

# THE “6I RESEARCH MODEL”: EVOLUTION OF AN INNOVATIVE INSTITUTIONAL STI<sup>1</sup> POLICY FRAMEWORK AT THE UNIVERSITY OF DEUSTO

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DOI: 10.22163/fteval.2019.376

## INTRODUCTION

“Our current infrastructures dissuade interdisciplinary research” (Moedas, 2017), immersed as they are in the so called “interdisciplinarity paradox” (Woelert and Millar, 2013). Interdisciplinary research is increasingly fostered at a policy level to tackle complex local and/or global problems, but it is, at the same time, poorly rewarded by funding instruments and academic structures (Bromham, Dinnage and Hua, 2016).

Navigating through this paradox, universities are creatively developing ways to integrate the growing demands posed to academic life. These are, at times, conflicting in terms of aims and interests (basic research vs. closer to the market innovations, collaboration vs. competition). In this way, several European higher education institutions have made attempts at enhancing interdisciplinary research through virtual, physical or combined approaches on issues of relevance at a more global level. This is the case at Trinity College Themes; Università de Bologna Integrated Research Teams; University of Sussex Strategic Research Programmes and Lund University Strategic Research Areas, to name but a few. In most cases, these new endeavours coexist with more traditional ways of managing research (discipline driven, “Social Sciences and Humanities” (SSH) vs. “Science, Technology, Engineering, Arts and Mathematics” (STEAM), etc.).

The aim of this paper is twofold:

1. Firstly, to introduce the main features and elements of an innovative research management system, the “6i Research Model”. Emerging from a bottom-up initiative, the model is the result of our quest for a clear holistic vision to devise a comprehensive research management model, with diverse mechanisms, structures and measurement tools. The “6i Research Model” takes its name from the integration of six elements that are usually managed in a disconnected manner: (1) international, (2) inter-

disciplinary, (3) intersectoral, (4) innovative, (5) impactful and (6) inclusive.

2. Secondly, to analyse key aspects of the practical implementation of the model at a higher education institution: in this case the University of Deusto<sup>2</sup>. By analysing process indicators and outcomes, this paper focuses on
  - a. the evolution of the implementation of the “6i Research Model” over the last decade and how it has been sustained in practice;
  - b. the results produced; and
  - c. the changes which the institution has undergone to accommodate and support the evolving model.

Focusing on the implementation of the “6i Research Model” model at the University of Deusto, the second part will respond to the following research questions:

1. How did the “6i Research Model” evolve over time and how has it been sustained?
2. What kind of impact on institutional change did the model involve in terms of structures and resources, mechanisms, initiatives and outputs? and
3. Is Deusto steadily evolving into a research ecosystem for impactful research excellence, while adopting the “6i Research Model”?

Based on lessons learned, we will draw some conclusions for future applications and scaling up the model to other higher education institutions.

## A MULTIFACETED MODEL

Building collaborative inter- and trans-disciplinary communities requires deep reflection and a clear, well-planned strategy.

1 Science, Technology and Innovation

2 I acknowledge the invaluable support of the International Research Project Office staff for their commitment to implementing the model and for the enormous effort in collecting the background data needed for this research project.

With the focus on social impact valuation-driven research, the “6i Research Framework” adopts a system thinking approach and is based on three innovative, interrelated and mutually reinforcing pillars:

- **An evolving the “6i Research Model”**: this is made up of a combination of (i)nternational, (i)nterdisciplinary, (i)ntersectoral, (i)mpact, (i)nnovation and (i)nclusion features and dimensions.
- **A self-feeding flexible governance system** which integrates top-down and bottom-up uptakes with well-rounded flexible governance support structures and mechanisms.
- **A dynamic process** which combines competitive and collaborative research endeavours with a focus on excellence and real impact.

Research has shown that a collaborative culture is a strong predictor of creativity (DeCusatis, 2008, Barczak, Lassk and Mulki, 2010) and, according to Waddel and Brown (1997), inter-sectoral partnerships can “help reduce duplication of effort and activity that works at cross-purposes; they can also stimulate innovation and unusually creative solutions if the diverse goals of participants can be addressed” (p. 1). Taking this into account, the “6i Research Model” departs from the firm conviction that interdisciplinarity is absolutely useful for understanding complex problems, such as human mobility or climate change (Repko, 2012). It also assumes that engaging in international interdisciplinary and intersectoral collaborations helps to: a) identify global priorities; b) develop more responsible and accountable research; and c) strengthen the capacities required to be able to tackle global and local challenges.

