



CASE STUDIES

The Porto Design Factory at Instituto Politécnico do Porto¹

LEADERSHIP AND GOVERNANCE

MEASURING THE IMPACT

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INTRODUCTION

This case looks at how the Instituto Politécnico do Porto (IPP) used the HEInnovate tool as a platform for analysis and a stimulus for strategic change. This case examines the positioning of entrepreneurship at IPP and how the use of the HEInnovate dimensions to review institutional performance and inform the creation of a new strategy. Specifically, the case considers the HEInnovate dimensions of Leadership and Governance.

IPP is a public higher education institution. IPP has more than 18,000 students across 7 schools (engineering, business, education, health, technology, design). It runs over 130 graduate bachelor and masters programmes. Founded in 1985, IPP was created to provide support for local industries, both applied research and developing well trained personnel. Porto industries are manufacturing based e.g. shoes, machine production and textile and medical appliances. Porto city dynamics are good, with easy transport and strong networks. 90% of local factories are less than 30 min travel away from IPP. The two major local industries are manufacturing and health care. IPP is located adjacent to the cancer hospital; hence health and well-being provides a very tangible context in which to build active innovation. Local industry is concerned with keeping current companies alive and becoming more future orientated.

In 2013, IPP recognised that, despite more than 10 years of entrepreneurship support activities, they did not have a central strategy for entrepreneurship education. IPP was busy being busy, organising activities and events for students in the general area of entrepreneurship education, but with little clear impact. There was growing doubt as to the longer-term effectiveness of the activities offered, as expressed by Prof. Carlos Ramos, vice president, responsible for R&D, TTO and innovation:

'We were doing business as usual, lots of activity. The quality of original ideas wasn't particularly great. Teams were poor, and tended to all come from within the same discipline, ideas were built in silos. There were no interdisciplinary teams.' Prof. Carlos Ramos

Internal meetings reviewing entrepreneurship education were organised simultaneously to the writing of the 2018 strategy for the IPP. These two processes coincided partly due to the president, Rosário Gambôa applying for her second term in office. It was recognised that entrepreneurship education and the development of the underlying mind-set and skills was important.

A local external consultant, commissioned by IPP's president to carry out a diagnosis of the entrepreneurship programme suggested that HEInnovate might provide a suitable platform around which to evaluate the organisation's performance. This leads to surprising results and a fundamental change in IPP's strategy for education, with entrepreneurship education and the creation of the Porto Design Factory (PDF) as a central focus for change.

'We need entrepreneurship (education) not to be just a course at the end of a programme, there needs to be a sequence, introducing challenges across all programmes planned and linked together. So far, Innovation has tended to be recognised as number of patents in the system' Prof. Carlos Ramos

Using the HEInnovate tool kit to evaluate the real nature of entrepreneurship education and support activity on campus has resulted in a fundamental reassessment of IPP's vision, their relationship with industry and their relationship with the surrounding ecosystem.

The HEInnovate framework has triggered deeper, fundamental changes. It was discovered that the challenges weren't just about entrepreneurship; they were about fundamentals relating to education. When the president was asked whether she wanted to develop the original enterprise plan or change course and develop a much more fundamental strategy as a result of the HEInnovate findings, she initially asked for both approaches to be developed. Ultimately the path for fundamental change has been chosen, and an active focus on education and providing deeper learning opportunities. The Porto Design Factory is a central, and highly visible piece of the strategy, both internally and externally.

In Feb 15, IPP had their 30th anniversary, as part of this celebration they adopted a new attitude with respect to how they position themselves. This attitude is characterised by new found or rediscovered confidence in IPP's capacity for excellence, including in the scientific area through their co-delivering of PhD with leading universities in Portugal and elsewhere. The surrounding ecosystem (companies, incubators, hospitals and social enterprises), keen to new ways of working in the aftermath of the 2008 economic crisis, is open to new forms of collaboration.

Entrepreneurship at IPP

Entrepreneurial mind-set and entrepreneurship education activities were officially introduced as an extra-curricular activity in 2003. Prior to this, entrepreneurship education was found in individual departments across the 7 schools, but not as an active collaborative endeavour. There was a sense that 'business as usual was not enough anymore', that there was nothing special about the business and product ideas coming out of the existing entrepreneurship activities, that the entrepreneurship ecosystem in Porto had grown significantly but that everyone was basically doing the same thing. There was a need to look anew at what IPP offered and how it could be more effective in the entrepreneurship lifecycle and entrepreneurship education. There was a desire to involve students from all parts of the campus, including musicians, performing and visual artists actively involved in campus based entrepreneurship activities.

