HEIDA - Data driven decision making for internationalization of higher education: Bridging the gap between faculty and admin using effective communication platforms

Literature review

1 GLOBALIZATION, INTERNATIONALIZATION AND EUROPEIZATION

The concept of globalization enters the European higher education policy framework in the second half of the 90s (Marginson and van der Wende, 2007, 10). Since then, globalization is becoming an increasingly prominent topic for discussion and research. Most of authors agree that globalization and internationalization are different concepts. In literature the most accepted understanding (Altbach 2004; Altbach and Knight 2007; Altbach, Reisberg and Rumbley 2009) is the one that defines globalization as those inevitable and necessary social, economic and political forces that influence higher education. In accordance to such a view, the current internationalization process would be seen as a response to globalized institutions (Cantwell and Maldonado, 2009, 289). In this regard, Altbach and Knight (2007, 290) define globalization as "the economic, political and social forces that push the 21st century higher education in the direction of increasing international participation." Globalization in higher education is therefore characterized by "wider economic, scientific and technological trends that have a direct impact on higher education and are largely unavoidable in the modern world" (Rumbley, Altbach and Reisberg 2012, 4).

In the context of internationalization and globalization, the concept of Europeanization is highly relevant, as it has its roots in the promotion of peoples' and ideas' mobility in the field of international co-operation among EU countries within their economic, social and cultural activities, as well as in the creation of a common European Higher Education Area (Marginson and van der Wende, 2009, 22). Europeanization can be defined as a specific form of regionalization, or as a process of internationalization at European level (Enders 2004, 368; Kehm 2003, 110-111). Regional internationalization includes: "Cooperation between EU countries in the economic, social and cultural activities that crosses national borders and is rapidly expanding, which is based on the idea that cooperation is necessary for the stability and economic growth in the region. Regional cooperation is also designed to increase the global competitiveness of the European region as a whole" (Luijten Lub et al., 2005, 5 in Luijten Lub 2007).

2 WHAT IS INTERNATIONALIZATION AND WHY IS IT IMPORTANT?

Internationalization has become an important topic of many debates in the European Higher Education Area (Teichler 2009, 95), mostly for two reasons. Firstly, because it represents a key element in order to reach the objectives of both the Bologna Declaration and the Lisbon Strategy[1]. According to Van der Wende (2009, 320), "although the documents appeared in very different ways and have some different patterns, the origin of ownership seems to be slowly converging into one overarching common approach". They both contribute to the promotion of internationalization, but in the context of achieving different goals. The role of internationalization in the Bologna process can be seen in the creation of a common European space and in its harmonization. The so-called internal internationalization represents the major component of "developing shared values and strengthening the common European culture, new forms of cooperation, development and implementation of programs, as well as the acquisition of various sources of funding" (Štrbac 2011, 57). To achieve the objectives of the strategy (that is, to create a competitive knowledge-based society), internationalization must be directed outwards (from Bologna to the world), to other parts of the world, which we would refer to as external internationalization (Zgaga 2004). Secondly, because throughout the last twenty years internationalization has been changing dramatically, and this tendency is forecast to continue (Teichler 2009, 104); (Altbach and Teichler 2001, 22); (Olcott 2009, 99). So what is it that has changed about it? The current trend follows the direction of increasing education across national borders, which has become one of the main issues of internationalization and an increasingly important aspect of higher education (Knight 2008, 95). As a consequence, we are facing a growing number of new types of providers, new modes of delivery, new programs and qualifications, and a changing nature and form of cooperation between higher education institutions (Chapman and Sakamoto 2011, 265-269).

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[1] The European Higher Education system and its internationalization process as we know it today is the result of the Bologna declaration, which represents the basis of the common pacts? and interactions for creating an open and competitive European Higher Education Area (Zgaga 2004, 24). The challenges caused by globalization and a knowledge-based economy have also been identified within the "European Area" in a broader political context by the European Union in the Lisbon Strategy of March 2000, where a new strategic goal was set: "to become the most competitive and dynamic knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion" (Commission 2003, 2).

2.1 Definitions

The concept of internationalization has entered in the higher education world around the year 1980. At the beginning, the concept received some research interest – further exploration and development - on American soil, where it was firstly described as international education. US authors described internationalization in terms of its activities, motives and competencies.

Later, with the expansion of further scientific focus in other parts of the world, especially in Europe and Australia, the use of the term internationalization in higher education was developed, emphasizing the understanding of internationalization as a process (de Wit 2002, 112-114). Below we present some perspectives of the progressive development of definitions that attempt to encapsulate the complexity and diversity of the internationalization process.

Arum and Van de Water (1992, 202) propose the definition of international education as "a number of activities, programs and services that coincide in international studies, international educational exchange and technical cooperation" (Arum and Van de Water 1992, 202). This definition includes various elements of international mobility of scholars and students for training and research, collaborative programs, international curriculum content and the international technical support (de Wit 2002, 111-112).

More recognizable is the working definition of Jane Knight (2005, 11) from 1994, which identifies internationalization at the institutional level as "the process of integrating inter-national and cultural dimensions of learning, research and service functions of the institution." Internationalization is defined as a process and not just as a set of individual activities, which must be integrated and sustainable (Knight 2008, 20). As Van der Wende (1997, 19) claims, this definition strives for giving a more comprehensive internationalization process, but its disadvantage can be seen in two aspects. Firstly, it highlights the exclusive preoccupation with the institutional level. The definition does not embrace the role the State may have on the process, which is a strong one, so its "exclusion" from the definition should be regarded as a fundamental flaw. The second aspect relates to the exclusion of broader objectives from the definition, which regards internationalization as an end of itself.

