhD and post-doc recruitment as well as access and use of research facilities either in Aix-Marseille or elsewhere.

Beyond its immediate research and innovation impact, this Public-private Research Fund is meant to help reinforce collaborations between public and private researchers. Therefore this fund will not only serve to attract additional funding from the private sector, but it is also conceived as a transformative instrument to deepen the relations between the academic and the private sector as a whole, with expected benefits on technology transfer and even teaching programs and students job-to-work transition in the long term.

Exploitation and socio-economic partnerships			
Indicators	**Baseline 2011**	**Year 4**	**Year 10**
Annual volume of industry contracts	18 M€ (2010)	+15%	+50%
Annual turnover of lifelong learning for industry	2 M€	+100%	+300%
Number of projects matured under incubator/AMU responsibility per year	12	+20 projects	+ 40 projects
Number of preindustrial demonstrators created	*NA*	1 in 2012, 2 in year 4	4 in year 10
Number of patents submitted per year*	41 (average 2009/10)	90	90
Number of licenses conceded per year*	8 (2010)	25	37
Licensing benefits per year*	400 k€ (2010)	800 k€	12 000 k€
Total number of start-ups created*	5 (2010)	12	72
Number of new jobs created (through start-ups and/or licensing)*	*NA*	160	2800

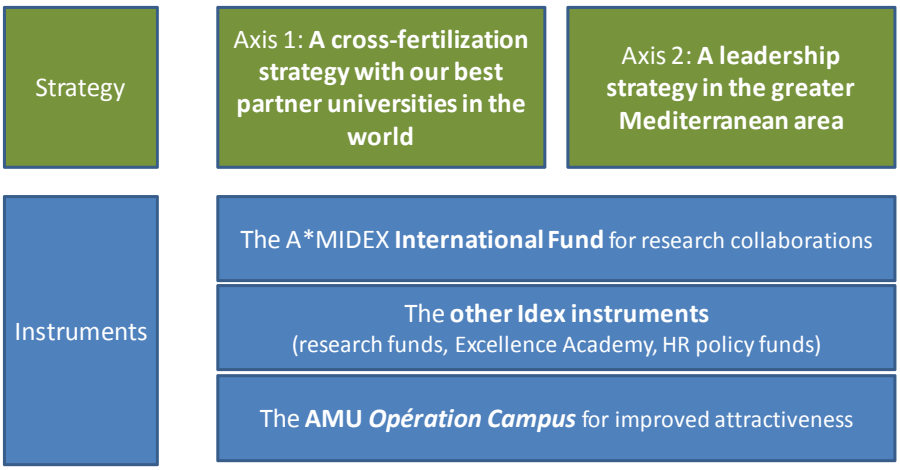
* Indicators applying to the perimeter of the SATT project, incl. the HIT project

5.3.4 Mainstreaming Internationalization through a dual strategy

The A*MIDEX dual strategy for internationalization aims at improving the role of AMU as a world-class attractive and influential university. It relies on two parallel axes:

- **Axis 1: A cross-fertilization strategy with our best partner universities** in the world, in order to widen the disciplinary scope of our collaborations;
- **Axis 2: A leadership strategy in the greater Mediterranean** area, in order to develop networks and collaborations with the best European and Mediterranean universities in our priority areas.

This dual strategy will be implemented through a dedicated **International Fund** for international research projects, and the current ***Opération Campus***, which will upgrade the quality of life and attractiveness of our campuses and facilities.



5.3.4.1 A DUAL INTERNATIONALIZATION: COUPLING AN INTERNATIONAL AMBITION WITH A EURO-MEDITERRANEAN IDENTITY

Axis 1: From a Euro-Mediterranean identity to the "Knowledge Capital of Southern Europe"

The history and geographic position of Aix-Marseille have contributed to build up a culture of openness, turned towards the South, making us a European bridgehead in the Mediterranean area. This culture has a strong influence on AMU's as well as on other A*MIDEX's partners orientations. Aix-Marseille University is already in the top 3 of Euro-Mediterranean universities, at the same level as the two best Italian Universities (Pisa and Roma).

We have designed A*MIDEX as an instrument to strengthen our influence in the Mediterranean, thanks to the increasing of cooperation, the development of research projects with southern Universities and the implementation of original and promising partnerships supporting our global strategy for excellence. That makes the ambition to become the knowledge capital of Southern Europe perfectly realistic and achievable.

Our current Mediterranean leadership - Our leadership in the Mediterranean area can be demonstrated through our active and recognized participation in major projects and networks, such as:

- **The Euro-Mediterranean University Tethys** is a network created in 2000 to develop higher education and research cooperation among Mediterranean countries. It now gathers 34 universities and more than 40 associated partners. AMU has been a leader of Tethys since its very beginning, especially in the development of courses (Tempus), North-South mobility (Erasmus Mundus), laboratories networking (e.g. Mediterranean Neurosciences Network), and the Strategic Aid to Southern Mediterranean Countries (FP7).
- **The Maison Méditerranéenne des Sciences de l'Homme (MMSH)** is a research and education campus in humanities and social sciences, recognized as one of the key players for research on Mediterranean studies. It gathers 10 laboratories, a Doctoral School and several education units. Its transversal research programs and technical competences centers aim at facilitating active and concrete interdisciplinarity in social sciences. It carries out the implementation of European and International programs in Mediterranean studies. The selected LabexMed and its involvement in MISTRALS (see below) should reinforce its position as one of the best research centers on Mediterranean in the world.
- **The Institute for Advanced Studies IMéRA** (CNRS/AMU) offers residency programs for high-

level international researchers, both senior and junior, from all disciplines. It provides them with an opportunity to carry out research requiring several months of freedom from administrative or teaching duties, and strengthen ties with research and higher education centers in the region. This institute is opened to all scientific disciplines as well as to literature and artistic creation. Another originality of IMéRA is its particular focus on researchers from the Mediterranean area.

- **The MISTRALS project (Mediterranean Integrated STudies at Regional And Local Scales)** is a decennial interdisciplinary program initiated in 2008 and aiming at anticipating the behaviour of the Mediterranean environmental system over a century. It should therefore help predicting the evolution of habitable conditions and proposing policies and adaptive measures that would mitigate and optimize them for sustainable development. MISTRALS is managed by the CNRS and IRD and involves now more than 1,000 scientists from almost all countries around the Mediterranean and Europe AMU holds a strategic position in MISTRALS as co-leader of 3 of its 7 thematic programs (oceanography, biodiversity, paleotonlogy) and strong contributor to the Homere program on migrations.
- **The UPM project on infectious and tropical diseases -** Marseille is the French leader in scientific output on infectious and tropical diseases and as develop strong collaborations with other Mediterranean universities, most notably with the creation of the RTRS Infectiopôle Sud. This cooperation has led to the emergence of new teams (e.g. an IRD research unit in Algeria) and an increase attractiveness of our education (one Master students in three in this field at AMU comes from Southern countries). The « Union for the Mediterranean Sea » (UPM) is planning to associate the selected IHU "Méditerranée Infection" and the IRT LyonBio Tech, to work on the identification of infections around the Mediterranean Sea and the development of proximity diagnosis through new molecular techniques. This project is a true asset to strengthen and enlarge AMU leadership on infectious diseases.

A two-track Mediterranean strategy: developing strong links with the best Mediterranean universities and improving our leadership position in the structuring academic networks in the Mediterranean

Our first Euro-Mediterranean track aims at developing strong links with the best Mediterranean universities in our priority areas in order to reinforce our influence in Europe and the Mediterranean area (see table below). Within the next four years, we expect support thematic connections thanks to the International Fund so as to be able to identify 2 to 3 Mediterranean universities with which to engage in a more institutionalized cooperation agreements. These agreements will help boost the number of visiting researchers/lecturers and joint research projects as well as student exchanges and joint degrees. They will therefore position AMU at the centre of a densely knitted network of the best Euro-Mediterranean universities.