Since researchers suffer from a number of limitations in terms of their individual agency, career development and stability (i.e. secure funding for research), new forms of researcher collaborations and partnerships with non-academic stakeholders have enormous potential for generating innovative ideas and stronger social impact. Studies also demonstrate that people are inclined to collaborate, provided that there is reciprocity, which is the basis of trust (Thomson, Perry and Miller, 2007). Nevertheless, in order to take interdisciplinarity seriously, each person must be “secure in his or her competence”, as being interdisciplinary means being intentional in group formation and decisions, while incorporating different approaches, methodologies and procedures (Hall and Weaver, 2001). Along these lines, creating a collaborative culture requires the co-operation of people at different levels and areas of the organisation and requires trust and leadership, reciprocity, commitment, dialogue and the sharing of ideas and projects that give a sense of belonging, teamwork and result-oriented processes.

In order to provide such basis, the “6i Research Model” proposes putting forward *an orchestrated multi-layered and flexible intervention* which includes:

- a well-defined vision at a strategic level, integrating targeted initiatives around the 6i axe;
- clear, underlying, governing principles which include (a) a people-centred approach; (b) building trust and (c) having confluent “win-win” goals;
- a number of support structures and mechanisms, put in place to creatively and steadily make progress in the implementation phase with a highly professionalised body of research managers and administrators; and
- a definition and implementation of specific measures to value impact at a project level, with established specific rewarding mechanisms for assessing social impact.

The model also makes use of a dialogical blend of collaboration vs

competition to achieve excellence in research. Although perceived as opposites, the 2017 “League of European Research Universities” report (LERU report) argues that both collaboration and competition are necessary to achieve excellence in research and its impact, whenever research excellence and social impact are complementary to, or compete with, each other (Akker and Spaapen, 2017).

A last key element of the “6i Research Model’s” engine is the definition of indicators of progress and achievements regarding collaborative endeavours and inter- and trans-disciplinary integration. As with any shared effort and teamwork in general, the objectives of the model and its respective intervention must be clearly defined and mutually agreed by all members, including the quantitative and qualitative indicators that provide an evaluation of achievement.

## METHODS

This research is framed within a broader investigation focused on understanding the multilevel process dynamics, results and impacts of the 6i innovative research management model at higher education institutions. Based on the system thinking approach we have envisioned a model capable of devising holistic and adaptable implementations to the characteristics of each institution; and able to respond to more humanistic and social purposes.

Using a methodological approach that combines a myriad of data collection instruments with quantitative and qualitative methodologies (data and policy analysis, surveys, in-depth interviews, discourse analysis), the “6i Research Model” is being assessed as implemented at the University of Deusto during the period 2010-2018. The combination of data collection instruments, methodologies and triangulation of research results has enabled us to identify and describe the change processes, while understanding them, capturing and reconstructing their meaning.

In order to answer the questions related to the second objective of this paper (which is to analyse the case study of the implementation of the model at the University of Deusto), we have, from the universe of data collection mentioned above, specifically focused on the combination of two variables:

- a. The timeline, to analyse the evolution of the “6i Research Model” over time from 2010 to October 2018, and
- b. The key enabling elements, such as (b1) the university’s strategy and its backing on policies developed for and introduced to drive the different actions, (b2) the supporting structures, (b3) the driving mechanisms, initiatives and instruments, which have been sequentially introduced to generate change and (b4) capacity building, which prepares researchers and research managers to engage in the process. Table 1 shows the second variable containing the main elements intervening in the process, as well as the sources used in order to collect evidence related to each indicator. This paper is focused on the descriptive analysis of the process for which the type of data used is mainly quantitative.