A key meeting: bringing the different schools together

In 2013, it was decided by the presidency, as part of the design of the new strategy for IPP 2018 that it was essential to audit what was happening on campus and to get the 7 faculties to communicate actively and openly with each other. So representatives of the 7 faculties were called together for a meeting, off campus, to discuss the development of entrepreneurial education and development mind-set, skills and competencies, in the context of the strategic direction of IPP. This meeting was the first indicator that the president & senior management were concerned about communication between the schools and the role of entrepreneurial education at IPP, and were committed to looking for change.

The inspiration for the review came from the 3 different perspectives from Aalto, USA and IPP's president, Rosário Gambôa, There were three core questions at the centre of the review: What is entrepreneurship and entrepreneurial education really about? What impact do we really want to have? What do we, as IPP stand for?

'Co-creation is at the heart of Porto Polytechnic, and that's how we should look at entrepreneurship. We are so many 'and so different: we can learn so much from each other. Let's bring interdisciplinary education and work back to the centre of our strategy.' Rosário Gambôa, president of IPP

The core insights and outputs of the meeting included:

- The success of entrepreneurship education was being measured in terms of the level of IP and patents granted and the number of business start-ups. These were largely out of IPP's control and not directly attributable to any specific activity or intervention.
- The activities on campus were promoted in terms of encouraging success in business creation, but the actual activities were not well aligned with delivering these results. They tended to raise issues, not solve them.
- There were many overlapping activities on campus, but the administration and other departments, were mostly unaware of these overlaps.
- IPP was not recognised as an expert in business incubation, business acceleration or even business creation
- IPP was not recognised as having the capacity, understanding and know how to be outstanding in education despite its
- IPP had the image of starting to imitate other further education and higher education institutions and focus on academic publications and award of degrees, rather than building excellent links with industry and the local economy.
- Overall, IPP was poor at building teams, poor at collaboration and cross-disciplinary thinking
- IPP had created silos of expertise, with top quality focused experts, but lacked excellent generalists who were willing and able to work in new areas and across institution boundaries.

The following decisions and action plans came out of this meeting:-

- A declaration, by the president, Rosário Gambôa, that the IPP should go back to basics of education'
- A decision to go back to the basic premise of IPP
- A decision to support active partnership and collaboration between the schools
- A decision to focus on health technologies and wellbeing as a context for cross-campus, cross-faculty collaboration and development of entrepreneurial education
- A determination to develop a distinctive entrepreneurial culture at IPP

In the 18 months since this meeting, the following have been achieved

- Over 120 students enrolled in entrepreneurial education activities in the new PDF facility, before its official opening in May 2015
- The official opening of the Porto Design Factory (May 2015)

The entrepreneurial ecosystem in the Porto region actively wants to link with the Porto Design Factory. IPP has started running programmes, mostly evening programmes, in the PDF. Within IPP, there is a search for champions, teaching staff who want to be involved with PDF. Many of these are staff who aren't currently recognised.

'A new strategy: To stick to what we are good at. We aren't outstanding at building management or running incubators. We are outstanding at education.

We can, and will, add value to the entrepreneurship ecosystem by providing students with world class education. We should start entrepreneurial and entrepreneurship education earlier. We're excellent at education; we should go back to putting education at the centre of our strategy. We should seek to broaden horizons. We will allow students to co-design their education and take responsibility for their learning. It recognise that it is our responsibility to provide the infrastructure to enhance ideation, concept

development and commitment stages. We should recognise and develop the value of super generalists who can move between silos and bring specialists from expert disciplines together. Soft skills need to be recognised and actively developed. This represents a massive cultural change.’ Rui Coutinho, Senior Advisor to the President of IPP

The senior management team at the IPP has decided to review the challenges, together, at an ecosystem level

‘We are a public institution, we should be adding to the ecosystem not competing with existing facilities, or creating overlaps. We should work by creating partnerships, and use partnerships to provide a complete infrastructure, not compete, not replicate.’ Rui Coutinho, Senior Advisor to the President of IPP

The president of the IPP, was consulted and fully behind the repositioning of entrepreneurship and the focus on education. The president’s first discipline is philosophy and her research is housed in the school of education, these are very relevant to the development of new programmes and instil deep change in the identity of the institution. Not being able to get re-elected at the end of this term allowed the president to be more open for change and as she has a history of getting along with, and respecting the viewpoints of, all parties, with no allegiance to any political party.

There is a finite window of opportunity to make this change happen. The president is starting her second and final 3-year term of office. She was elected into this second term without opposition. If the strategy can be implemented and made sustainable and irreversible within her term of office, there is a real opportunity to change the direction and position of IPP in the ecosystem.