A*MIDEX priority areas	Country	Partners	2011 Ranking (ARWU)
All 5 priority areas	Israël	The Hebrew University of Jerusalem	57th
Health and Life Sciences Sciences and Advanced Technologies Societies, Cultures and Exchanges	Israël	Tel Aviv University	102-150th
Energy Sciences and Advanced Technologies	Israël	Technion Israel Institute of Technology	102-150th

Energy Sciences and Advanced Technologies	Israël	Weizmann Institute of Science	102-150th
All 5 priority areas	Italy	University of Roma – La Sapienza	102-150th
All 5 priority areas	Italy	University of Pisa	102-150th
Health and Life Sciences Sciences and Advanced Technologies Societies, Cultures and Exchanges	Italy	University of Milan	151-200th
Energy Health and Life Sciences	Italy	University of Bologna	201-300th
All 5 priority areas	Spain	University of Barcelona	201-300th
All 5 priority areas	Spain	Autonomous University of Madrid	201-300th

The second track of our Mediterranean strategy relies on our driving position in the Tethys project (34 universities and 40 associated partners since 2000) and the MISTRALS decennial project (Mediterranean Integrated Studies at Regional and Local Scales, launched in 2008), as well as on the selected Labex on the Mediterranean. Our priorities in these projects will be focused on Environment, Planet and Universe (oceanography, biodiversity, paleontology), Societies, cultures and exchanges (migrations) and Health and Life Sciences (infectious and tropical diseases).

Axis 2: A cross-fertilization strategy with our best partner universities in the world

The recent creation of AMU has given us the size and academic breadth necessary to achieve international visibility and impact. Today, we consider the Idex is a true opportunity to develop strategic international alliances and implement a mainstreaming approach of internationalization, with the objective of strengthening our position as a leading and visible international university.
Focus will be on international collaborations that support A*MIDEX priorities and result in added value. We will therefore emphasize reciprocity and international interaction (i.e. in and out mobility) with our most prestigious partners, with 3 main objectives in mind:

1. Generating knowledge in research in collaboration with international partners;
2. Attracting and recruiting international talents at all levels;
3. Developing students' international competences.

Prioritizing our world-leading partners -Geographically, this strategic axis will develop the existing collaborations with institutions mainly in North America and Europe. The university will also focus on cooperations with leading Chinese universities, which have made massive investments in research and education in recent years in the context of a dynamic economic growth.
In order to strengthen our international dimension in depth as well as breadth, we have realized a benchmarking among the hundred existing partnerships and agreements we have with foreign universities. We have selected a few prestigious and promising ones. This selection is based upon several criteria: an existing agreement and sustainable collaboration, the perspectives of future developments in A*MIDEX areas of excellence (research and higher education), a top ranking in ARWU and Times Higher Education.

Current collaboration / Perspectives of cooperation in A*MIDEX	**Geographic zone**	**University**	**2011 Rankings (ARWU and THE)**
Medical School (research partnerships and students exchange in immunology)/ **Health and Life Sciences**	**USA**	Harvard	ARWU : 1st THE : 1st

Students exchange (English and management)/ **Project under way of joint international unit (through CNRS and CINaM) in Physics & Materials + Labex ICoME2**	**USA**	MIT	ARWU : 3rd THE : 3rd
Sciences, Mathematics and Medicine (research partnerships)/ **Sciences and Advanced Technologies, Health and Life Sciences**	**USA**	University of Columbia	ARWU : 8th THE : 18th
Students and PhDs exchange (APA[11]), Teachers exchange (Humanities, English, management)/ **Societies and Cross-cultural exchanges**	**USA**	University of Michigan	ARWU : 22d THE : 15th
Students and PhDs exchange (APA), Teachers exchange (Humanities, English, management)/ **project under way of collaboration with the Medical School**	**USA**	University of Wisconsin - Madison	ARWU : 19th THE : 43rd
AMU framework agreement/ **5 excellence research areas and Academy of Excellence**	**USA**	University of California, Davis	ARWU : 48th THE : 54th
Students stays and Teaching assistants exchange (English, humanities, neurosciences)/ **Health and Life Sciences, Societies and Cross-cultural exchanges**	**USA**	University of Vanderbilt	ARWU : 52d THE : 51st
Students exchange agreement in biomedical engineering (ESIL)/ **Sciences and Advanced Technologies**	**USA**	Texas A & M University	ARWU : 100th THE : 137th
Students exchange (CREPUQ)/ **5 excellence research areas and Academy of Excellence**	**Canada**	McGill University	ARWU : 64th THE : 35th
Convention with Oxford French House/ **Societies and Cross-cultural exchanges**	**United Kingdom**	University of Oxford	ARWU : 10th THE : 6th
Students exchange (ERASMUS) in sciences of sports/ **5 excellence research areas and Academy of Excellence**	**United Kingdom**	University of Manchester	38th
Students exchange (PhD track)/ **Sciences and Advanced Technologies**	**Germany**	University of Munich	54th
Research partnerships/ **Sciences and Advanced Technologies**	**Switzerland**	Swiss Federal Institute of Technology Zurich (ETH)	23rd

Our cross-fertilization strategy with our best partners will rely on current projects under implementation, such as the upcoming joint research unit with the MIT on "Multiscale Materials for Energy and Environmental applications", the PhD Track in NanoSciences with the *Technische Universität München* or our joint program in immunology with the Harvard Medical School (which was launched in 2009). The International Fund is precisely meant to foster the creation of comparable projects in our 5 priority areas with our most prestigious and promising partners in North America, Europe and Asia. We will develop relations with the American MITEI (MIT Energy Initiative) and A*MIDEX through the "Cap Energie" competitiveness cluster on our site in order to create a future international IEED.

Concerning China, A*MIDEX will especially target the Universities of Tsinghua (law and political sciences), Jiao Tong (medicine, including a project with IHU "Méditerranée Infection")and Shenzhen (Open Lab under creation with Peugeot Automobiles Societé PSA, in sciences of sports and movement). We are also developing collaborations in Nanosciences, Biotechnology and Computer Sciences with Japan and Vietnam (through the new Université Scientifique et Technologique de Hanoi - USTH).

[11] APA: Academic Program in Aix: consortium of the Universities of Wisconsin-Madison, Michigan and (more recently) Indiana, developing exchange programs since 1961.

5.3.4.2 OUR MAINSTREAMING INSTRUMENTS FOR INTERNATIONALIZATION

AMU and its partners will plan out a range of actions together with each one of these world and Mediterranean universities, in order to sustain mutual progress and meaningful collaborations along our two international strategic priorities.
Since the most fruitful and sustainable institutional agreements often come from a "lab 2 lab" or "researcher 2 researcher" free collaborations, we have designed concrete and targeted tools to stimulate the emergence of international initiatives:

- The A*MIDEX **International Fund** for research collaborations,
- The **other A*MIDEX instruments** that concur to international cooperation,
- AMU ***Opération Campus***.

The International Fund

The A*MIDEX International Fund will allow for international research projects with a **principle of co-funding** with our foreign partners. These proposals are expected on collaborative research and publications, conferences and events bringing together scholars, students and practitioners (including partner companies). Projects with the ambition to create joint international units and international laboratories or open labs, especially in A*MIDEX priority scientific areas, will be favored.
Projects will be selected by calls for proposals with precise selection criteria and international standard evaluation process. The criteria will be defined by the A*MIDEX Steering Committee and include (i) the scientific potential of the project and its congruence with AMU strategy, (ii) the level of partners' financial contributions (co-funding principle) and (iii) the strategic interest of the partners involved for AMU's international strategy (cross-fertilization).
Calls for proposals will be issued every two years, evaluated by academic experts and a specific jury. The A*MIDEX Steering Committee will hold the final decision on the projects to be funded.