Variable	Indicators	Sources
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b1) Policy and strategy	Institutional policies addressing management of the 6i.	-“Deusto Strategic Plan 2015-2018” including specific “Master Plans” for: a) Internationalisation; b) “Interdisciplinary and intersectoral collaborations; and c) Social Impact”;
b2) Supporting research structures and staff	Deusto Research support structures and staff	-Records kept by the “International Research Project Office” indicating: a) The number of support structures created or re-organised by year; - Annual records kept by the “Human Resources Department” showing the number of employees hired by the main support structure responsible for channelling the strategy (IRPO);
b3) Mechanisms and initiatives	-International proposals and projects -Interdisciplinary platforms -Core groups -Concerted actions -DIRS-COFUND project -Self-created and external initiatives to drive innovation and social impact. -Dissemination initiatives -“Deusto Social Impact Label”, “Deusto-Santander Award”	-Records kept by the “International Research Project Office” indicating: a) Number of proposals submitted to international projects and the number of concerted actions (yearly progress reports to the “Basque Government Framework Programme and Master Programmes”); b) The analysis of intra-platform dynamics relies on the data collected from two platforms (“Ageing and Wellbeing”, “Gender”) since these were the platforms with specific data available. For each platform, the data included: the year of creation, the number of proposals submitted in related topics, number of meetings held, number of core groups. c) Number of topics published for the DIRS-COFUND selection process. d) Number of COFUNDERS enrolled. e) Internal initiatives and participation in external initiatives to drive innovation and social impact as well as dissemination initiatives. f) Number of actions regarding social impact evaluation and recognition granted per year.
b4) Capacity building	Specific 6i-related training provided to researchers and research managers.	- Records kept by the “International Research Project Office” and the “Human Resources Department” indicating the number, nature and basic facts about in-house and external training sessions attended by Deusto researchers and managers.

Some indicators, such as international proposals and projects, act

**Table 1.** Data collection and analysis.

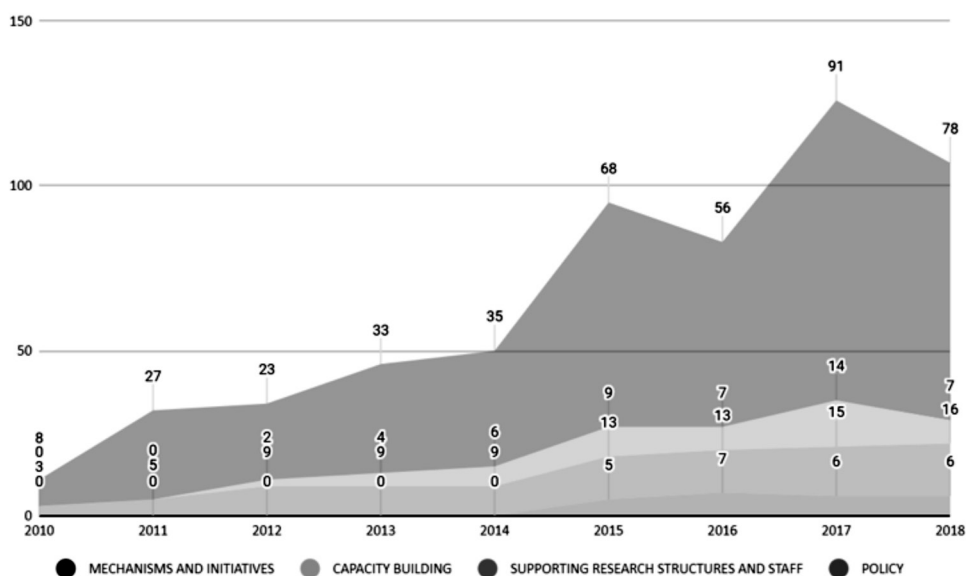
i) “Deusto International Research School”

both as process catalysers and results, having an impact on and playing a role in institutional change in a self-feeding mechanism.

and b4) capacity building – have been examined longitudinally for the period 2010-2018 to describe the process and the chronological evolution of the “6i Research Model”. Figure 1 graphically summarises the aggregated indicators under each variable and element, and results are reported in sequence.

### THE “6I RESEARCH MODEL”: AN IMPLEMENTATION IN MOTION AT UNIVERSITY OF DEUSTO

The process, as implemented at the University of Deusto, has been studied by combining two analytical variables: a) time; and b) elements intervening in the process. For this reason, data collected under the four elements included in the second variable – b1) policy and strategy; b2) support research structures and staff; b3) mechanisms and initiatives;



**Figure 1.** Process evolution of the “6i Research Model” at the University of Deusto  
Source: prepared by the author based on data gathered.

## 2010-2011 – BOTTOM-UP INCEPTION

**Policy and strategy.** At the start of the decade, research at Deusto was carried out in a disconnected manner and projects gravitated more around the work of individual research interests. We were doing many things related to 6i dimensions, and had been doing so for many years, only we called them different names as they were dissociated from each other and took place in different places.