Van der Wende (1997, 19) defines internationalization slightly wider than Knight, namely as "any systematic effort as an objective of higher education to become more responsive to the demands and challenges associated with globalization of companies, economies and labour markets". Internationalization is seen as a set of related cultural, political, economic and technological processes, crossing national borders. This definition highlights the interaction between higher education and the environment. International activities are defined as a response to globalization. This

definition goes beyond the institutional treatment of internationalization and highlights the importance of the role of national government reforms in higher education (Vand der Wende 1997, 19). However, and as pointed out by Knight (2005, 12), this definition does not specify internationalization in its sector, objectives and tasks (Knight 2005, 12).

Gornitzka, Gulbrandsen and Trondal (2003, 24) claim that "internationalization can be defined as becoming more international". At the core of this perspective prevails the persistence of the State. The internationalization of research, innovation and higher education means that the boundaries of nation States may be increasingly circumvented, they are becoming less important for the flow of activities, researchers, students, universities, research institutes and enterprises (Gornitzka Gulbrandsen and Trondal 2003, 24).

Based on the rapid changes, Knight identifies the need to redefine the internationalization phenomenon. In 2003, she proposed a new neutral definition that defines a universal phenomenon, which can be implemented for different purposes and have different effects depending on the stakeholders (Knight 2005; 13). Knight says that internationalization can be defined "at the national, sector and institutional level as a process of integrating an international, intercultural or global dimension into the goals, activities and services of higher education institutions" (Knight 2003, 2). This definition became one of the most widespread and used (de Wit 2011, 39) at the institutional, sector and national levels.

Enders understands the internationalization concept as those "procedures/processes for better cooperation between countries and, consequently, the activities that take place across the State border. The emphasis is thus on building strategic international relations based on mutual cooperation and observation " (Enders 2004, 367).

Frölich (2006, 405-406) defines internationalization as a cross-border relation. Furthermore, he describes the transformation of internationalization at three different analytical levels. Firstly, a macro change – he defines the changing environments and circumstances in which research and higher education institutions operate. Secondly, a mezzo change- he defines the attempts to integrate the international dimension into the activities of higher education institutions. Thirdly, as a micro phenomenon – here internationalization refers to activities such as international cooperation, publications and student mobility.

The variability of definitions and views shows us the complexity of understanding the process of internationalization, which is often dependant on a prior understanding of other related phenomena and from the different perspective of various stakeholders

in higher education. As we can observe there is no all-encompassing and universal definition. However, de Wit (2002, 14) says that this is mainly because: a) its definition and implementation until recently was in the domain of American authors, b) internationalization of higher education is a relatively young field of research and d) people started to use the concept of internationalization in a way that best suits their objectives. Despite the fact that there is no encompassing definition, literary review shows that the most used definition is the "latest" definition of Jane Knight in 2003 (Knight 2003, 2), which will also be used in our study.

2.2 Perspectives/approaches

The understanding of internationalization derives from different cultures, traditions, as well as from the foundation of argumentation, which is a manifestation of its complexity and richness (Qiang 2003, 249). Internationalization may be understood differently not only in the context of specific definitions, but also in the context of the achievements of its implementation. Different definitions reflect different perspectives and aspects of its role and dimension in higher education (De Wit 2002, 116). In this regard, Knight and de Wit (1995, 16-17) identify four generic perspectives under which we can understand internationalization: as an activity, as competences, as an ethos and as a process. The classification of definitions and their authors are presented in the following table according to four general aspects of internationalization (Delgado-Márquez, Hurtado-Torres and Bondar, 2011, 270).

Table: Classification of authors and definitions of internationalization according to four general aspects of internationalization

Approach	Authors
Activity approach	Harari (1992) Klasek (1992) Arum and Van de Water (1992) Mestenhauser (1998) Green and Olson (2003) Javalgi et al. (2003) Powell (2004)Green and Shoenberg (2006)
Competency approach	*Soderqvist (2002)* *Van der Wende (2007)* *Ayoubi and Masoud (2007)* *McGowan & Potter (2008)* *Elkin et al. (2008)* *Lipsett (2009)*
Ethos approach	*Pickert and Turlington (l992)* *Hanson and Meyerson (1995)*
Process approach	*Knight (1994)* *Schoorman (1999)* *De Wit (2002)* *Olson et al. (2001)*

Source: Delgado-Márquez, Hurtado-Torres in Bondar (2011, 270).

The activity approach describes internationalization in the context of the activities that can be carried out - such as exchange of students and staff, technical assistance and international students, joint programs, diverse inter-institutional agreements, projects, branch campuses, etc. (Knight 2005, 30-31). This is the most traditional understanding (Knight and de Wit 1995 16-17; De Wit 2002, 116). The ethos approach emphasizes the aspect of designing culture and international/intercultural initiatives (Knight and de Wit 1995, 17). As De Wit (2002, 117) mentions this group as a too narrow separate approach, which should be understood in the context of a broader motif approach defining internationalization in terms of what can be achieved with it (De Wit 2002, 117).

The competency aspect considers the context of internationalization as the development of new knowledge, skills competencies, attitudes and values by students and staff. The focus is on the human dimension and not on academic activities or organizational issues (Knight and de Wit, 1995 16-17; De Wit 2002,117).