Rui Coutinho has been appointed Senior Advisor to the president of IPP in the areas of entrepreneurship and innovation. He is responsible for defining and co-ordinating the IPP Entrepreneur 2020 Programme. Coming from outside of academia, he is an expert in corporate communications in industry and local government, and has been an invited lecturer, teaching 7 hours a week. The involvement of professionals outside of academia gives the institution an independent and external point of view, detached from academic career perspectives.

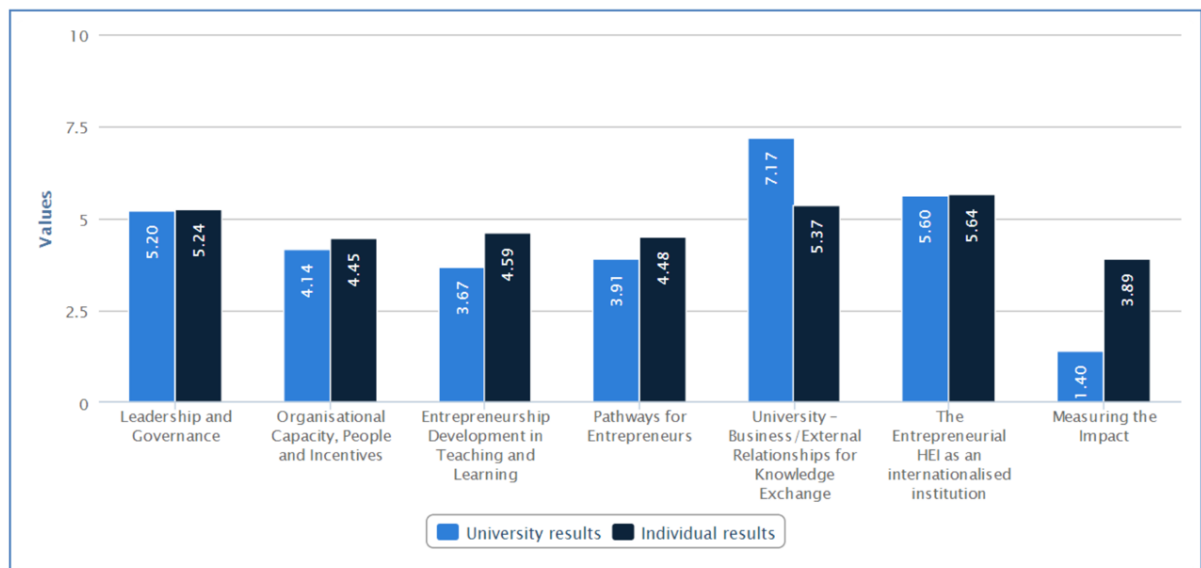
Changing the culture and focus of entrepreneurship from commercialisation to pre-start and enhanced soft skill development is a top to bottom project, but all levels need to be involved. The president took responsibility for talking to the heads of staff. Her senior advisor has spoken and keeps in contact with more than 200 people individually across campus, including students.

The analysis: using the HEInnovate framework

On the suggestion of a local consulting company, IPP used HEInnovate tool to evaluate existing performance at all levels students, lecturers, programme boards. It was seen as essential to find a mechanism to make all participants really talked to each other. It was essential that the participants opened up and were gave honest feedback. These meeting were taken off campus on neutral territory. There was a need to facilitate a deeper discussion between the 7 schools, by structuring it around a framework. The HEInnovate dimensions provided a neutral, and external framework for exploration, so opening up a new level of conversation that was seen as largely without any particular agenda.

‘Initially, we had no expectations of the HEInnovate framework; it was simply a platform to facilitate discussion. However the results were invaluable in informing or analysis and strategy. In particular we focused on the measuring impact dimension, we knew this was a weak area for us’ Rui Coutinho, Senior Advisor to the President of IPP

HEInnovate was used as a tool to shape the initial discussion, as an analytical tool to uncover weaknesses, as an independent platform to assist the need to admit to areas where the IPP lacked competence.



Some of the scores appeared distorted, e.g. the apparently high score on knowledge exchange. There was a feeling that since definitions and standards mean different things to different people, all respondents aren't necessarily speaking the same language. There was no easy way to check this, however it was seen as more important to create a positive forward vision and to execute it. The low relatively low score on 'measuring impact' was good news for the implementation team; it supported an examination of what was being measured, and challenging its relevance. It also opened up the discussion as to what should be done and realistically could be done.

Following the initial analysis, the dimensions provided a structure for the search for best practice. For each dimension, case studies were sought of institutions that were doing things right with respect to that dimension. The following were identified.