The *Opération Campus* and our Welcome policy

The *Opération Campus* - The overall quality of life on our campuses represents a major stake in the improvement for our international academic attractiveness. Our "Operation Campus" will have a major impact on the Aix and Luminy campuses, with restructuring of research laboratories, new documentation and study sites, student accommodations, and sport facilities. It is a demonstration of our wider commitment to develop access to digital resources and hosting capacities for foreign academics.

Our Welcome Policy - The *Direction des Relations Internationales* (DRI) of the 3 former universities have begun pooling their accommodation capacities and standardizing their methods in order to provide more and better services to facilitate the integration of international staff (researchers and/or foreign students). Such service packages for incoming researchers and students include financial support (installation grants), administrative and accommodation support (obtaining residence permits, assistance in opening bank accounts, finding accommodation for short or long stays…), linguistic training (developing bilingual degree programs) and introduction and mentoring programs (introductory courses for students, advice for a better integration of incoming researchers/teachers and their families …). These actions have benefited from the support of local communities. The City of Marseille for instance mobilizes an annual budget of around 200 k€ to award grants for foreign post-docs and scholarships for the installation of foreign academics. These scholarships are issued following a call for nominations and selection by an academic committee.

Similar grants have been created in Aix and Marseille for foreign master students

The other A*MIDEX instruments concurring to internationalization

Other A*MIDEX instruments such as the Research Funds, the Excellence Academy and the HR policy programs (proactive recruitment and talent management) will decisively contribute to our international attractiveness and outreach.

The **Excellence Academy** will foster the creation of dual degree programs and increase the number of student exchanges (including jointly supervised thesis and PhDs grants, students summer schools, class to class…). Student support in the Excellence Academy will also help them have access to a variety of opportunities for studying in the US through joining networks such as TASSEP (Trans-Atlantic Science Student Exchange Program), MAUI (Mid-America Universities International), and other universities foundations.
Although not focused specifically on internationalization, the A*MIDEX **Research Funds** will also help develop international collaborations, especially in our 5 thematic priorities. Indeed, strong and complementary international partners will evidently prove valuable assets in the internal selection process (calls for proposals).
The A*MIDEX **HR policy** will help promoting outgoing mobility of our researchers and lecturers by paying specific attention to international experience in recruitments, increasing the incentives for international mobility, creating opportunities for sabbaticals and by allowing stays abroad to count as years of service (see the HR section 5.6). For the recruitment of foreign research talents, A*MIDEX HR policy will make career opportunities visible via advertisements in international journals and databases, proactive use of international networks, and personal contacts to qualified PhD students and researchers abroad. A*MIDEX will also seek to attract recognized visiting professors to AMU.

INTERNATIONAL STRATEGY			
Indicators	**Baseline 2011**	**Year 4**	**Year 10**
Proportion of co-publications with international partners	43.7% (2009)	50%	60%
Number of new collaborations and projects within targeted partner universities	*To be established*	+20%	+50%
Mobility between AMU and targeted universities: number of incoming and outgoing students and academics	*To be established*	+30%	+50%
Number of foreign academics (full time teaching researchers)	142	+16%	+40%
Mobility between AMU and universities and research institutions in the Mediterranean area : Number of incoming and outgoing students and academics (UPM, Tethys, MISTRALS and other networks)	*To be established*	+10%	+40%

Foreseeable risks

Risks in our leadership strategy in the Mediterranean:

- The current political situation in Mediterranean Southern and Eastern countries might constrain some of our partners' capacity to engage in high-level collaborations in the months to come. The strength of the relations and networks already established should however help to overcome this risk, which moreover does not concern our main strategic partners on the European side.
- There might be a turnover affecting our main contacts in overseas universities. However, the existing institutional networks and our cross-fertilization strategy are precisely meant to prevent such obstacles.

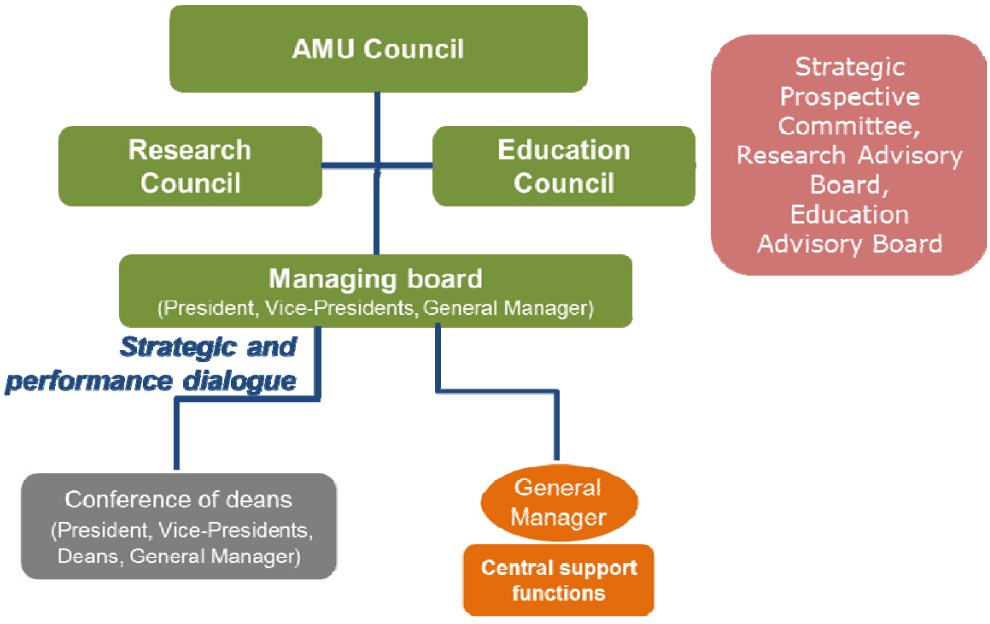
Risks in our cross-fertilization strategy

- Our best partner universities can also prove to be challenging competitors, particularly when it comes to attractiveness and recruitment. We must therefore be wary to engage on a balanced co-funding principle and to build recruitment schemes with sufficiently robust incentives (see HR policy, section 5.6).

5.4. A GOVERNANCE, ORGANIZATION AND MANAGEMENT TO SERVE EXCELLENCE

5.4.1 AN INTEGRATED GOVERNANCE BUILDING ON A SUCCESSFUL MERGER

Since the set-up of our first A*MIDEX project last fall, Aix-Marseille University has become a reality with the adoption of its statutes by the boards of the 3 pre-existing universities and the official approbation of the merger. The chart below represents the main governance bodies of AMU as precisely described in its statutes (see decree n° 2011-1010 of August 24, 2011).



AMU will be governed by its Council, which composition is detailed in AMU's statutes. The AMU statutory bodies (Research and Education Councils) will be consulted by the AMU Council according to the legal procedures in vigour within the University. AMU's Managing board is responsible for the management of the University as a whole. It is chaired by AMU's President and will include AMU's

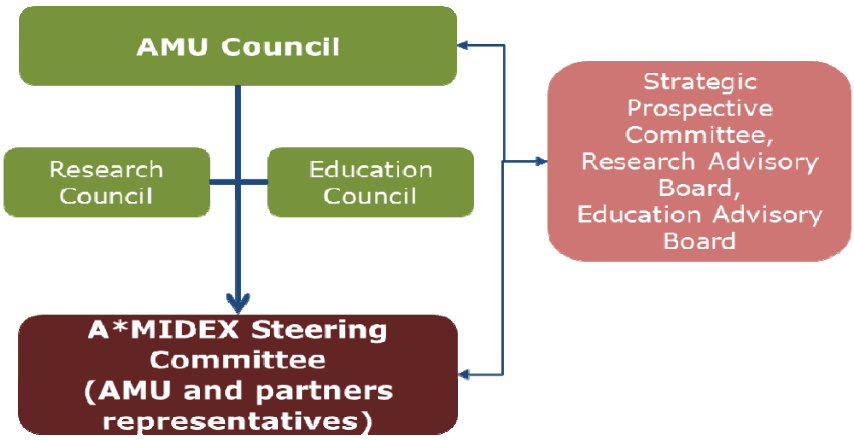
Vice Presidents and General Manager for support function. It will operate in close relation with the Conference of deans and central support functions. The latter will be headed by AMU's General Manager for support services. All the details are available in AMU statutes (see decree n° 2011-1010 of August 24, 2011).