Finally, the process approach focuses on the integration of an international/intercultural dimension through a combination of different types of activities, policies and procedures. Internationalization is thus a process through which the international dimension is integrated into the main activities of higher education institutions (Knight and de Wit 1995, 16-17).
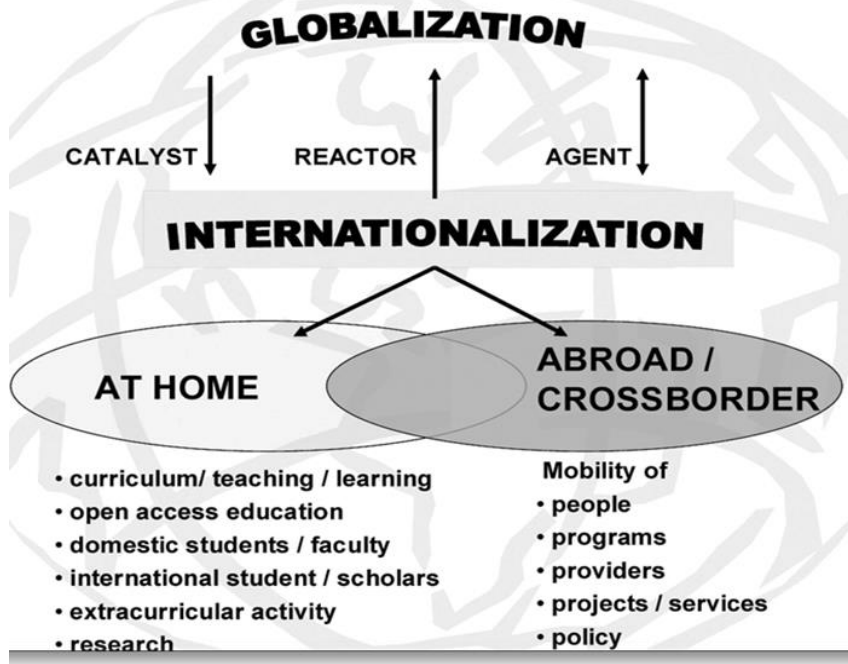
Nonetheless, Knight (2005, 30-31) will later amend these approaches. Firstly, she renamed the competency approach to the outcome approach. Here internationalization is defined broadly in terms of desired outcomes, such as student competencies, increased international reputation and international agreements, partners and projects. Furthermore, she defines two new approaches: internationalization at home and cross-border education. The first one focuses on creating a culture and climate that promote and support international/intercultural understanding in home institutions. The second perspective is understood as the implementation of internationalization of education abroad, which can be achieved in different ways (face-to-face and distance-learning, in combination with e-learning) and through various forms of mobility (franchise agreements, twinning programmes, branch campuses, etc.).

As Roger claims (2014, 4), national policies strongly influence the understanding of internationalization of higher education and its implementation. Therefore, it is necessary to address it comprehensively in its many dimensions and at multiple levels (global, regional and national), as well as within the processes of globalization and regionalization.

2.3 Internationalization at home and cross-border perspective

According to the Knight definition of internationalization, we can distinguish two basic notions: internationalization at home and cross-border education. Internationalization includes an international dimension of all aspects of higher education activities. It is a complex process consisting of two basic elements: internationalization of domestic and cross-border education (see Figure below). Internationalization at home has also been referred to as internationalization based on the campus environment and it includes different activities, strategies and approaches to integrate an international and an intercultural dimension into the campus environment (Altbach, Reisberg and Rumbley 2009, 24). These are all activities that do not cross national borders. Internationalization at home should be a direct response to the current emphasis on cross-border education and represents an important step in the development of international/intercultural education (Knight 2005; 11). Cross-border education is defined as "the movement of people, programs, providers, knowledge, ideas, projects, values, curriculum and services across national borders" (Knight 2008, 98; Knight 2011, 19). These two parts of internationalization can be distinguished in the theoretical context. Otherwise, they cannot be treated separately. They have different sets of activities with which we can achieve the main goals of internationalization but, in practice, they are very closely connected. Cross-border education can have significant implications for internationalization at home, and vice versa (Knight 2005; 27).

Figure: Internationalization at home and cross-border education

Source: Knight (2012, 2).

2.4   Rationales for Internationalization

"Traditionally, the rationales driving internationalization have been presented in four groups: social/cultural, political, academic, and economic (see the left column into the table)" (Knight 2004, 21). Political rationales were especially prevalent during the period after the Second World War, during the Cold War, and during the 9.11.2001, when there was a major importance for national security. Economic motives are very typical for the current globalization; they include economic growth and competitiveness, the labour market, the growing demand for higher education, etc. (de Wit 2002, 83-99). The third group present social and cultural rationales, which are closely linked to creating intercultural understanding and intercultural competence of students, lecturers and researchers, and emphasize the importance of internationalization for individual stakeholders in higher education. The last category, academic rationales, represent the development of the international and intercultural dimension in research and teaching, expanding academic horizons, institution building, strengthening profiles and statuses, as well as improving quality and international academic standards (de Wit 2002, 83-99).

Table: rationales driving internationalization

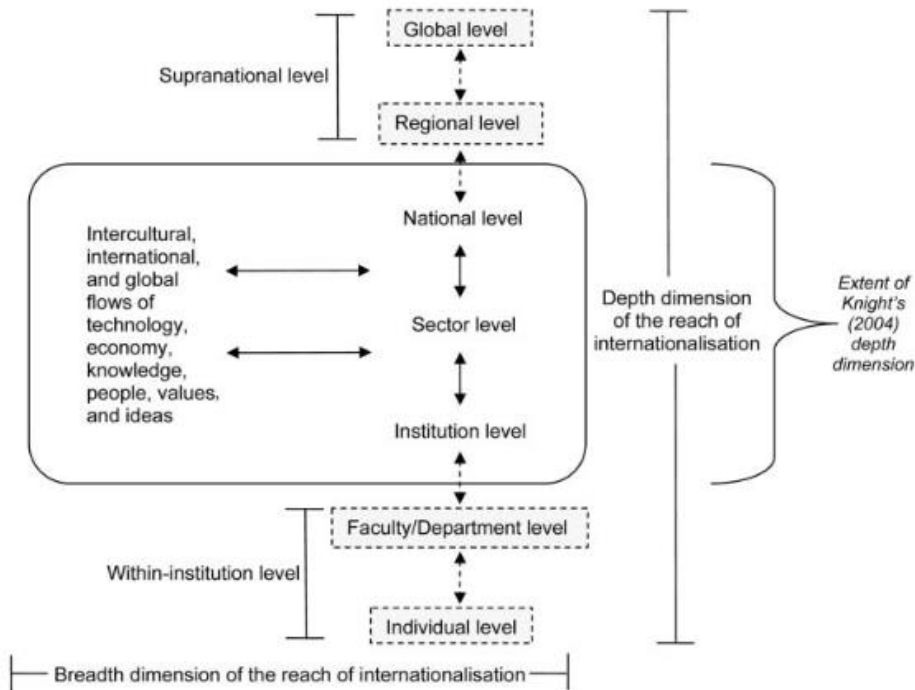| Rationales	Existing rationales	Of emerging importance
Social/cultural	National cultural identity Intercultural understanding Citizenship development Social and community development	**National level** Human resources development Strategic alliances Income generation/commercial trade
Political	Foreign policy National security Technical assistance Peace and mutual understanding National identity Regional identity	Nation building/institution building Social/cultural development and mutual understanding
Economic	Economic growth and competitiveness Labour market Financial incentives	**Institutional Level** International branding and profile Quality enhancement/international standards
Academic	Extension of academic horizon Institution building Profile and status Enhancement of quality International academic standards International dimension to research and teaching	Income generation Student and staff development Strategic alliances Knowledge production