However, the University of Deusto had a solid base on which to build:

- Over 130 years of history that backed solid relationships with companies, SMEs, regional clusters, entities, policymakers, other academic institutions and social organisations. This has allowed “Deusto Research” to blend competitiveness, innovation, and technology in order to tackle challenges for communities, companies and public bodies in the region.
- A robust number of externally evaluated and accredited researchers, research teams and units at the University with a proven record of research excellence and engagement with society (37 research teams, 9 research institutes, 13 chairs)<sup>3</sup>;
- A committed senior leadership with a deep knowledge of the institution, the individuals, the system and the internal dynamics. There are three elements providing the driving force for this leadership: firstly, flexibility, with room for manoeuvre in terms of finding solutions, proposing ideas, introducing changes and creatively introducing innovations in research management; secondly, alignment with the defined strategy; and finally, a firm conviction that collaboration is the driving force required to achieve higher scientific competitive levels and closer links with the needs of society.

Therefore, based on intuition and an emerging vision of a more integrated way of managing research, we basically started to join the dots. The first steps were informal meetings with researchers and transfer of knowledge officers working in the field of ageing. We gathered to discuss, meet, take stock (of existing expertise, ongoing projects and publications) and plan the steps forward.

**Supporting research structures and staff.** In 2011, the International Research Project Office (IRPO) was created. Made up of 3 experienced advisors, the IRPO team was assigned with the task of driving the university’s research forward by identifying opportunities to internationalise the university’s research and build bridges between the university and stakeholders.

**Mechanisms and initiatives.** In 2010, despite submitting six proposals, launched by international calls, only one research unit at the university had included international projects in its portfolio. However, by the end of 2011, Deusto had more than tripled its submissions to international projects (21 submissions) and the number of funded projects (3 funded projects). Though these data show the initial results, it was clear from the early phases of the process that both learning how to write proposals and the participation in international projects were key mechanisms for moving the strategy forward.

Furthermore, in 2011, the first interdisciplinary research platform, “Ageing and Wellbeing”, emerged as a bottom-up initiative aligned with the “European Innovation Partnership on Active and Healthy Ageing”. The “Deusto Interdisciplinary Research Platforms” are flexible mecha-

nisms organised around societal challenges for establishing collaborative inter- and trans-disciplinary research partnerships between different research teams and external actors. By gathering researchers from different disciplines to promote active, healthy and meaningful ageing, the “Ageing Platform” paved the way to other interdisciplinary platforms which were to emerge in the following years. The path to constructing the “6i Research Model” was underway.

## 2012-2013 – GROWING STRUCTURES AND BUILDING CAPACITY

**Supporting research structures and staff development.** In 2012, with the support of the Vice-Rector for “Research and Transfer of Knowledge”, Deusto organised its research structure around the “Deusto Advanced Research Centre” (DARC). This was made up of two support research units: the “DEIKER-Deusto Research Results Transfer Office” and the “IRPO-International Research Project Office”. In the same year, IRPO also increased its staff by hiring two more experienced advisors and one junior manager. This was an important increase in resources directed towards the impulse of **mechanisms and results**.

**Mechanisms and initiatives.** With less proposals submitted in 2012 than in the previous year (15), the number of international projects funded was higher (5) than previous results, which, in fact, meant an increase in the success rate and having four research units involved in international projects. In 2013, there were more researchers involved in the internationalisation of research (8 research units compared to 4 in the previous year). These submitted eleven more proposals than in 2012, three of which were funded. The low success rate was justified due to some units that were just starting to build up their capacity in this field, having had little experience in writing proposals.

2012-2013 was also the period in which the first proposals within the “Ageing and Wellbeing Interdisciplinary Platform” were prepared (2 proposals in 2012 and 5 in 2013). The platform also started to hold two periodic meetings (one every six months). Envisaged as cohesion tools, these meetings facilitated spaces for exchanging ideas, networking and planning between platform members. Once piloted and based on lessons learned, regular general platform meetings were introduced successively over the other interdisciplinary platforms, adjusting the content and dynamics for each specific context and field.

Capacity building. With more staff, the IRPO managed to organise one in-house training session in 2012 and four training sessions in 2013. The focus of these sessions was to instruct researchers on how to apply for international competitive proposals and funding.

## 2014-2015 – GAINING CLARITY: ORGANISING STRUCTURES AND TOP-DOWN SUPPORT

**Policy and strategy.** Since 2010, “Deusto Research” had been steadily developing a clearer vision for challenge-driven research aligned with the Europe 2020 and the “Basque Country Smart Specialisation Strategies”, with advanced research units and experts contributing to knowledge generation and innovative solutions. Nevertheless, it was in

2015 that the first four “i’s” in the research model (internationalisation, interdisciplinarity, intersectoral and impact) were included in the “Deusto 2018 Strategic Plan” (2015-2018).