The Conference of deans will meet on a weekly basis in order to share on the progress in the merger process. The conference will participate in the strategic and performance dialogue with the heads of the research department and faculties in order to define financial and human resources allocated to research units and education departments. Twice per year, we will organize two day seminars bringing together the deans and directors with the AMU governance team.

Among AMU advisory bodies, the Strategic Prospective Committee will play a key role insofar as the overall relations between the University and the socio-economic sector, in particular the business community, are concerned. Exclusively composed of external personalities, it stands as a bridge between the University and its environment and will therefore provide thoughtful recommendations on AMU's strategic orientations. It will be mobilized by AMU Council at least once per year, before the adoption of the A*MIDEX annual activity program. The AMU Research and Education Advisory Boards will also be solicited for advice in their respective fields of competence. The Research Advisory Board will include R&D experts (coming from A*MIDEX partner companies) whereas the Education Advisory Board will notably include HR professionals (also from A*MIDEX partner companies), in order to complete their academic composition.

A*MIDEX partners have decided to derive all the benefits from this successful merger for the A*MIDEX project, by proposing **a new A*MIDEX governance scheme, integrated in the structures of the single university.** This represents a strong depart from the option proposed in our first A*MIDEX proposal. It reflects the new structural assets of the site and proves to be **more simple, efficient and accountable**.

The AMU Council will be responsible for the political approval and the supervision of A*MIDEX programs and activities (calls for projects, recruitments…). It will adopt the A*MIDEX annual activity program and vote the budget as proposed by the A*MIDEX Steering Committee (see below). Moreover, it will make sure that A*MIDEX moves forward in line with AMU's strategy.



The Steering Committee will be composed of 9 members representing the partners of the project, with voting powers reflecting their contribution to A*MIDEX: 3 representatives of Aix Marseille

University, 1 representative of CNRS, 1 representative of Inserm, 1 representative of CEA, 1 representative of IRD, 1 representative of the Assistance Publique des Hôpitaux de Marseille, and 1 representative for 2 higher education institutions (the École Centrale de Marseille, the Institut d'Études Politiques d'Aix en Provence). The socio economic partners contributing to A*MIDEX will be permanent invited members with advisory status only.

A*MIDEX Steering Committee will be chaired by AMU President. Meanwhile, considering the transformation challenges ahead related to the merger's implementation, AMU President will propose an Executive Vice President of the steering committee to AMU Council after consultation with A*MIDEX partners. A*MIDEX Executive Vice President will be appointed by AMU council and fully dedicated to A*MIDEX implementation. He or she will act as the President in both the Steering Committee and the A*MIDEX Foundation and will chair A*MIDEX Office (see below). He or she will report to AMU President. When AMU President does not participate in the Steering committee or Foundation council, the Executive Vice President will have two votes.

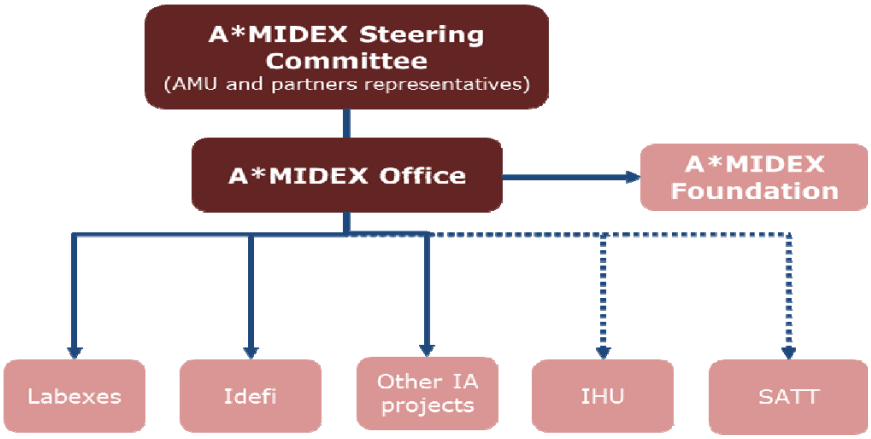
This Steering Committee will be established as soon as the results of the Idex selection are known. It will meet every month at least in the beginning and every trimester after 2 to 3 years of activity.

5.4.2 Strategic management and supervision

The A*MIDEX management has been designed to fulfil the following strategic objectives:

- Defining the A*MIDEX policy throughout time, in line with AMU's strategy and the commitments of all the A*MIDEX partners;
- Monitoring the implementation of the project to ensure fast and informed decision-making, the diffusion of a result-orientated culture, and a maximum academic and socio-economic impact;
- Ensuring the full accountability and reporting of the project to the partners and authorities, with a specific attention to the concentration of funds on the perimeter of excellence;
- Ensuring the coherent implementation of all the IA projects labelled on the site and, beyond, helping to deepen the strong cooperation between all the partners so as to develop a full-fledged strategy on the Aix-Marseille site.

A*MIDEX Strategic Management and supervision



The A*MIDEX Steering Committee will be in charge of A*MIDEX management and the coordination of the IA projects of the site. It will ensure coherence and efficiency in the implementation of the

project and the concentration of funds on the perimeter of excellence. Its main missions will consist in:

- Implementing the A*MIDEX project, in line with the orientations given by the AMU Council,
- Proposing the annual activity program, the budget, the adoption of any internal regulations, the evaluation procedures, etc. to the AMU Council for adoption,
- Approving the agreements between A*MIDEX partners and with external players,
- Publishing the calls for projects and adopting the contract agreements for the selected projects,
- Assessing and auditing the A*MIDEX project by organizing every year an external audit process on the basis of the Executive Vice President's annual activity report. This audit will be focused management quality and financial control, the latter being commissioned to an external "Commissaire aux comptes" (see section 5.4.4).

5.4.3 Operational and financial management

The **A*MIDEX Executive Vice President** will coordinate the operational implementation of the project. He or she will be supported by an A*MIDEX Office, and by the A*MIDEX Foundation that he/she will chair. His/her main missions and competencies will consist in:

- Designing, with AMU advisory bodies, and running A*MIDEX calls for projects with clear objectives, criteria and evaluation procedures, in line with equity and transparency principles,
- Submitting to the Steering Committee an annual activity report, prepared with the support of the A*MIDEX Foundation and operational units,
- Providing advice and support to A*MIDEX selected projects, in order to assist them in the efficient implementation of their actions,
- Coordinating and supervising the implementation of the Labex and Idefi projects,
- Setting up agreements between AMU, partners and other IA labelled projects on our site (IHU, Carnot 2, SATT…), so as to ensure an overall coherence and to develop synergies between A*MIDEX and other IA actions.

A*MIDEX Office will consist in **three operational units**. Each unit will have a managing director directly accountable to the Executive Vice President. The units will work with the AMU services to ensure coherence and synergies.

- The **Education and training unit** will be staffed with 10 FTEs. It will be headed by the director of the Excellence Academy, supported by a personal assistant (2 FTE). This unit needs more staff than the two other A*MIDEX operational units, as it is in charge of the operational management of the Excellence Academy, including the following tasks: promotion of the EA label (2 FTEs), quality assurance and monitoring (1 FTEs), coordination of student services (4 FTEs) and management of student grants (1 FTE).
- The **Research and transfer unit** will be staffed with 4 FTEs including an R&T Director, a deputy director in charge of other IA projects and two specialized staff in charge of operational management of selection and monitoring of the projects financed through A*MIDEX calls for projects.
- The **Support and development unit** will be staffed with 4 FTEs. It will be headed by the CFO of A*MIDEX foundation. Staff will be in charge of project management and progress review as well as the operational management of A*MIDEX HR policy.