Source: Knight (2008, 25).

Knight (2008, 25) further categorized the traditional rationales in terms of institutional and national levels (see the right column in the table), since rationales may vary depending on which

goals they seek to achieve: an individual higher education institution or a government or other national stakeholders for the higher education system. However, it is essential that the rationales for internationalization at the national and institutional levels are suitable. In the present time of constant changes, discrepancy, incoherence and tension in rationales, policies, expected results and achievements of internationalization could arise between these two levels.

3   LEVELS OF INTERNATIONALIZATION

Internationalization is a process that can in general be divided into two basic orientations, ranging from "bottom-up" and "top-down". In the "bottom-up" mode, the process is oriented from the institutions to the national level. In the "top-down" mode, the process is oriented the other way around, that is, from the national state to the institutions. These two basic orientations are theoretical concepts that in practice often come intertwined, since the internationalization process takes place not only within different orientations but also at different levels (Knight 2004a). Moreover, internationalization is a process that can take place at institutional (faculty and academic staff), sector, national, regional and global levels (Sanderson 2007, 279–280). To understand the results of such a complex process, it is necessary to understand all aspects in the context of policy orientation, both "bottom-up" and "top-down", as well as in the context of its implementation at different levels (Sanderson 2007, 279-280).

Figure: Dimensions of the Reach of Internationalization

Source: (Sanderson 2007, 280).

4 INTERNATIONALIZATION AT THE INSTITUTIONAL LEVEL

4.1 Institutional Data Management and Data-driven decision making in Higher Education

Following Yanosky (2009, 12), Institutional Data Management in Higher education "refers to the policies and practices by which higher education institutions effectively collect, protect, and use digital information assets to meet academic and business needs". Data management is important, as higher education institutions nowadays are becoming more and more complex organizations with academic and business functions in a changing environment. Yanosky (2009, 7) defines five aspects of data management: data integrity and quality, analytics, data stewardship and security, content and records management, and management of research data. However, it is not enough for higher education institutions to focus on data management, but they also need to establish a culture of data-driven decision making (see Table).

Table: Type of leadership activity and use of data

Type of leadership activity (with and for internal or external audiences)	How data are used and what kinds of data are implied
Diagnosing or clarifying teaching and	Seeking to know whether, or to what extent, student learning

learning problems (primarily internal to the decision making group).	matches those overarching expectations (standards) established at the top of the system, leaders seek out information that reflects one measure of student learning in particular content areas.
Weighing alternative courses of action (primarily internal).	Leaders use data to evaluate existing programs or Curriculum approaches, and (where they have relevant data) judge its potential in comparison with alternative programs.
Justifying chosen courses of action (primarily external).	Data (e.g., concerning learner characteristics, learning outcomes, comparative program benefits, school closure decisions) are used selectively to "make a compelling case" for programs or courses of action that may or may not have been chosen on the basis of the data.
Complying with external requests for information (external).	Leaders are careful to generate information requested by external agencies, authorities, or groups providing funding; for example, descriptions of how different learner groups are served, evaluations of services to these groups.
Informing daily practice (internal).	Data is used by administrators and teachers to guide daily practice. The data is often informal, gathered in mid stream, and in a form that can be immediately interpreted and used by the practitioner for refining teaching and learning.
Managing meaning, culture, and motivation (internal).	Data helps leaders understand and guide the cultural aspects of the professional workplace, by representing to staff what the organization is accomplishing, how people feel about their work, what matters in the work, and what professional learning needs exist.

Source: Verbiest and Mahieu 2013, 22.

According to Marsh, Pane and Hamilton (2006, 1), "data-driven decision making in education refers to teachers, principals, and administrators systematically collecting and analysing various types of data, including input, process, outcome and satisfaction data, to guide a range of decisions to help improve the success of students and schools". Higher education institutions have to respond to different challenges, as well as to act before the consequences occur. For instance, "before a student drops out or to plan for resource allocation with confidence gained from knowing how many students will transfer or take a particular course" (Luan 2002, 3). As Yanosky (2009, 8) finds out in his research, "many respondents were clear that data quality is lacklustre, that little effort is made to mine institutional data to promote better institutional outcomes, and that, although there is a lot of data to manage, the institutions are currently not getting full value from the data they have". Factors that influence the use of data for decision making are (Marsh, Pane, and Hamilton 2006, 8-9):

- Accessibility of data;
- Quality of data (real or perceived);
- Motivation to use data;
- Timeliness of data;

- Staff capacity and support;
- Curriculum pacing pressures;
- Lack of time;
- Organizational culture and leadership;
- History of state accountability.