- **Leadership & Governance:** Twente, Chalmers, Dublin IOT
- **Organisational capacity:** Louven R&D, Aalborg
- **Teaching and Learning:** London School of Arts, Twente, Norwegian School of Entrepreneurship
- **Pathways to Entrepreneurship:** Aalborg
- **Measuring Impact:** Twente

The first meeting identified some surprising issues. HEInnovate was seen as useful external equaliser to get the different schools to talk to each other, no one expected the findings to be so deep. This has had a profound effect on the subsequent decisions taken at IPP.

The discipline silos were much stronger and deeper than was expected. The individual schools were orientated towards being self-sufficient and building internal capacity. Almost every school had overlapping programmes. Some schools knew very little about the presidency entrepreneurship programme even though it had been running for 10 years. The entrepreneurship programme had developed the same activities as most other entrepreneurship programmes e.g. technology transfer, competitions, venture capitalists visiting the university, but without a clear internal rationale. When the actual number of start-ups was reviewed, it was found that only 16 had survived. The majority, 95%, of these were not created inside the entrepreneurship programme, but were created by alumni and included in the figures for entrepreneurial impact.

The Porto Design Factory (PDF)

Porto Design factory is the hub around which the change is centred. In creating Porto Design Factory, IPP has agreed with Aalto University to set up a Design Factory in Porto. This makes Porto one of 7 design factories internationally, including CERN, and Aalto University. Each design factory is a dedicated creative space to support student initiated projects

Porto Design Factory provides a very tangible commitment to building a strategic approach to entrepreneurship and entrepreneurial education within IPP. It is the first joint programme between the 7 schools of IPP. The seven schools are being challenged at the education level - to change, to collaborate, to innovate together. Top students are attracted to IPP because of the polytechnic's strong links to industry. The PDF is designed to enhance this.

The heads of departments need to be engaged. Many faculties are focused on academic research and publication, and don't yet, recognise entrepreneurial awareness and competence as having much value for their careers. Traditionally faculty have been evaluated on the basis of 3 or 4 of the following aspects; pedagogy/teaching hours/ number of classes, scientific activity (research), management of the institution and technology transfer. Early stage entrepreneurship is not actively covered by these four areas. Early stage entrepreneurship, and the educational impact this creates, is the focus of the PDF. Students are encouraged to come to PDF to explore ideas, and then reach out to IPP, and beyond, to find the technology needed for implementation. PDF is not an incubator; it is "Co-creation Platform". It is not called an incubator, or pre-incubator, as pre-incubator stimulates to other concepts of early-stage business development. And even though some of that might happen at PDF, it will always be a consequence of the main activity: inter-disciplinary and collaborative education, it exists to develop skills and competencies, not businesses. Concepts born in PDF will leave PDF to be nurtured and grown in the existing incubators in the municipality of Porto.

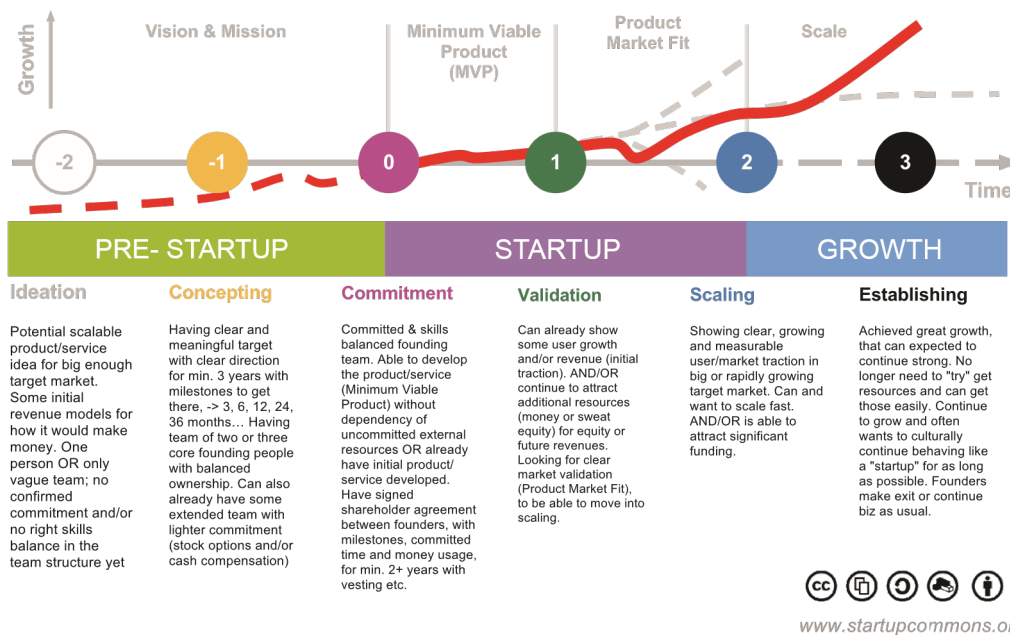
Porto Design Factory has the potential to provide new prestigious opportunities for staff. It is a tangible space for innovation outside of the individual schools. It provides a resource for developing interdisciplinary teams. PDF is the most interdisciplinary activity on campus. The PDF is meant specifically for things that aren't being done elsewhere, including social entrepreneurship and post-graduation courses. It is designed to be accessible to all faculties in order to enhance and promote transversal collaborative work amongst them.