The **financial management** of A*MIDEX will be entrusted to the **A*MIDEX Foundation**, which will be created as a subsidiary of AMU, and will be in charge of the financial management of the Idex,

Labex, Idefi and other IA projects led by AMU (only the SATT and the IHU will have their own legal entities and financial models). The CFO of the Foundation will be in charge of its operational management. For the sake of consistency, the Foundation's board will be composed of A*MIDEX steering committee and AMU chief financial officer. All A*MIDEX partners will equally be founding members of the Foundation. The choice of this model is most relevant for fund raising activities as well as for a flexible but fully accountable management of the Idex endowment. The Foundation will provide the Steering Committee with annual financial reports in order to prepare the compulsory reporting to the ANR.

5.4.4 AUDIT AND EVALUATION

The university and its partners will set up **audit and evaluation procedures** in order to control A*MIDEX operational and financial management and to assess its academic and socio-economic impacts, so as to ensure:

- **the accountability of the use of A*MIDEX funds**, according to the rules defined in the present project and in the contract agreement with the ANR,
- **the achievements of A*MIDEX objectives** in terms of academic excellence, transformative dynamic on the university and socio-economic impacts in the region and in France more generally.

Financial accountability will be entrusted both to the A*MIDEX University Foundation, which will ensure the traceability of A*MIDEX funds thanks to a dedicated accounting system, and to external auditors. The latter will control on a yearly basis the respect of the Idex rules of procedures and the level of contribution of the partners, and assess the external resources secured which contribute to A*MIDEX instruments and objectives. The audit report will be presented to A*MIDEX Steering Committee, adopted by the AMU Council and transmitted to the ANR.

The achievements of A*MIDEX project will be monitored by the AMU Council on the basis of an annual report by the A*MIDEX Executive Vice President, which will cover the implementation of the different A*MIDEX projects underway as well as other IA projects. Every five years, a thorough evaluation of the A*MIDEX academic and socio-economic impacts will be commissioned to an external team composed of senior academic personalities and evaluation experts. Their conclusions and recommendations will be submitted to the AMU advisory boards and analysed by the A*MIDEX Steering Committee. The University Council will decide on the recommendations to improve the A*MIDEX management and the impacts of its instruments.

5.4.5 PROJECT ORGANIZATION, ROADMAP, PLANNING, AND MILESTONES

The A*MIDEX project will be implemented within the framework of the single Aix Marseille University. The merger has come to life on August 24, 2011 with the official creation of AMU, and will be materialised by the effective integration of the three universities on January 1st, 2012. This project has been launched back in 2006 (long before the *Investissements d'Avenir* program) and was carefully carried out through wide-ranging consultation both within and without the university. Its large scope demonstrates the capacity of the university to implement an ambitious strategy and to undergo wide transformation projects, both decisive assets for a successful A*MIDEX dynamic.

*Roadmap of A*MIDEX project implementation*

The progressive set up of a fully integrated administration together with A*MIDEX specific tools, projects and governance represents an important challenge. Considering the disruptive effects of the merger during the first 18 months, the swift set up of A*MIDEX tools that will bring new resources to academics will be key to fuel a positive transformation dynamic. By the first trimester of 2013, a first round of projects financed through the two main research funds will be selected and ready to kick off.

Four main work streams have been identified in order to fully implement the A*MIDEX project. The roadmap for these workstreams is laid out on the two following pages. Detailed roadmaps for each work stream are presented in the additional document.

A*MIDEX Work stream 1 "Steering and development" aims at:

a) Setting up governance bodies and steering capabilities by mid-2012
b) Elaborating and launching management procedures (incl. resources allocation) by year end 2012
c) Defining (S1 2012) and implementing monitoring and evaluation procedures by end 2012

The quality of the staff recruited for the operational team will be key for the quality of the steering. It should be composed of both first gear internal experts that enjoy a strong legitimacy and a detailed knowledge of who is who within AMU and top experts recruited from outside that will bring new skills (project management, academic selection processes management, talent management, audit, monitoring and evaluation, etc.) and push for new ways of working.

Work stream 2: Research and Transfer Funds aims at:

a) Designing calls for projects
b) Organizing the selection process
c) Ensuring monitoring and evaluation
d) Setting up infrastructure of the House of Innovation and Technology (HIT). Calls for projects of the HIT fund will follow the same roadmap as the Research funds described below.

Quick implementation will be key to guarantee a positive dynamic and reputation of A*MIDEX. Money must reach most talented teams and promising projects quickly. On the other hand, the selection process must be bulletproof according to international standards so that A*MIDEX be regarded as a new and legitimate way of allocating resources within the university. All calls for projects will be issued in a bi-annual rhythm. In order to avoid an excessive concentration of workload for the A*MIDEX Steering committee and researchers submitting projects, there will be an alternation from one year to another: Project calls for the Rising Stars fund, the Emergence and Innovation fund and the HIT fund will be issued in 2012, 2014, 2016, etc. Calls for the Transfer fund, the Interdisciplinary fund and the International fund will be issued in 2013, 2015, etc.

Work stream 3: Excellence Academy aims at:

a) Setting up the Excellence Academy and developing its service offer for students (mentoring programs, residential seminars, career development, …)
b) Selecting and promoting the development of A*MIDEX degrees of excellence (quality assurance charter, promotion of the label at international level and towards business, support in pedagogical innovation and ICT use, …)

c) Providing merit based grants for student mobility

These measures are detailed in the delta document.

Work stream 4: HR Policy aims at:

a) Structuring talent management capabilities
b) Designing selection processes
c) Launching regular calls for top international researchers at all levels
d) Elaborating and implementing a broader talent policy for AMU at large
e) Ensuring monitoring and evaluation

The success of the work stream will be strongly determined by the quality and rigor of the selection processes, the talent management team's responsiveness and flexibility when opportunities arise and its ability to ensure and assess top talents loyalty in the long run pulling all attractiveness levers (welcome attitude, support for practicalities, packages' competitiveness…).

A*MIDEX Roadmap		2012				2013				2014				2015				2016			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Work stream 1: Steering and development	Setting up of governance bodies																				
	Elaboration and setting up of management procedures																				
	Elaboration and setting up of monitoring and evaluation procedures																				
Work stream 2: Research and Transfer funds	Design of project calls and selection procedures																				
	Submission and selection of projects																				
	Project monitoring																				
	Set up of the House of Innovation and Technology																				
Work stream 3: Excellence Academy	Set up of EA structure and support services, defition of EA charter																				
	Progressive labeling of the first 28 EA degrees																				
	Annual selection procedure for EA student grants																				
Work stream 4: HR policy	Recruitment of A*MIDEX support and development staff																				
	Design of selection processes for academic staff																				
	Calls for applications																				
	Setting up of broader talent policy																				
	Setting up of monitoring and evaluation procedures																				

Roadmap of AMU's merger process

The merger of the three Aix-Marseille Universities has officially come into effect in August 2011. AMU now has a single Council simplifying the decision and supervision procedures as well as the coordination of relationships with A*MIDEX Steering Committee. Implementation of the merger process is well underway. It can be divided into 3 phases:

The current phase (Sept 2010 – Q3 2012) aims to set up AMU entities while, at the same time, ensure operational continuity. This phase has been well anticipated as:

- The target structure of faculties and research units has already been designed and validated by the 3 universities governance and integrated in the 5 year contract with ministry of HE&R and research institutions.
- The integrated educational offer has been designed and will be implemented by September 2012.
- At the same time, the target organization schemes of support functions have been defined and support.
- All core support processes, such as payrolls, purchases, payments, etc. have been set up in order to ensure AMU's operations by Jan 1st 2012.
- All key executives (President's team, AMU Council members, deans and chief support officer) will be appointed or elected

The second phase (2012 Q3 – 2014 Q2) will focus on transition of support functions with the aim to gradually shift their functional models towards target. This entails the following actions:

- Map all available capabilities (headcounts, skills, systems…)
- Identify upgrade and streamline opportunities (process re-engineering, shared services, new services…)
- Implement new processes, systems and operations models (e.g. shared services)
- Align HR policies and enhance talent management (see 2.2.3.)
- Defining target organization

The third phase will consist in implementing the target organization and the moving of central support staff in 2 dedicated buildings while local support staff will remain dedicated to campuses.