4.2   Why managing internationalization

The higher education environment has gone through immense changes during the past decades and is significantly different from the one that served as a background for the traditional higher education institutions' model. These changes are leading towards an increasingly competitive market and to a progressive "battle" for students and financial resources. The environment is becoming more and more competitive, while both higher education organisations and countries take part in the competition. Although there are different discussions and dilemmas going on about the reasons and lines of force related to these changes, it is clear that traditional understanding of internationalization of higher education is also changing. Moreover, the traditional methods of governance of education systems and institutional management are no longer appropriate. Since the real internationalization in terms of implementation is carried out from the institutions (Knight 2004), managing internationalization at the national level seems to be more important than ever. "Many countries around the world have recently introduced reforms to their systems of governance that directly affect the management of their educational institutions. The most significant trends that influence the need for information and

consequently the demand for indicator systems include the following" (Martin, Sauvageot, and Tchatchoua 2011, 17-18):

a) Deregulation
b) Differentiation of institutions' missions
c) Importance of strategic planning
d) Increased importance of monitoring performance
e) Greater role of the market
f) Emergence of ranking

Internationalization can have many positive benefits and new opportunities for higher education institutions and its stakeholders and broader community (Hénard, Diamond, and Roseveare 2012, 40). However, those changes in the direction of greater internationalization dictated the need of knowledge on effective management and leadership of higher education institutions, since leadership and management

are more complex in an international context (HEIGLO 2005, 11). Moreover, when it comes to managing internationalization, institutions can face a range of challenges. As Hénard, Diamond and Roseveare (2012, 40) point out, institutions can manage internationalization more effectively across four main areas:

- understanding the environment
- developing a strategic approach
- optimizing implementation
- monitoring and evaluating.

4.3   Why measuring internationalization and data is important

Internationalization is no longer perceived as a goal in itself but rather as a means to an end, such as enhancing the quality of scholarship and research, alleviating poverty, or producing globally aware and competent graduates. According to that, institutions need to judge not only the quantity of internationalization activity but also its quality and its contribution to overall institutional goals (Green 2012, 4). In order to fulfil those means we need to measure internationalization "as a component of overall institutional performance, to judge the effectiveness of an institution's internationalization strategy or its components, to benchmark with other institutions, and to improve internationalization programs and practices" (Green 2012, 4). When addressing the issue of measurement/assessment, the following relevant questions need to be examined (de Wit 2009, 3):

- How do we measure what we do?
- What do we measure?
- What indicators do we use for assessment?
- Do we assess processes or activities?

- Do we carry out assessments with a view to improving the quality of our own process and activities or do we assess the contribution made by internationalization to the improvement of the overall quality of higher education?
- Do we use a quantitative and/or a qualitative approach to measurement?
- Which instruments do we use; *ex post* or *ex ante* measurements, indicators, benchmarking, best practices, quality review, accreditation, certification, audits or rankings?
- Are we focussing on inputs, outputs or outcomes?

As Green (2012, 4) highlights, the "improvement should be a key driver for any type of measurement", The process can then involve:

- a clear articulation of goals,
- a careful choice of agreed-upon indicators,

- a sensible approach to selecting a relevant group and
- a manageable number of measures,
- a development of an internationalization plan,
- and a shared sense that the work will provide useful information as a basis for informed action.

When approaching those activities, we have to take into account the specific characteristics of each higher education institution as a type of institution, discipline, developed programs, etc. Particular care must be taken when selecting and developing a list of measures or indicators (De Wit 2010, 18).

5 TOOLS AND INDICATORS FOR THE INTERNATIONALIZATION

As Martin, Sauvageot, and Tchatchoua (2011, 28) stated, "indicators can be defined as 'shortcuts', 'abbreviations', or 'substitutes' of an underlying reality" (Martin, Sauvageot, and Tchatchoua 2011, 28) and:
- are calculated from raw data using statistical tools such as percentages, rates, ratios and indices,
- provide a 'snapshot' or a profile of existing conditions at a given moment in time, describing the status of an education system at various levels,
- afford a better understanding of certain aspects of reality without judging them,
- provide a means of presenting the performance or behaviour of an education system to stakeholders.

Brandenburg and Federkeil (2007, 8) suggest "to split indicators into input indicators and output indicators". As input indicators we consider those which contribute to the creation of findings (such as staff structures, curricular questions, allocation of resources), whereas output indicators measure findings at the end of academic processes, such as graduates or research findings

(Brandenburg and Federkeil 2007, 8). In the last decade, a lot of research and studies dealing with issue of mapping and profiling internationalization were done in the European Union. The research were implemented by national countries, European networks (such as EUA, EAIE and EFQM), as well as by European Union. Preliminary review done by Nuffic[2] shows that we can find many different tools for measuring and evaluating the internationalization in higher education.

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[2] Existing tools for measuring or evaluating internationalisation in HE (available here) (Nuffic).

Se table below for existing tools for measuring or evaluating internationalisation in HE (Nuffic).