PDF has been well received by students. By February 2015, the students were already finding and using the building, before the building and interior decoration was finished and before the official opening in May, 2015. In line with the other Design Factories around the world, the interior of PDF has been created to actively support the design process. The rooms are colour coded according to their purpose, e.g. red for meeting rooms, grey for multimedia. This creates a different, more fluid, interactive feel when one enters the building. The colour codes were mainly inspired by Andy Warhol's Factory, known for stimulating different emotional reactions.

'PDF can be considered the kitchen and dining room for the 7 brothers, who all live in in the house. It is the place where all 7 disciplines can come together, work together and innovate together, and in doing so, actively create new value for local industries.' Rui Coutinho, Senior Advisor to the President of IPP

The president's agreement to dedicate a building to create Porto Design Factory is a highly visible commitment to change, and a different, strategic approach to entrepreneurship. It is the responsibility of the Senior Advisor to the President to ensure that the PDF gains the attention of, and ownership from, the greater community, both internal and external, for sustaining innovation and entrepreneurial development.

IPP is focusing on the pre-start-up phases in the model below.



The PDF provides an additional educational challenge. Portuguese students aren't used to having responsibility for their own learning. The PDF creates the conditions for students to teach themselves and take responsibility for their own learning, ensuring that students get real value from the activities. The focus is on students leading the way and determining their own agendas. Students associations are regularly consulted and involved. Additionally, they are represented at the pedagogic council for IPP, where they are called to contribute and influence education programs. The long-term vision is that entrepreneurship in IPP is student driven.

PDF provides a space for students to explore in the pre-start phase. In the spirit of 'be responsible for your own education' students will move from being used to being comfortable - to being comfortable with being uncomfortable. Problem based learning and the flipped classroom are at the heart of the process. The PDF adds value to the entrepreneurial ecosystem by providing students with direct access to world class education and networks. Centre to PDF is the development of soft skills through engagement with ideation, concept development and rapid prototyping on site.

PDF offers post-graduate programmes. The post-graduate model is common in Portugal. It is evaluated but there are no credits. Students select courses from those already on offer, or create your own. Active reflection on learning styles, pedagogy and how people learn is encouraged. Students are expected to be radical; it is a great global experiment in developing valuable skills for the future. Many of the most important skills are learned while doing something else, e.g. developing decision making skills while running the place. The Stanford Programme, (ME310 – Product Innovation Post-Graduation) is open to anyone who has a bachelor's or master's degree, as well as those who have professional experience and maturity. It is a non-graduating programme so easier to implement within the organisation. It does not need approval from the scientific study boards. The scientific study boards exist to ensure the integrity of specific disciplines at a high academic standard, interdisciplinary approaches are particularly un-aligned with the established systems and authorisation criteria. PDF builds on Porto's strong R&D tradition and links with local manufacturing industries.

The PDF offers all community members three things.

- Active consulting with industry to develop the soft skills
- Access and ability to select best practice from around the globe
- An opportunity to use the latest knowledge, from all disciplines, for learning

It is critical to the development of IPP to make entrepreneurial education permanent, not something that only happens for a short period while there is external money, then goes again. PDF is the chosen vehicle for delivering this change. There were 150 students using the PDF facility for their projects prior to the official opening.²

The Porto Design Factory's experience as illustrations of HEInnovate statements

Leadership and Governance

The creation of Porto Design Factory and hence IPP's membership of an elite international group of world-class education and research institutions has created a platform for developing a new entrepreneurial vision for the future. This positions entrepreneurial education and the entrepreneurial mind-set and cross-faculty collaboration visibly and centrally on the campus. The PDF also provides a platform whereby IPP can deliver flexible programmes in the spirit of (rather than compliance with) the Bologna process.

Entrepreneurship is a major part of the strategy

The commitment to PDF and the dedication of a building in the centre of campus is a highly visible, and potentially contentious commitment, to entrepreneurial education as a mechanism for delivering a new era in IPP

The new entrepreneurship strategy is linked to the overall vision of re-orientating the vision and mission and to go back to the basic premise of IPP. IPP was created to work with industry.

The new entrepreneurship strategy goes to the heart of excellence in education, putting soft skills actively on the education agenda. This flips the ownership for the education process to the students to learn while doing e.g. working on real ideas alongside real companies within the local ecosystem.