With the establishment of these internal policies and recognition mechanisms, the model received backing at the highest institutional level from the rector’s team, with:

1. The introduction of the founding principles and governing elements into the agenda and strategy;
2. The development of a valuation system at a research and innovation policy level within the university, including three specific “Master Plans” in the “Deusto 2018 Strategic Plan”, creating synergies with other strategic areas of the university, such as a “Commitment to Social Justice”;
3. Securing a portion of the research support budget to promote joint participation in international research projects;
4. Setting a flexible structure and support mechanisms to create, develop and establish interdisciplinary platforms; and
5. The definition of progress indicators, against which this multi-layered process has been regularly monitored and evaluated.

**Supporting research structures and staff.** At the end of 2014/beginning of 2015, the “DIRS-Deusto International Research School” was created under the DARC structure to coordinate doctoral training at the university. In the same period, the IRPO hired three more junior advisors.

**Mechanisms and initiatives.** International proposals continued to be the key mechanism for engaging researchers and units in the “i strategy”. The number of proposals submitted to international calls nearly doubled in 2014 (going from 26 proposals submitted in 2013 to 40 in 2014 – 7 of them received funding). This was the result of a good positioning strategy for the initial calls under the Horizon 2020 programme. In 2015, the number of submissions to international projects reached its highest level (53 proposals submitted and 9 projects funded)<sup>4</sup>. Consequently, the number of research units working on international projects literally doubled from 8 in 2014 to 16 in 2015.

A significant event in 2014 was the emergence of a new interdisciplinary platform focused on “Gender issues”. Meanwhile, the “Ageing and Wellbeing” platform kept increasing the number of proposals submitted (rising from 5 submissions in 2013 to 14 proposals in 2015). In addition, as a result of the development and approval of the specific “Master Plan” to boost interdisciplinary collaborations, three more platforms emerged in 2015 (“B-Creative-Creative Cultural Industries and Cities”; “Social Justice and Inclusion”; and “Strengthening Participation”).

In 2015, the platforms also officially started to unfold into core groups as performing mechanisms for collaborative endeavours. These core groups were smaller groups of experts working together with their local and international peers and stakeholders around specific societal challenges on specific proposals or projects. These had undergone testing during the previous two years and were found to be viable mechanisms for focusing collaboration on:

1. building win-win situations between researchers;
2. tangible work aligned with the agenda, the results expected and the interests of different research units; and
3. creating meeting spaces to build trust and personal relationships.

The data show an increase in the number of active core groups, from a number of timid informal exchanges in 2010 to the current regular,

content-specific, ad hoc core group meetings held on the two studied interdisciplinary platforms.

**Capacity building.** In order to manage the increasing demand and to provide training and support to researchers, the IRPO organised 9 training sessions in 2015, including in-house and external training.

## 2016-2017 – HARVESTING RESULTS AND BOOSTING MECHANISMS

Policy and strategy. Internationalisation, interdisciplinary and intersectoral collaboration (the first 3 “i’s”) were the driving forces that articulated Deusto’s research response to societal challenges, and social impact (the 4th I) was incorporated steadily into the research and innovation policy and internal reward mechanisms. In 2016-2017, an evolving multi-layered process of “Social Impact Valuation” was finally in place. The process encompassed progress at four different levels:

1. Reflection and state-of-the-art knowledge production that resulted in the establishment of an evaluation criteria set contrasted with international, national and regional experts;
2. The generation of support units, dependent on the senior manager appointed to the specific “Strategic Master Plan” and two performing bodies: the steering and the evaluation committees in charge of planning, implementing and evaluating progress and results;
3. Training of social impact managers in charge of the everyday implementation of the proposed action plan; and
4. The launch of concrete valuation measures and initiatives: an internal call was developed and launched: the “Deusto Social Impact Briefings”. “Deusto Social Impact Briefings” are brief publications to disseminate the research results of projects to specific stakeholders and a wider audience.

**Mechanisms and initiatives.** In 2016, Deusto achieved its highest number of international funded projects (12) while the “Ageing and Wellbeing” platform managed to submit 12 proposals between 2016 and 2017. In 2017, the “Gender Platform” also started to increase results and presented 4 proposals for international calls.

In the same year, 4 interdisciplinary research areas were identified in alignment with the “Basque Smart Specialisation Strategy” and the intersectoral collaborative framework: “Energy, Territory, Health and Industry 4.0”. In addition, specific committees were assigned the responsibility of monitoring the implementation of the action plan envisaged under the “Master Plan” on social impact.