Table: Existing tools for measuring or evaluating internationalization in HE

Tool	Organization	Country	Purpose of tool	Level	Type of information	Type of data collection	Aimed at
Wie Misst man Internationalitat und Internationalisierung von Hochschulen?	CHE	Germany	Internal use and possibly ranking in future	HEI	Quantitative	Self evaluation	Internationalisation
Mapping Internationalisation (MINT)	Nuffic	The Netherlands	Internal use	HEI and programme level	Quantitative and qualitative	Self evaluation	Internationalisation
The internationalisation of Higher Education in Sweden	Swedish National Agency for Higher Education	Sweden	Evaluation, best practices and ranking	HEI	Qualitative	Self evaluation & Visitation	
Internationalisation and Higher Education: Goals and Strategies	IDP Education	Australia	Public information and benchmarking	HEI	Quantitative with some additional closed questions	Self evaluation	Internationalisation
Internationalisation in New Zealand Tertiary Education Organisations	New Zealand Ministry of Education	New Zealand	Information to government and HEI's.	HEI	Quantitative and qualitative	Self evaluation, analysis of Ministry database, consultation with stakeholders etc.	Internationalisation
Progress and promise	Association of Universities and Colleges of Canada (AUCC)	Canada	Public information	HEI	Quantified	Self evaluation	
Study to Develop Evaluation Criteria to Assess the Internationalization of Universities	Osaka University	Japan	Internal use and information to third parties	HEI	Quantified	Self evaluation, peer review and benchmarking	Internationalisation
IQR (Internationalisation Quality Review)	ACA/EUA/IMHE	International	Benchmark	HEI	Quantitative and qualitative	Self evaluation and peer review	
IEP (Institutional Evaluation Programme)	EUA	International	Internal use and benchmark	HEI	Quantitative and qualitative	Self evaluation & Visitation	Strategic Management of Change.
NIBS International Accreditation	NIBS	International	Accreditation by NIBS	Business School	Quantified	Self evaluation & Visitation	Internationalisation
Internationalisation Survey	EFMD	International	Publication by EFMD	HEI	Quantitative with some additional closed questions	Self evaluation	internationalisation of the Mangement of Higher Education
Global Survey/ Internationalization survey	International Association of Universities	International	External	HEI	Quantitative and qualitative	Self evaluation	
Curriculum internationalisation	Newcastle University Business School	UK	Internal use	programme level	Closed questions	Self evaluation	Internationalisation of the curriculum
DOMI and AOPI frameworks	Nottingham Trent University	UK	Ranking	Programme and Module	Quantified	Self evaluation	Internationalisation of the curriculum

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European Benchmarking Programme on University Management	ESMU	Europe	Benchmark	HEI	Qualitative	Self evaluation	
The Internationalising of Universities: a comparative case study	University of Leicester	UK and Hong Kong	Benchmark	HEI	Qualitative	Desk research and in depth interviews	
Quality of Mobility Projects, Quality and Impact Scan	National Agency Leonardo da Vinci The Netherlands	The Netherlands	Self evaluation	Vocational Education Institutes			
Internationalisation of Norwegian higher education. Suggestion for indicators. (in Norwegian only)	SIU	Norway	Publication by national agency	HEI	Qualitative and quantitative		
Profil data project	DAAD	Germany	External evaluation	HEI	Quantitative	Self evaluation, and desk research of data from statistical office, DAAD and other institutions	
Indicatoren Kwaliteitszorg Internationalisering	Flemish Bologna experts	Belgium	Self evaluation	HEI	Qualitative and quantitative	Self evaluation	
Mapping Internationalization on U.S. Campuses	American Council on Education	USA	Survey	HEI	Qualitative and quantitative	Survey	
Measuring Internationalization at Research Universities	American Council on Education	USA	Survey	Research universities	Qualitative and quantitative	Survey	
Internationalising German Higher Education Institutions	Hochschul Rektoren Konferenz	Germany	Self-evaluation & audit	HEI	Qualitative and quantitative	Self-evaluation, analysis by HRK, audit-workshop	Strategic management
ACU Benchmarking Programme	Association of Commonwealth Universities	International	Benchmark	HEI			Effectiveness of university-wide processes
Assessing best practices in internationalisation (ABPI)	NAFSA	International					
U-Benchmarking Club	Forum Euro-Latino Americano di Torino	International	Benchmark	HEI			Key aspects of universities including internationalisation
ANECA (in cooperation with EFMD)	ANECA (in cooperation with EFMD)	Spain	Benchmark	International Relations Offices		Self evaluation	International relations
Checklists Programme Internationalisation	InHolland University of applied Sciences	The Netherlands	Internal	programme level	Qualitative	Self evaluation	Internationalisation

Benchmarking the provision of services for international students in higher education institutions	UKCOSA	UK	Publication on national level	HEI	Quantitative and qualitative	Self evaluation	Services for international students
Internationalizing Canadian campuses	Association of Universities and Colleges of Canada (AUCC)	Canada	Publication on national level	HEI		Self evaluation	Internationalisation
Measuring the global footprint of an MBA	Rollins College	USA developed, Internationally applied	External research, model building	School/faculty	Quantitative and qualitative	Self evaluation	Internationalisation/globalisation
Quality Improvement Program (QUIP) for Education Abroad	Forum of Education Abroad	USA	improvement of education abroad	institution	Qualitative	Self evaluation, Peer review and panel review	Education abroad
U-Map	CHEPS and EURASHE	Europe	Self-evaluation comparison	HEI		Self evaluation, comparison	Higher education
IUNE	IUNE Observatory	Spain	Analysis of HE system	HEI			Higher education
IMPI	SIU, NUFFIC, ACA, CampusFrance, Perspektywy and CHE Consult	Europe	mapping and profiling internationalisation	HEI		Self evaluation, comparison	Internationalisation

Source: Nuffic - updated data by author

Below we present the 3 most recognisable tools. Two are specifically focused on internationalization measurement and indicators; the third one is developed to measure different functions and performances of higher education institutions.

5.1 IMPI project (IMPI)

The IMPI project started in 2009 and was supported by the European Union, co-sponsored by six European partners (SIU, NUFFIC, ACA, CampusFrance, Perspektywy and CHE Consult). The main aim was to develop indicators for mapping and profiling internationalisation of higher education institutions (IMPI). The result of the project is a toolbox of indicators for institutions to measure their performance in internationalization (see www.impi-project.eu and www.impi-toolbox.eu).