Two and a half year will be a long period during which it will be key to impulse and monitor change in a consistent manner, train staff to help them adapt to new conditions, negotiate with staff and unions a highly qualitative and efficient organization and communicate actively with various channels. With a full 4 year mandate, AMU's President will be able to manage such a long journey.

Roadmap for the merger		2011		2012				2013				2014				2015				2016			
		Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Governance and academic structure to target organization and operational continuity for support functions	Election of University Management Board and set up of AMU's governance bodies																						
	Set up of the transformation governance and steering capability																						
	Deans' elections																						
	Faculties' mergers																						
	Research units' mergers																						
	Selection and appointment of support functions VPs																						
	Critical support processes aligned																						
Transition phase for support functions	Resources and skills mapping																						
	Identification of shared services opportunities within AMU and research institutions																						
	Shift towards target structure (central vs decentralized activities)																						
	Reingeneering of core processes coupled with shared services, new IT systems and localized movings implementation																						
	HR																						
	Finance and accounting																						
	Premises and estate																						
	Alignment of HR policies																						
Central support functions to target organization	Design of target organisation at central level																						
	Moving to the new administration building																						
	Shift towards target organization charts																						
Change management	Steering and progress review																						
	Training for impacted staff																						
	Support to transformation																						
	Communication																						

Steering the transformation

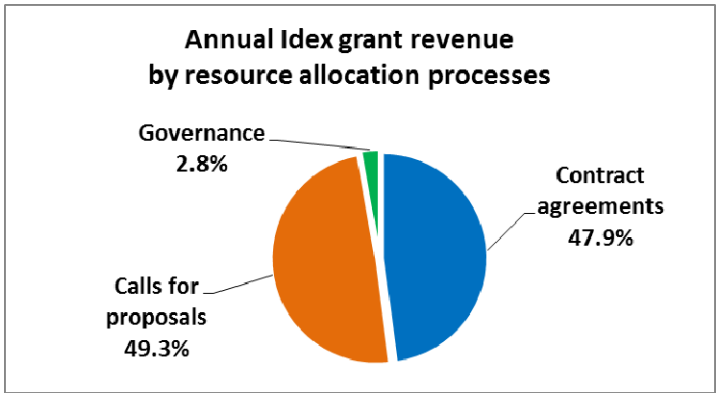
As shown by the results of the nov. 2011 university elections, AMU's community has confirmed its strong commitment to both AMU and A*MIDEX that were explicitly at the core of the winning list's program. The President and the A*MIDEX Executive VP benefit from the legitimacy of this vote and a full 4-year mandate, both of which will facilitate steering of the transformation process.

The roadmap's implementation will be subjected to a two-layer steering:

- A Transformation Committee for AMU's transformation will oversee all organizational issues related to the merger and A*MIDEX implementation. Considering the interactions between support functions, teaching, research and technology transfer, it is vital that a common instance gets the whole picture and ensures the coherence of the dynamic. The steering committee will be chaired by AMU President and composed of A*MIDEX Executive VP, the VP for research, the VP for education, the VP for facilities, deans and support functions directors. It will hold weekly meetings during S1 2012, monthly meetings during S2 2012 and quarterly meetings in 2013.
- A Transformation Office will prepare the progress review and the decisions and actions to be taken by the Transformation Committee. The Office will be chaired by the Chief Support Officer and include 4 FTE. A*MIDEX Support and development officer will actively participate in the Office activities in order to ensure coherence between A*MIDEX and more global AMU's transformation streams.

5.4.6 RESOURCES ALLOCATION SYSTEM

A*MIDEX funds (outside Labex) will be allocated almost exclusively via internal calls for projects alongside internationally admitted criteria and the strategic objectives of each fund. Only the successful Labex and the HIT will be endowed outside this procedure, on the basis of a contract agreement with the university defining their objectives, means and commitments.



Internal Calls for proposals for the Funds (49.3% of the budget) - The bulk of A*MIDEX funds will be allocated on the basis of calls for projects in line with internationally admitted standards, such as transparency of criteria and external academic evaluation.

Each call will be prepared by the Steering Committee (SC) according to the specific objectives of each fund and after consultation of the Strategic Orientation Committee (which is composed exclusively of external personalities). The criteria will reflect the strategic objectives of each fund (e.g. ground breaking research, young promising talents, public-private research…) (see section 5.3.1). The calls will not be focused on particular disciplines but opened to everyone within the university and its partners, so as to stir a continuing emulation among all the university's

research and teaching teams to come up with new and innovative projects. Calls for projects will be launched every two years.

Proposals submitted to the calls will first be assessed by external academic experts in their disciplinary fields. Then a specific jury for each fund will rank the projects. These juries will be composed of lead academics with extensive experience related to the specific goals of each fund (75% external). For instance, the Interdisciplinary Fund jury will be composed of scientists renowned for their interdisciplinary achievements. The Steering Committee will make the final decision on the basis of the jury's evaluation. The Steering Committee will take into account both the jury's evaluation and the wider A*MIDEX objectives (e.g. concentration on the 5 priority domains, concentration on the Peridex…). This allocation process is deemed optimal as both the jury's evaluations and the SC's justifications will be made public. All calls will be opened to everyone within the university and its partners, so as to stir a continuing emulation among all the university's research and teaching teams to come up with new and innovative projects.

A*MIDEX Steering Committee will decide on the allocations of funds, on the basis of the jury's evaluation. It will have to ensure the respect of the concentration of funds both on the perimeter of excellence and the thematic priorities defined by the AMU council:

- 60% of all the funds (outside Labex funding) will be concentrated on the perimeter of excellence,
- 75% of the Interdisciplinary and Emergence & Innovation funds will be focused on the thematic priorities.

Calls are opened to all research teams and teaching departments of AMU and Partners provided that they contribute to the 5 priority areas of the Idex program and / or boost interdisciplinarity between them.

Through the calls, funds will generally be allocated as "packages" for two up to four years for either research, innovation or teaching projects, in order to exert a significant impact on the university's profile and not to disseminate microfundings.

Contracts agreements for the Labex and the HIT (47.9%) - The Labex selected will be directly endowed with the allocated amounts. However for each Labex a contract agreement will be set up between the project leader and AMU so as to ensure its integration in AMU's overall strategy and the monitoring of its implementation and achievements.

The Labex not selected by the jury in 2nd round and not included in the excellence perimeter will not receive a fixed endowment, so as to respect the jury's decision. However, a jury's favorable review report should of course prove a definitive asset in the A*MIDEX internal calls for projects.

The resource allocation to the HIT will also be conditioned on a Contract agreement between AMU and the other partners of the project (industrials, local authorities and research institutions). This contract will define the objectives of the HIT project and its detailed operating rules.

Governance costs (2.8%) will be managed by the Steering Committee Chairperson.