Interdisciplinary co-operation steadily increased within the 5 international interdisciplinary platforms. This process, coordinated by research managers at the “International Research Project Office”, crystallised in the creation of a collaborative culture (i.e. exchange of ideas, sharing knowledge, building trust) based on regular formal and informal gatherings, meetings and exchanges (six-monthly general platform meetings and more frequent ad hoc meetings, which were topic-specific or project-based, were held regularly on a demand basis).

Framed within the then 4i strategy and backed by 42 partner organisations, the University of Deusto received a prestigious Marie-Sklodowska Curie COFUND project. This was led by the Vice-Rector of “Research

4 This was also a result of the DeustoTech’s strategy to invest in hiring a renowned consultancy to boost their internationalisation strategy, helping its units prepare a high number of European proposals.

and Transfer” as an institutional project to channel a collaborative culture among PhD programmes, research teams, support structures and interdisciplinary research platforms and areas. It was a challenging proposal to prepare, with multiple negotiations and multilevel coordination. However, it was successfully evaluated and funded and has allowed the university to:

- a. Leverage the coordination level between different departments, research support units, and PhD programmes at the university;
- b. Introduce innovations in the selection process and the identification of topics offered in the two call for candidates open under the project; and
- c. Offer 8 doctoral positions to attract talented young researchers of excellence to Deusto PhD programmes, teams and platforms.

In terms of social impact, in 2016, we organised the first “Deusto Conference”, which, together with non-academic stakeholders participating in research projects, addressed issues related to the social impact of university research. In addition, the university set up two new related initiatives in the period: the “Deusto Research Social Impact Label”, which recognises impactful research projects, and, for the first time, the social impact dimension was introduced into the “Deusto-Santander Research Awards”. A second “Deusto Conference” was held in March 2017. Furthermore, in 2017, DIRS-COFUND topics evolved and were evaluated using the existing 4i model. Another 8 positions were published in the second call, resulting in the enrolment of a new cohort of 8 “Early Stage Researchers” (ESRs), who joined the 8 previous ones.

Capacity building. In 2017, the amount of in-house and external training provided to researchers reached its peak, with twice as many sessions held than in the previous year (14 training sessions in 2017 compared to 7 sessions in 2016).

## 2018 – BROADENING THE MODEL

Policy and strategy. The “6i Research Model” gained its last two “i’s” in this year: innovation and inclusion. We are, at present, incorporating innovation and entrepreneurship in a more systematic way. Apart from the existing innovation initiatives<sup>5</sup>, we are devising mechanisms and actions to align innovation within the research strategy.

A fundamental underlying principle of the mission and vision of the University of Deusto is inclusion (the 6th I). We are currently taking stock of the way this dimension is being tackled within the model. A clear example of this is that anyone who wishes to is welcome to contribute to the Deusto interdisciplinary platforms in a variety of different roles (as part of a core group to prepare a proposal, as a representative of the platform at relevant international or local events, etc.). Specific methodologies and indicators are being developed to capture the inclusion of disciplines, roles, researchers within the interdisciplinary platforms, the preparation of international proposals, the implementation of projects, etc.

Figure 2 illustrates the “6i Research Model” and shows the alignment of the university’s “Strategic Plan” (in the centre) with the vertical and