The toolbox has been designed for profiling and self-assessment, and for inter-institutional comparison upon benchmarking exercises. Moreover, this tool provides options for comparison but also offers opportunities for HEIs to choose their individual profile of internationalisation (IMPI project). The IMPI defined 500 indicators (available here) that are implied in the toolbox[3]. Indicators were developed with relevance to all European HEIs in order to ensure acceptance in the community. The project also intends to provide information on those indicators, which combine substantial use of high ratings of relevance[4], as below (IMPI project):

1. Goal dimension: to enhance the quality of education

01-001	Out of all students in the unit, what is the proportion of studies abroad in a given year?
01-002	In a given year, out of all international students in the unit, what proportion of the taught programmes is in the national language?
01-003	Out of all Bachelor's programmes offered by the unit in a given year, what proportion is partially taught in a foreign language?
01-004	In a given year, what proportion of the unit's academic staff members follows an English language course?
01-005	Out of all degree programmes offered by the unit in a given year, what proportion are international joint/double/multiple degree programmes?
01-006	In a given year, out of the unit's total budget for scholarships, what proportion is dedicated to scholarships for international students?
01-008	In a given year, out of all academic staff members in the unit, what proportion has a foreign citizenship?
01-009	What proportion of students from the unit participates in outgoing exchange or mobility programmes in a given year?

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[3] The Introductory Tutorial is available here.
[4] How were the indicators of the year calculated, available here.

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Data driven decision making
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| 01-010 | Out of all courses offered by the unit in a given year, what is the proportion of courses taught in a foreign language? |
| 01-011 | Are the foreign language skills of staff members taken into consideration for promotion and tenure? |

2. Goal Dimension: to enhance the quality of research

06-016	In a given year, what proportion of researchers in the unit is involved in at least one research project with an international partner?
06-021	In a given year, what proportion of research projects with which the unit is formally associated is internationally funded?
06-023	In a given year, what proportion of research projects with which the unit is formally associated involves international partners?
08-036	Does the unit provide travel services for staff members going abroad for professional purposes?
06-018	In a given year, what is the ratio of conference presentations delivered abroad (or in the context of international conferences) to the number of researchers in the unit?
05-022	In a given year, what proportion of international joint/double/multiple degree programmes does the unit offer at the Doctoral-level?
07-001	Does the unit have a defined strategy for international communication, promotion and marketing?
02-027	What proportion of the unit's staff members was recruited from abroad?
03-012	Does the unit participate in international networks and organisations in the field of internationalization?
04-013	In a given year, how much external funding does the unit receive for international cooperation projects?
06-006	Out of all the researchers in the unit in a given year, what proportion was originally recruited from abroad?
06-008	Out of all the researchers in the unit in a given year, what proportion is considered to be international visiting researchers?
06-027	In a given year, what proportion of published pieces (books, journal issues, articles, etc) is produced through international collaborative activity involving the researchers in the unit?
06-029	In a given year, what proportion of researchers in the unit author (or co-author) pieces (books, journal issues, articles, etc) is published internationally?
06-032	In a given year, what proportion of articles authored (or co-authored) by the researchers in the unit is published in internationally refereed journals?

3. Goal dimension: to well-prepare students for life and work in an intercultural and globalising world

01-004	Out of all students in the unit, what proportion of studies is abroad in a given year?
03-001	Does the unit have a clearly defined strategy for internationalization?
01-010	Out of all international students in the unit in a given year, what proportion are exchange or mobility programme students?
05-030	Out of all courses offered by the unit in a given year, what is the proportion of courses taught in a foreign language?
02-036	In a given year, what proportion of the unit's academic staff members follows an English language course?
08-005	Are all facilities provided by the unit to domestic students also available to international students?
01-003	What proportion of students from the unit participates in outgoing exchange or mobility programmes in a given year?
02-047	In a given year, out of all academic staff members in the unit, what proportion is visiting staff members from abroad?

08-013	Does the unit provide a mentoring or "buddy"-system for international student support?
05-023	Out of all degree programmes offered by the unit in a given year, what proportion are international joint/double/multiple degree programmes?

4. Goal dimension: to enhance the international reputation and visibility of the unit

03-009	Does the unit have a specific organisational structure to support internationalization?
07-002	Does the unit monitor its international visibility?
01-027	Out of all students in the unit, what proportion is in international joint/double/multiple degree programmes in a given year?
05-022	In a given year, what proportion of international joint/double/multiple degree programmes does the unit offer at the Doctoral-level?
07-013	Does the unit participate in national, regional or local networks supporting internationalization?
05-023	Out of all degree programmes offered by the unit in a given year, what proportion are international joint/double/multiple degree programmes?
05-021	In a given year, what proportion of international joint/double/multiple degree programmes does the unit offer at the Master's-level?
08-008	Does the unit provide international students with comprehensive pre-arrival information (covering such topics as visa procedures, cost of living, tuition fees, accommodation options, university services, sports and cultural activities);?
07-001	Does the unit have a defined strategy for international communication, promotion and marketing?
02-041	In a given year, out of all of the unit's academic staff members, what proportion is involved in international joint doctoral supervision / co-*tutelle*?

5. Goal dimension: to provide service to society and community social engagement

01-004	Out of all students in the unit, what proportion of studies is abroad in a given year?
02-004	Does the unit have a defined strategy to develop the participation of staff in internationalization activities?
06-021	In a given year, what proportion of research projects with which the unit is formally associated is internationally funded?
02-018	In a given year, what proportion of international conferences is organised by the unit's staff members?
01-023	Does the unit maintain an international alumni database?
05-015	Out of the total number of students enrolled in the unit in a given year, what is the proportion taking elements/modules focused on particular countries or world regions?
02-060	In a given year, what proportion of the unit's non-academic staff members is involved in delivering programmes or modules on community service for international students?
02-032	In a given year, out of all of the unit's academic staff members, which proportion of the academic staff members are members of at least one international academic or professional association?
03-005	Does the unit have a clearly defined international alumni strategy?
01-039	Out of all students in the unit, what proportion takes classes in intercultural skills in a given year?