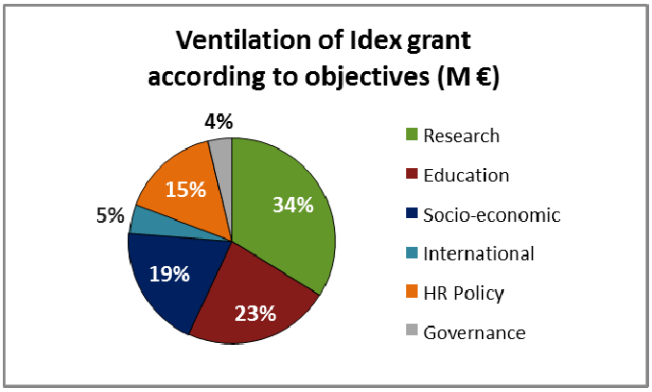
5.5. THE MEANS OF OUR AMBITION

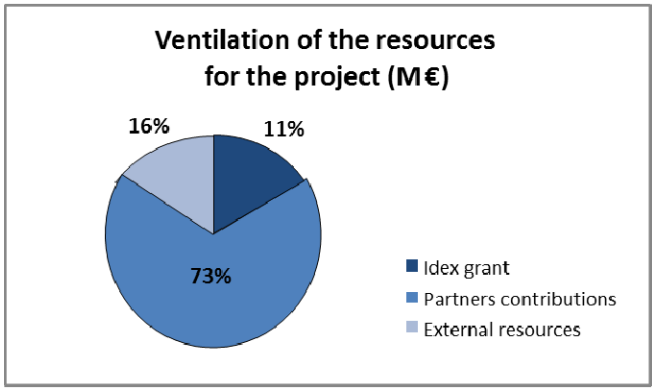
5.5.1 KEY BUDGET PRINCIPLES

This section describes the main costs and resources devoted to each action of the Idex programme. As recommended by the jury at the first round, this budget includes estimates based upon agreements among the main partners (AMU, CNRS, Inserm, CEA, IRD) and from socio-economic world (local authorities, Industrials, foundations). A few decisions and principles have to be mentioned:

- All the projects financed by the Idex will benefit from existing resources contributed by the different partners.
- A*MIDEX grant is conceived as a co-financing and a valued assess to make our development strategy a reality. To give an order of magnitude, about 197.6 M€ (Labex and other Idex actions) are requested as Idex grants for 4 years, while A*MIDEX partners will contribute for up to 1,836 M€ and external resources for 345 M€.
- Idex grant will be concentrated on the Peridex which will represent less than 30% of our total staff. This Peridex will receive about 60% of the total Idex grant. This means that a researcher working in the Peridex will be funded about 3.5 times more than another researcher operating outside the Peridex (8.5 times more, incl. Labex).
- Formal commitments from partners and local authorities have been obtained and will appear clearly in corresponding financial tables.

5.5.2 DETAILED A*MIDEX BUDGET (OUTSIDE LABEX AND IDEFI)





A budget focusing on our strategic objectives - The budget has been structured along the A*MIDEX strategic matrix presented above. This breakdown is however partly formal: the Research and Education funds will also contribute to our internationalisation strategy and, conversely, the HR policy fundings are meant to have a pull-effect on our research, education and socio-economic strategies. The International and the Transfer Funds are meant to support research projects with strong international or applied dimensions, which means the total research effort of A*MIDEX amounts to 43% of the budget.

STRATEGIC GOALS	FUNDS & Projects	ACTIONS	IdEx grant	Partners contributions	External resources
RESEARCH	RISING STARS FUND	5 endowed chairs (package)	2		
	EMERGENCE & INNOVATION FUND	6 projects	4		
	INTERDISCIPLINARY FUND	4 projects	2,8		
		TOTAL	8,8	70,4	11,0
EDUCATION	EXCELLENCE ACADEMY	Management and development	0,4		
		Master classes and student support services	0,5		
		Support to pedagogical innovation	2,5		
		Master mobility grants	0,4		
		Master grants international students	0,4		
		PhD Grants	1,9		
		TOTAL	6,0	48,0	12,0
SOCIO-ECONOMIC IMPACT	TRANSFER FUND	3 projects	1,2		
	HIT Project		3,8		
		TOTAL	5	40,0	15,25
INTERNATIO-NALIZATION	INTERNATIONAL FUND	3 projects	1,2		
		TOTAL	1,2	4,8	0,125
HR POLICY	PROACTIVE RECRUITMENT POLICY	Permanent endowed chairs : 5 chairs packages (apart from the salary)	2		0.0
	TALENT MANAGEMENT	Incentive award policy (provide the means to attract and keep the best teachers, researchers, IATOS, ITA)	2		0.0
		TOTAL	4	5,125	0
GOVERNANCE MANAGEMENT	Staff and working costs		1	2	0
		TOTAL	1	2,0	
		TOTALS	26,0	170,3	38,4

Partners contributions and External resources represent an amount of 208.7 M€ each year, hence 835 M€ for 4 years. Partners' contributions include equipment and running costs for research and education as well as overheads for the projects funded. External resources have been committed by local authorities (202 M€ for 4 years) and industrials (25 M€), or are reasonably expected from research contracts (118 M€) (see section 6 for further details).

Outside Labex (22.4M€) and IDEFI (1M€) funds, the Idex funding amounts to 26 M€ a year (11% of the entire budget) and breaks down as follows:

A global and comprehensive research and innovation strategy

The Rising Star Fund **-** The bulk of the costs are personnel and working costs. They are meant to fund up to 5 projects a year. The total financial needs for the Rising Stars Fund has been estimated at around 2,000 k€ a year. This represents an average of 400 k€ a year per project funded. It will cover the personnel costs (for reduction of courseload and hiring of Postdocs) as well as running costs (light equipment, access to leading research infrastructures, travel expenses, translation…).

The Emergence and Innovation Fund **-** The bulk of the costs are personnel and working costs. They are meant to fund up to 6 projects a year. The total financial needs for the Emergence and Innovation Fund has been estimated at around 4,000k€ a year. This represents an average of 667 k€ a year per project funded. HR expenses will cover the

personnel costs for senior and junior research fellows, post-docs and visiting researchers. Equipment and running costs will cover for the access to maintenance and upgrading of leading research infrastructures and travel expenses.

The Interdisciplinary Fund **-** The bulk of the costs are personnel, equipment and working cost. The costs have been estimated so as to fund 4 projects a year. The total financial needs for the Interdisciplinary Fund has been estimated at around 2,800k€ a year. This represents an average of 700 k€ a year per project funded. The bulk of the funds will cover the personnel costs for the senior and junior research fellows, post-docs, visiting researchers and the Goldies contracts (half-time). Equipment and running costs will cover for the access to, maintenance and upgrading of leading research infrastructures and travel expenses.

Trainings of excellence, training for excellence: The Excellence Academy

Management and development **-** The personnel costs as for coordination, quality control and international development, are estimated at 390 k€ a year.

Master classes and student support services **-** The personnel costs as for mentoring, Master Class & residential seminars and Career development, estimated at 520 k€ a year.

Support to pedagogical innovation **-** The personnel costs as for pedagogic innovation for Bachelors and Masters, and support for PhD students projects, estimated at 2,480 k€ a year.

Grants **-** The personnel costs as for Master mobility grants, Master grants international students and PhD Grants, estimated at 2,630 k€ a year.

Exploitation and socio-economic partnerships

The costs will include a transfer fund to realize 3 projects and the **HIT project**.

The total budget of the HIT project will be 11,4M EUR per year, with an **annual A*MIDEX contribution of 3.8 M€**. One third of the HIT budget will account for running costs (building, maintenance of scientific equipment, support staff for the management of the equipment, etc.) allocated on the basis of contract agreements with A*MIDEX and the other partners; Two third will be allocated to collaborative research projects on the basis of calls for projects (see section 5.3.3.3).

The total financial needs for the **Transfer Fund** has been estimated at around 1,200k€ a year. This represents an **average of 400 k€ per project each year**. The bulk of the fund will cover the personnel costs for research fellows and post-docs. Equipment and running costs will cover for the maintenance and upgrading of leading research infrastructures. The co-funding principle of the Transfer Fund means that private partners are expected to bring about as much funds into each project.

A dual internationalization strategy: coupling our Euro-Mediterranean identity to an international ambition

The total financial needs for the International Fund has been estimated at 1,200 k€ a year to launch 3 projects every 2 years. This represents an **average 400 k€ a year for each project**. The bulk of the fund will cover the personnel costs for research fellows, post-docs and visiting researchers. The co-funding principle of the International Fund means that international partners are expected to bring about as much funds into each project.