The strategy identifies the need to develop highly competent generalists who can work effectively across subject disciplines. This approach supports IPP to more authentically align with the Bologna process. This highlights the constraints of the scientific boards and the established systems that support conventional research and single discipline academic expertise.

The PDF has been established for students to pursue their passion their way, to support and develop IPP in its mission as a place of excellence in learning, serving the local industrial ecosystem.

The focus of the PDF is to develop core skills and mind-sets that develop entrepreneurial capacity, specifically ideation, innovation and commitment. It is open to students from all disciplines making its activities not only aligned to the core mission of IPP but also genuinely accessible to the entire student body.

The visible profile of PDF and the innovative nature of its activities provides an opportunity for staff who are actively involved with PDF to extend their profiles external to PDF and in doing so enhance both knowledge transfer and the credibility of IPP within local industry.

Since the design factories form an international 'elite' network, led by the work at Aalto University and Stanford, the PDF aligns with the aspirations of the institution and their tendency to benchmark their performance against the world's top academic institutions.

² <https://www.facebook.com/portodesignfactory>

There is commitment at a high level to implementing the entrepreneurial strategy

The creation of the PDF is positioned in response to the strategic evaluation of IPP using the HEInnovate framework. The creation of the PDF is a practical and visible commitment to addressing the issues uncovered by the HEInnovate assessment. All seven faculties were part of the review. All seven faculties have the potential for equal access to the opportunities offered by PDF.

The president has created and supported the space to work on a new education agenda, both in terms of a dedicated building (the PDF) and the dedicated personnel to implement the change. She is fully behind the implied education philosophy reform which was identified as an issue, as a result of the HEInnovate inspired review of entrepreneurship education at IPP. She has taken active responsibility, as spokesperson, for communicating the changes to the senior management team.

A Senior Advisor to the president of IPP has been appointed, in the areas of entrepreneurship and innovation. He is responsible for defining and co-ordinating the IPP Entrepreneur 2020 Programme. Senior Advisor Rui Coutinho does not come from academia. He has a fixed term contract and has already been asked to consider an ongoing academic position.

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The higher education institution has a model for coordinating and integrating entrepreneurial activities at all levels across the organisation

IPP is using the proven format of the Design Factory, which has been successfully sustained at Aalto, Finland. The Design Factory concept was first developed in Aalto University, and strongly connected to Stanford's D-School.

All seven faculties have the potential for equal access to the opportunities offered by PDF.

The PDF is unique within IPP as a resource for creating innovative cross-disciplinary design projects that are linked, inspired by and commissioned by the external ecosystem. Both staff and students have access to the PDF and can work alongside each other.

The PDF facilitates the ease with which IPP can deliver programmes that align with the spirit of the Bologna agreement.

The faculties and units have autonomy to act

The PDF aligns with not only a vision of a vibrant future for IPP and its connection with the external entrepreneurial ecosystem, but also a return to the 'traditional' values and mission of IPP as a provider of excellent education and graduates well prepared for adding value to the local economic eco-system and supporting a vibrant economy.

The PDF hands over project leadership to the students. Its activities are outside of established academic systems while creating a supportive resource for developing final student projects and prototyping student innovations.

The funding aims of the PDF are for ongoing sustainability through creating value for and with the local economic community. Sustainability is aimed at meeting all running costs not building new infrastructure.

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The higher education institution is a driving force for entrepreneurship development in the wider regional, social and community environment

Through PDF, and establishing projects in the PDF, the Porto economic community has the potential to link with the international network of design factories and to support student led projects between the design factories internationally.

The PDF is unique within IPP as a resource for creating innovative cross-disciplinary design projects that are linked, inspired by and commissioned by the external ecosystem. Both staff and students have access to the PDF and can work alongside each other. Through the PDF local companies can interact with students to develop and prototype new products and new designs

The PDF has actively reached out to the arts faculty, one of the inaugural projects is from the school of music working on the creation of new musical instruments and hosting concerts using these instruments. These projects are both challenging and engaging for the students and provide an excellent basis for publicity and engagement with the community.

The Senior Advisor to the president of IPP's aim is to so firmly establish the external reputation of PDF and demand for its services, that if IPP even considered discontinuing the facility, local industry would demand its continuation.

Measuring the Impact

The higher education institution assesses the impact of its entrepreneurial strategy

The HEInnovate tool was used to guide the strategic review. As a result, 'Measuring impact' was identified as the weakest dimension. Therefore this dimension and the HEInnovate criteria have been used to consider impact from the start of building a new strategy. This change, and the exploration of new ways to measure impact is being piloted through the development of the Porto Design Factory (PDF). In order to decide what to do, 10 main reasons not to have a design factory were identified to later find workable answers that made all those reasons redundant.