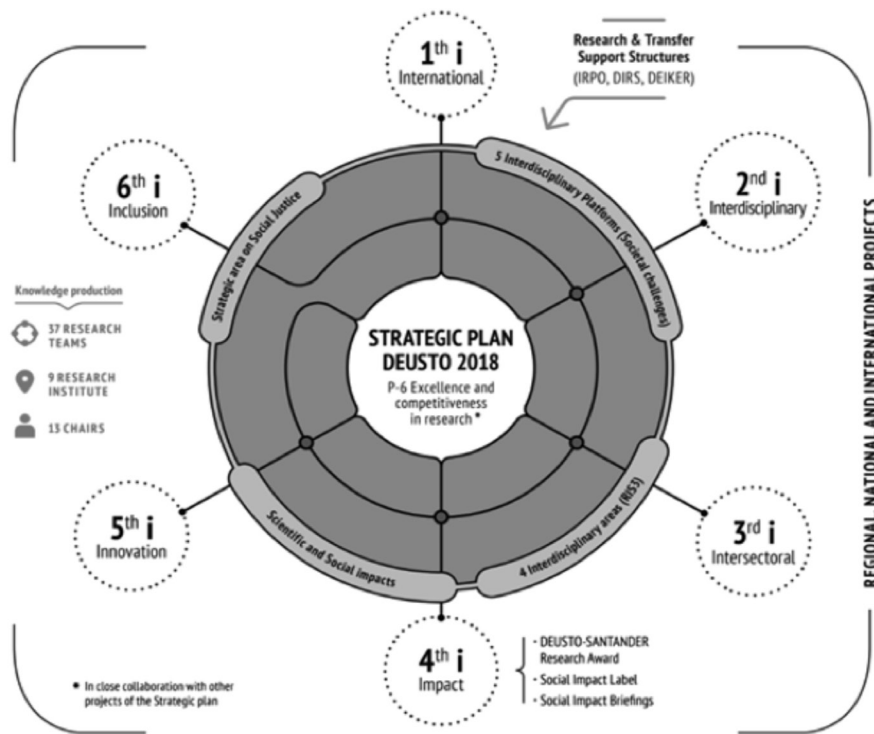


Figure 2. Deusto implementation of the “6i Research Model”.

5 There are already a number of outstanding but dissociated innovation initiatives, units and researchers at Deusto. The innovation dimension of the “6i Research Model” will build on this rich body of already existing initiatives, researchers and units. It will figure out suitable collaborative mechanisms to integrate the research-innovation-transfer continuum of knowledge-social impact.

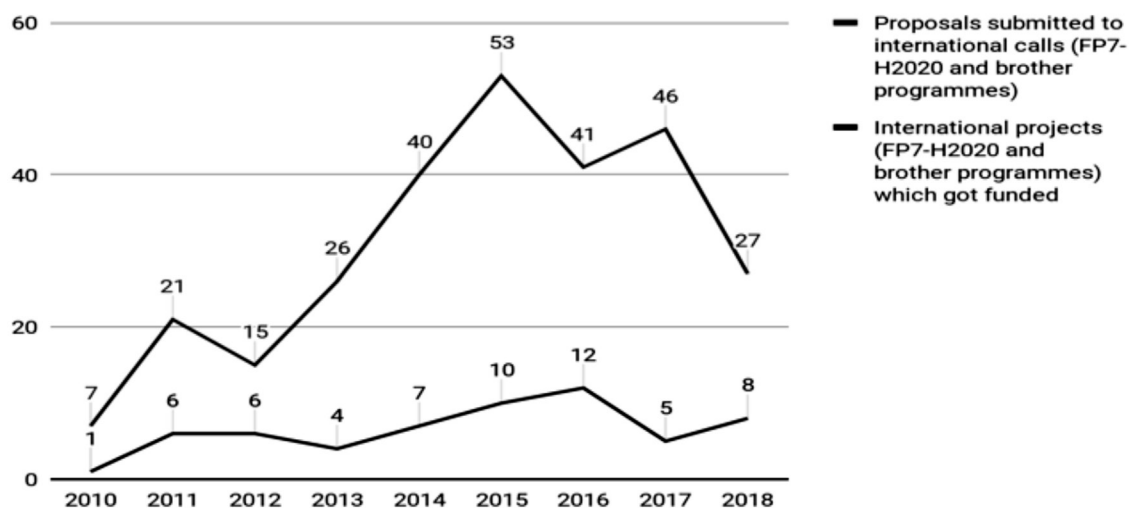
horizontal interconnections between the levels and elements in a continuously evolving self-feeding process.

**Supporting research structures and staff.** As of today's date in October 2018, IRPO staff numbers have been bolstered by the hiring of a project manager and one junior advisor. The increased support structure will make it possible to keep up with the continuous workload:

- providing support to staff in preparing proposals for competitive calls;
- taking on the preparation of ambitious initiatives, such as the coordination of a Hackathon within the AAL Forum 2018 and the Biscay Silver Week held in September;
- capacity building (7 training sessions have been held only this year);
- boosting the action plan for innovation (innovation radar pilots, social impact licensing); and

- improving the communication and dissemination of research results (generation of news for the interdisciplinary platforms, "Deusto Research" website).

**Mechanisms and initiatives.** The monitoring of the performance indicators for the 3 Master Plans shows the driving force of the strategy in terms of the dynamics generated, blending collaboration and competitiveness. This blend resulted in the participation by DEUSTO in a total of 167 research proposals between 2015 and 2018, with 35 of them being successfully funded under Horizon 2020 and other related programmes. This represents a success rate of over 20%, meaning that the University of Deusto is showing a competitive performance above the national and European average.