02-030	In a given year, out of all of the unit's academic staff members, what is the proportion that attends at least one international conference or seminar?
02-031	In a given year, how many international conferences and seminars do the unit's academic staff members attend?
07-013	Does the unit participate in national, regional or local networks supporting internationalization?

6. Overall goal dimensions:

03-009	Does the unit have a specific organisational structure to support internationalization?
06-016	In a given year, what proportion of researchers in the unit is involved in at least one research project with an international partner?
06-021	In a given year, what proportion of research projects with which the unit is formally associated is internationally funded?
06-023	In a given year, what proportion of research projects with which the unit is formally associated involves international partners?
07-002	Does the unit monitor its international visibility?
01-027	Out of all students in the unit, what proportion is in international joint/double/multiple degree programmes in a given year?
05-022	In a given year, what proportion of international joint/double/multiple degree programmes does the unit offer at the Doctoral-level?
08-036	Does the unit provide travel services for staff members going abroad for professional purposes?
07-013	Does the unit participate in national, regional or local networks supporting internationalization?
06-018	In a given year, what is the ratio of conference presentations delivered abroad (or in the context of international conferences) to the number of researchers in the unit?

5.2   MINT tool

The tool called Mapping Internationalization (MINT) was launched by the Netherlands Organisation for International Cooperation in Higher Education (Nuffic). The tool allows institutions or programs to map their internationalization activities. Firstly it was run as a pilot project in April and May 2008. The version launched in October 2012 included new aspects such as 'transnational education' and 'outcomes of internationalization', as well as improvements to existing features. The preliminary research was used to develop a framework that defines the relationship between internationalization policy and activities. This was also based on Jane Knight's definition of internationalization (Nuffic): '*The process of integrating an international, intercultural, or global dimension into the purpose, functions or delivery of postsecondary education.*'

MINT is a self-evaluation tool[5] that is meant to support policy development and management of internationalization in higher education. On the basis of the data submitted in the tool, you can generate a self-evaluation report and a management summary for your institution, faculty or programme. MINT indicators: Nuffic participated in a IMPI project (2009-2012), which is closely related to MINT tool. IMPI includes indicators already in use in MINT, but also added indicators from projects in other countries (Nuffic).

5.3 The U-Map project (U-Map)

U-Map[6] is an ongoing project in which the European classification of higher education institutions is further developed and implemented. Partners in the project are the Center for Higher Education Policy Studies (CHEPS) and the European Association of Institutions in Higher Education (EURASHE)–advisory board. The purpose of the U-Map project is to develop a tool to enhance transparency. This tool allows us to compare different higher education institutions (HEIs) on the selected characteristics. Moreover, it gives an institutional activity profile that can be used to compare three HEIs (U-Map). The U-Map too is not designed to rank the institutions, but to compare them on a number of dimensions, each representing an aspect of the function and performance of higher education institutions. An overview of the dimensions included in the tool are in the table below[7].

Table: Overview of U-Map dimensions

Teaching and learning profile	Student profile
• Orientation of degrees • Expenditure on teaching • Degree level focus • Range of subjects	• Size of student body • Mature students • Distance learning students • Part time students
Research involvement • Peer reviewed academic publications • Peer reviewed other research products	**Regional engagement** • Importance of local/regional income sources • Graduates working in the region

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[5] Login to the MINT tool (available here).

[6] U-Map is presented in demo-mode (available here). It will be fully operational when the underlying database comprises a sufficient number of higher education institutions.

[7] For a detailed overview of the indicators and underlying data-elements, see detailed list of indicators.

• Professional publications • Doctorate production • Expenditure on research	• First year bachelor students from the region
Involvement in knowledge exchange • Patent applications filed • Income from knowledge exchange activities • Cultural activities • Start-up firms	**International orientation** • Foreign degree seeking students • Importance of international sources of income • International academic staff • Students sent out in international exchange programs • Incoming students in international exchange programs

Source: U-Map

6 NEX STEPS

Our purpose in this step of the project is to reflect about these preliminary findings and concepts in the context of our project.

As we can see there are many tools and indicators that are focused on the internationalization activities of higher education institutions. However, these tools, approaches and indicators present a comprehensive picture of "what" should be monitored and "why" but we did not find any tool or approach that would cover all the basic goals of the HEIDA project, that is, both a data management tool and a training or skilling process that allows for the "how" of internationalization indicators and data to be collected, analysed and used in a way that responds to the needs of HEIs. We developed this project with the aim of responding to specific needs:

• the need for a data collection and sharing tool/platform for the internationalisation activities of higher education institutions and,
• the need for promoting a data driven or evidence based decision making culture for internationalization in higher education institutions,
• the need to bridge the gap in communication and joint work that often exists between HEI faculty, staff, senior management and students in internationalisation efforts and activities.

Furthermore the project objectives are:

• To raise awareness and build capacity among senior management, faculty and staff to understand the value of internationalization by using data as a shared means of performance assessment.

- To design, test and implement a data collection and sharing tool/platform for the internationalisation activities of HEIs. More specifically, to create an accessible, user-friendly tool that will enhance the institutional understanding of the multiple performances of internationalisation across the diverse range of interconnected activities at a HEI.

The next step of the project will include answering some of the following questions. This will be done through various activities that include focus groups, case studies and surveys:

- What should be mapped? How do institutions decide which indicators are relevant and realistic to use for making decisions on internationalization?
- What activities, systems or tools can help to fill the gap in communication and joint work at the institutional level when it comes to internationalization?
- How to present data? What are the formats or visualizations of data that help different audiences make better decisions?
- Which strategy of communication has to be developed to bridge the gap – to understand data (indicators)?

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