IPP used HEInnovate to actively reflect on its performance and review the strategy. This led to an active decision to reset the vision and education mission for the Polytechnic 'to give students the best possible education and in doing so work closely with industry providing them with the human capital they need in today's world'. IPP, through the PDF, is testing new ways to systemise measuring the impact so that the current changes and their effects continued to be monitored and so enhance future strategic decisions.

The following have been identified as ways of evaluating impact of the PDF and hence provide information that can be actively used as a tool for reflection and review of the institution.

- number of students coming to the different programmes
- the level of international involvement in the programme; e.g. the number of students being involved in international projects with other design factories Aalto/Stanford/CERN and the duration of this involvement
- number of programmes with significant co-design between students and staff

- number of return projects, where industry comes back to use IPP students and PDF programmes.
- number of projects where industry pays for services from the university
- the level of involvement, time and activity, of directors of programmes
- the number of final student projects that are related to design and where PDF has had engagement with the project
- Number of new ideas generated within IPP that address new, real needs as identified by external organisations and companies
- Number of products that are commercially successful
- Comparison of the outputs of PDF with the other international design factories.
- The number of local companies seeking prototyping and design collaboration with IPP for the first time through the PDF.
- The number of links created by the PDF that develop into new external links for the seven established faculties.

Disruptive key performance indicators include:-

- Measuring the power of relationships, e.g. the number of teams, length of relationships, teams that go onto a second project
- Number of weddings, as a result of students who met through PDF

The introduction of new measurement criteria that are directly related to the core activities of PDF e.g. number of return projects, where industry comes back to get involve with the students and the programmes and number of projects where industry pays for services from the polytechnic potentially provide more immediate and relevant benchmark for knowledge exchange than relying on details of number of patents granted. By focusing on active industry engagement it is anticipated that a wider range of knowledge exchange will be recognised and hence become more widely appreciated by all parties.

The higher education institution carries out regular monitoring and evaluation of start-up support

The PDF focuses on the prestart-up phases of ideation, conceptualisation and commitment. Inside PDF these will be measured by the number of final student projects that are related to design and, where PDF has had engagement with the project. The development of new levels, or methods of collaboration with industry will be another indicator of impact. The number of new ideas generated that address new, real needs, the number of products that are successful provide further impact indicators.

The challenges to the PDF and how these were overcome

IPP endeavours to create a strong foundation for truly interdisciplinary teams and has invested in the PDF as a way of implementing this change. There are historic reasons behind some of the resistance to this new approach to entrepreneurial education. Some faculty don't recognise that they are seen as 'unapproachable', many don't see the importance of interdisciplinary teams as defined by the design factory concept. There is some expectation that the entrepreneurial mind-set and entrepreneurship belongs within the business school. The old schools (accounting, engineering and music) are the most resistant, they are auto-sufficient and have responsibility for professional accreditation, e.g. the engineering school was founded in 1852 and is understandably proud of its traditions, but these hinder active participation in change.

The Scientific council exists to ensure that the integrity of academic standards and discipline specialisations are observed; e.g. that subjects are taught only by someone with the right discipline pedigree. This means that entrepreneurship traditionally should only be taught by an economics

graduate. In the spirit of development of cross-discipline curriculum new accreditation mechanisms will need to be developed for the successful embedding of this new approach to entrepreneurship within IPP.

PDF brought to light some institutional development needs; a new role for the scientific councils is one of those needs. The tension rises from legal frameworks, which are very rigid on accreditation. PDF understands the situation and has chosen a strategy that starts with non-accredited programs and then negotiates progressively with scientific councils the needed or desired accreditation. In that sense, PDF is also stimulating change - a negotiated change

The intention is that within the next 3 years, by 2018, the moral support given to PDF attains a critical size to face potential future threats. Key to achieving this is to widely establish and promote what is really different about the PDF and how that relates, or informs, the unique selling proposition of IPP.