**Figure 3.** International proposals submitted and projects funded (FP7, H2020 and related programmes)

For the last two "i's": innovation and inclusion, driven by initiatives from the European Union such as "Innovation Radar", Deusto started to run "Innovation Radar" pilots with selected research projects carried out by the university. It has also collaborated with local industry partners to launch an initiative called the "Social Impact Licensing Strategy", which is aimed at screening technologies and/or services provided by "Deusto Research" to evaluate societal markets.

Finally, in relation to inclusion and aligned with the internationalisation of research, the wider ongoing research project will include initiatives in which Deusto has taken part which are directly related to inclusion (i.e. the "European Science for Refugees initiative", which is aimed at opening doors for refugee scientists to European institutions)<sup>6</sup>.

## CONCLUSION

This paper had two objectives: the first was to introduce the main features of the “6i Research Model” and give a brief account of its multifaceted composition. The second was to analyse how the model has evolved in practice during its implementation at the University of Deusto in the period 2010-2018.

Firstly, to summarise the model, 6i stands for six research dimensions that are usually managed in a disconnected manner: international, interdisciplinary, intersectoral, innovative, impactful and inclusive. Along these lines, the “6i Research Model” is a multidimensional system that combines key elements in order to sustain a multi-layered intervention that: (1) includes 6i in a well-defined vision and strategy, (2) defines clear governing principles, (3) provides mechanisms and structures to support international, interdisciplinary, intersectoral, impactful, innovative and inclusive collaboration and (4) defines specific measures for evaluating the on-going process.

The combination of a system thinking approach with a hands-on practical implementation, which is embedded in the requisites and assessment mechanisms of university life has helped us envision a model capable of

- a. devising more holistic implementations open to future developments and collaborations;
- b. being able to adapt to the features, characteristics and everyday business of each institution; and
- c. proposing research questions and innovations that respond to more humanistic and social purposes in collaboration with other researchers and stakeholders.

Secondly, by combining two main variables (time and key enabling elements), we have explained the main features and evolution of the process over the period in question. Changes introduced under each of the sub-variables (policy and strategy, support structures, mechanisms and initiatives, and capacity building) have longitudinally generated different institutional responses that accommodate the ever-evolving research management process.

The results obtained from the analysis of the implementation of the model at Deusto show how a process that integrates these 6 usually disconnected elements into an orchestrated strategy can pave the way to growing a robust model. The firm institutional commitment to 6i at Deusto, together with the innovative combination of institutional strengths and elements, demonstrates a complex self-feeding dynamic. In this dynamic, bottom-up initiatives and top-down support combine and drive each other, integrating around the ordinary delivery of research results at academic institutions (i.e. research project funding).

This self-feeding process can be clearly illustrated by the evolution of the “Deusto Interdisciplinary Research Platforms”. Emerging as a bottom-up initiative in 2011 to address both the agency of researchers and the university’s research management structure, research platforms were backed at the highest level over time and incorporated into the university’s strategic plan. In addition, they are steadily becoming a key part of the university’s research structure through which to channel international, interdisciplinary and intersectoral collaborations. Together with research excellence units and groups, the platforms are fostering the inclusion and engagement of researchers and stakeholders in impactful research. Specifically, the five “Interdisciplinary Research Platforms” and the four “Interdisciplinary Areas” have helped to aggregate

expertise and critical mass to strive for research excellence aligned with the “Europe 2020 Strategy” and the “Basque Smart Specialisation Strategy” (RIS3).

In terms of people management, engaging university staff to work into interdisciplinary communities successfully is a long-term and complex process. Interdisciplinary communities, such as the “Deusto Interdisciplinary Research Platforms”, are living, dynamic people-centred systems, with fears and emotions, knowledge and expertise, attitudes and personalities, interests and personal history and relationships within the institution. There is nothing more intricate in an organisation than the people that comprise it, and in general, not enough importance, efforts and resources are dedicated to their development and demands.

By innovatively linking the individual, collective and institutional levels, the evolving “Deusto Research Collaborative Framework” is enabling conditions to overcome barriers and develop successful and sustainable inter and trans-disciplinary, intersectoral collaborations. This is easing the path for delivering indicators of sustainable, real, collaborative efforts, while at the same time moving towards defining meaningful research questions and real impacts.

Finally, one limitation of this work is that, by taking concrete evidence as a reference, this research opts to analyse institutional change from a more “tangible” perspective. To complement this, further studies that are currently in process, as previously mentioned, will broaden the scope and deepen the understanding of the “6i Research Model” from a more sociological approach. Using a combination of quantitative and qualitative datasets and methodologies, the evolution and process will analyse the drivers, the barriers and the role of the agency of individuals and human interaction on the process.

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