Human resources management as a leverage for performance and attractiveness

Proactive recruitment policy **-** These funds will cover the personnel costs for the packages for 5 permanent endowed chairs (the salary will be covered by AMU).
Talent management policy **-** These funds will cover the personnel costs for Incentive award policy (provide the means to attract and keep the best teachers, researchers, IATOS, ITA).

Governance

The bulk of the governance costs are personnel and working costs. They have been estimated at 1,000 k€ a year from the Idex requested fundings. AMU and its A*MIDEX partners will contribute twice as much in order to have the A*MIDEX Office running (staff, facilities and working costs).

5.6. HUMAN RESOURCES MANAGEMENT AS A LEVERAGE FOR PERFORMANCE AND ATTRACTIVENESS

As Jean Bodin once said, "mankind is the only true source of wealth". Our human resource management policy is, therefore, one of the key factors of success for the A*MIDEX project. It aims at enhancing the attractiveness of our site and drawing researchers of highest caliber (including the Nobel Prize worthy), to increase the performance of the talent already present and to unite all personnel in a single results and innovation orientated vision.

Both our new autonomy following national reform and our merger process have led us to reconsider our HR policy and management in order to provide the best possible support to all AMU staff to fully develop their own talent and competencies. A*MIDEX HR policy will build upon this new dynamic. It will be guided by the following principles:

- Develop a job- and skills- based management scheme based on planned future needs, taking into account the A*MIDEX priority development areas for Idex.
- Have a proactive recruitment policy at international level: create dedicated structures to look for talent, in all employment categories and all sectors of activity (search committees for high calibre teaching researchers, a unit dedicated to recruiting contract personnel, post docs, PhD students, research fellows, etc.).
- Define an incentive policy rewarding a variety of Idex related tasks and provide the necessary means to implement this policy (performance bonuses for scientific achievements, educational incentive awards, bonuses for patents being granted, for the creation of start-up businesses, for international involvement, for administrative responsibilities for research and innovation, etc…)

While still complying with their own employment policies, all A*MIDEX partners join in the implementation of the actions described below in order to strengthen the international attractiveness of the Aix-Marseille site in research and education.

5.6.1 Recruitment of contract personnel for Idex projects (postdocs, junior, senior fellows, "Goldies")

The recruitment of contract personnel within the projects selected in the calls of the different A*MIDEX funds (Research & Innovation fund, Interdisciplinarity fund, Transfer fund and International fund) will be based on the following principles and criteria.

Junior and/or senior fellows will be hired on the basis of an open and competitive procedure: implementation of a "headhunting committee", job description and international advertising (calls for proposals), selection of candidates by selection committees composed of external academics and with an external chair, invitation of the preselected candidates to give an oral presentation within the university. The Steering Committee will ultimately decide on the allocation of such packages, on the basis of the recommendation of the selection committee. Interesting salaries and work conditions can be negotiated in the framework of a temporary contract. After a results-orientated final contract period evaluation, these fellows may get permanent positions as lecturers, professors or researchers within AMU or the other A*MIDEX partners, after passing the public recruitment procedures in line with legal regulations. The position levels and salaries will be individually examined and adjusted with incentive awards in order to retain the most promising talents. AMU commits itself to offer every year at least 10 vacant permanent positions, reserved for this final recruitment.

As a complement, head-hunt for experienced seniors (retired researchers, former teachers…) will be led. These "Goldies" will be recruited for specific missions (coaching of young scientists as in the rising star fund, developing new subject areas…) on the basis of a two-year renewable contract, with the allowance of a supplement to their retirement pension.

5.6.2 Idex packages for the recruitment of AMU permanent academics

A*MIDEX will also help to recruit high-level junior and senior lecturers and researchers, thanks to an innovative "package instrument" which is meant to complete the offer of job positions by AMU and its partners. This instrument will particularly be useful to retain the best research and teaching staff recruited at first on a contract basis within the Idex selected projects (section 5.6.1), in the framework of a "tenure track" procedure.

Recruitment on junior endowed chair (package) - We believe that A*MIDEX, future-oriented, should rely a lot upon rising talents. Therefore our intention is to focus on promising high potential national and international younger lecturers / researchers. We already have numerous staff of such quality (Equipe d'Avenir Inserm or CNRS, CNRS silver or bronze medal, ERC starting grants, coordinator of European networks…) and intend to increase this kind of recruitment through AMU and national partner organisms. Specific conditions (level position and salary, incentive and bonus, reduction of courseload and one month extra salary at the first installation year, specific budget and accompanied HR attribution including attached postdoc grant), forming a package of an endowed junior chair with also priority funding (equipment, running costs, HR, etc.) for their integration into existing or new projects, based on call for proposals and selection criteria) will be proposed.

Such recruitment at the level of junior professor (lecturer or professor of second class) for graduates aged between 30 and 35 is a competitive offer for the majority of European countries, as we fully understand the potential graduates have.

Recruitment on a senior endowed chair (package) - For senior members of staff, we propose an "excellence chair" at a professor (professeur de première classe) or senior professor (professeur de classe exceptionnelle) level with all the same advantages as the junior chairs. In addition to the whole endowed "package" for an excellence chair, selected professors will also have the authority to immediately recruit a post-doc, create a position for a junior researcher within his first two years tenure at AMU as well as a team startup budget. Individual incentive awards and bonuses will be offered, after selection, in case of necessity, to balance the advantages acquired in their former positions.

Through this proactive policy, we believe that we will be able to vastly improve the international visibility of our site. Furthermore, to further develop research areas and Labex laboratories, we aim to use our "search committee" to target a number of high calibre prominent international figures to whom it is hoped the salary and working environment will be an attractive proposition. It is anticipated that these prominent figures will have a positive knock effect for our site.

AMU again commits itself to propose every year at least 5 endowed chairs (junior and senior).

5.6.3 TALENT MANAGEMENT, A HR POLICY TOWARDS INTERNAL STAFF

The Idex HR policy management must be implemented in a totally transparent way, and must not result in any internal feelings of unfairness or inequality. Therefore, to maintain emulation and cohesion across the whole research and teaching staff in each A*MIDEX partners, specific incentives must be proposed on the basis of strict criteria and a demanding competition:

- For lecturers/researchers who are involved successfully and strongly on running strategic research projects, **Research Bonuses** can be obtained (courseload charge reduction or financial incentives). Some of them, to increase international collaboration, can obtain a "leave on absence" (a kind of "local IUF").
- For lecturers /researchers who are more interested in education and involved in pedagogic innovation and/or excellence, their charge in research may be reduced leaving them more time to teaching, to developing innovative pedagogic methodologies and degrees. In this respect, **Pedagogy Bonuses** can be obtained for the most dedicated lecturers/professors.
- For research teams which obtain breakthrough results, **Scientific Awards**, other renowned distinctions and/or financial bonuses are planned to be shared between the team members (scientists, post-docs, PhD students, engineers and technicians).

In brief, all actions in terms of promotion, bonuses, mobility, etc., so far dedicated to A*MIDEX HR policy to attract external talented people, will be offered also to people already working at the site, to be awarded on the basis of excellence criteria defined after a wide-ranging internal consultation. Talent Management funds will be managed by the Steering

Committee by way of internal calls for proposals from individual researchers/lecturers. These calls will be based on selection criteria similar to that of the university services with a view to merge existing and A*MIDEX reward instruments.

On an exceptional basis however, the Steering Committee will be able to mobilize Talent Management funds with full reactivity in order to attract or maintain leading academics representing a strategic stake for AMU's priority themes.

The "Rising Stars" fund will also prove a determining asset in order to help and foster the full development of the most promising talents among the high-potential junior researchers (see section 5.3.1.2).

This policy is likely to create a positive knock-on effect on initiatives surrounding the Idex project and to boost by "pull-effect" the involvement of the whole university towards its quest for academic excellence.