Additional threats to the success of the PDF include:-

- That the students and the schools aren't involved enough in the projects
- The mind-set of heads of departments remains unchanged. Some change in mind-set has started, in part, through the enthusiasm of the students. PDF attracted 120 students to the facility ahead of the official opening.
- Really good teachers and faculty are needed to keep PDF vibrant, this creates a challenge as to 'what do we standardise?', 'how do we create systems that allow for flexibility?'
- PhDs are needed in the scientific areas of the programme, 50% of the staff must be within the 'scientific area' of entrepreneurship.
- Mechanisms are needed to ensure that the students teach the professors, and to open the professors to being taught
- That the concept of the HEI of the future doesn't gain enough support. For the PDF to become sustainable there will need to be system changes. This requires both support and elapsed time, as changes happen within the context of the annual academic cycle.
- National accreditation agency (A3ES) approval is needed; this is true for all HEIs. For active use of the PDF, and a spread of PDF's principles across campus, it will be necessary to resubmit some programmes for accreditation. If too much is changed the programmes may not get reaccredited. It is important to have the right specialists delivering the programmes, from the right scientific disciplines. New official qualification frameworks are needed to account for the rising need for transversal skills in institutions such as IPP.
- There is a closed system for resources which creates internal conflicts for resources. The allocation of the building was contentious. There were several schools who would have liked the building. There is a threat is that future management (from IPP and schools) won't approve the way the building is being used, which is different from other IPP facilities e.g. 24/7 easy access, informality, students are responsible for the building and its equipment.
- There is need to inform and collaborate with the accreditation agency, through advocacy for an entrepreneurial HEI and the changes that are needed to achieve it. The Agency is separate from the government; two of main representatives are past rectors of important universities.

The challenge has been to divide up the work. The decision was made to split activities into what can be done now, and what will take much more time. There is a three-to-four year window to deliver sustainability. The students are being supported to deliver many of the quick wins e.g. running events. The PDF staff are focusing on the deeper issues needed to bring about a fundamental cultural change

e.g. winning the support of heads of departments and developing the necessary accreditation mechanisms.

The PDF isn't about empire building or attracting big money. It is about funding the necessary resources, and building practical (not corporate) facilities. It is about making things work on a personal level e.g. the students have painted the walls in the meeting rooms. The spending by IPP has been done on the building. This needed to be done anyway, this is an institutional rather than an entrepreneurship expense. The customisation element, e.g. decorating the building, now depends on the people using the facility. The facility is intended to be self-funding e.g. the furniture design project provided the furniture from local design companies.

Lessons learned

Using an external framework, such as HEInnovate provides a powerful and acceptable framework for starting cross-institutional dialogue, as it brings an element of impartiality and equality to the table.

Academic systems such as the IPP scientific board have been created to preserve academic standards and integrity. They are part of the change management system of the IPP and moderate the impact of new initiatives brought forward by individuals or teams. To generate a greater dynamism and a balanced interaction with industry and the local ecosystem, deep understanding needs to be developed between these academic systems and change actors in the IPP.

The impact of benchmarking against top international research organisations can result in losing sight of original key strengths. This can be particularly true for the polytechnics institutes for which the original mission is to match skill demand and supply between education and industry, but benchmarking has changed focus to comparing against the best in international research institutions. Internally, this has led to a change in culture over the years and a tendency towards following global trends in terms of research, rather than developing and designing an individual approach to meet the needs of the local ecosystem. The move to aligning more with other education institutions than the needs of the local eco-system had been incremental and largely un-noticed (incremental drift)

The systems and annual cycle of the academic year work are unaligned to the requirements of speed of response and reform the external environment requires. This makes it easier to implement reform in extra-curricular activities but hard to embed reform into core programmes. Within the curricular and formal elements of the organisation, many of the personnel with the talent and experience to teach and facilitate new level of entrepreneurial mind-set and new forms of education are initially inapplicable on the basis of lacking the required formal qualifications.

Taking a proven model from recognised top institutions, in this case the design factory model from Aalto University provides a way to align and join with the international intellectual elite and reposition the institution in the ecosystem without having to change all the internal systems. However this leaves the risk that cross-faculty collaboration remains extra-curricular and not fully embraced by heads of schools and established faculties. Using a high profile model, developed and proven externally, provides PDF with an element of internal respectability and credibility as a result of being associated with otherwise unproven innovation.

A subsection of students are quick to recognise the value of connection to innovation. Learning through doing is impactful and fun and these students appreciate the autonomy offered by the PDF, which acts as a half-way house between academia and industry.

People on the implementation team who care deeply about the success of the project but less about their personal career in academia are a great asset in the implementation of the programme. Making appointments at a senior, adjunct level, in this case 'senior advisor to the president', provides

credibility and enables greater speed of implementation. This appears to be enhanced by creating a new post that doesn't sound as if it is part of either the teaching or research community.

The fact that the president of IPP is popular and in her final term in office created a positive window for change, especially since she has no political allegiance and no concern about re-appointment. In this case there is an opportunity for highly visible senior support, and increased access to resources. However, the window is finite. This means PDF has to be implemented fast, have high visibility and impact and instant credibility. It does not provide time for grassroots innovation and development.

It helps when the case for change is not just a case for development and innovation but is also a call for return to 'historic' values and positioning, since this potentially resonates with both traditionalists and those who are enthused about innovation.