Chapter 4
The European Higher Education Classification: Objectives and Concepts

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4.1 Introduction

The rationale for developing a classification of higher education institutions lies in our pursuit to better understand and use diversity in the European higher education landscape. In the previous chapters, it was pointed out that the principle of diversity is an important basis for the further development of the European higher education and research systems. In this chapter we argue why and how a European classification of higher education institutions will contribute to understanding the various types of institutions, their different missions, characteristics and provisions.

In Section 4.2, we explain the objectives of the classification from the point of view of different stakeholders. Section 4.3 delves into the nature of classifying phenomena. Section 4.4 provides an introduction to the most well-known example of a higher education classification, the Carnegie Classification. In Section 4.5, we point out the design principles underlying our classification of higher education institutions. In Section 4.6, we introduce the main concepts and components of a first version of such a classification and discuss its data needs. In the final section we address the relevant use of the classification as an instrument for "institutional profiling".

4.2 Objectives

As argued in the first chapters of this book, the diversity of European higher education should be seen as one of its major strengths. Generally speaking, the diversity of a higher education system increases as a result of a larger variety in its environmental conditions (in particular governmental policy contexts) and of a larger variety in the norms and values espoused by the institutions in the system. The diversity of European higher education would profit if higher education institutions are enabled to develop and define a variety of missions and profiles. In addition, the diversity of European higher education would increase if Europe's higher education institutions were to be confronted with diverse policy contexts that would be supportive of such a variety of missions.

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However, in order to allow such an increasing diversity to develop, a tool is needed to describe this diversity. This is what the European classification system tries to provide. The objective of the European classification of higher education institutions is to offer a tool which enables various groups of stakeholders to discover the institutional missions and profiles of the European higher education institutions. The classification is a tool that intends to offer relevant and easily available information on the institutional diversity of the European higher education system. In this sense the classification is an instrument for mapping the European higher education landscape. It is an instrument for mapping the profiles of higher education institutions.

In order to provide relevant information for the mapping of the European higher education landscape we have designed a first version of a classification that intends to cater the needs of different stakeholders – students, industry, policy-makers and higher education institutions alike. For this reason, the building of this classification has been a user-oriented process, involving the various groups of stakeholders from the very start of the process (see also Chapter 6).

Like any analysis, classifications by definition are simplifications of reality. We realise that the major challenge when building a classification is to select and preserve the most "relevant" attributes in such a simplification process. These judgements are of course not value-free. The choices of attributes reflect the interests, needs and positions of those who are involved in creating this tool. Since there is no objective basis for making the choices, we have tried to maximally involve the various stakeholders in the process. A crucial aspect of our work has been to determine the potential or intended users (stakeholders), how they would use the classification, how the classification can best suit their needs, as well as their preferences in terms of which aspects to preserve and which to discard.

Below, we briefly indicate how a classification of higher education institutions may be assumed to contribute to the needs of different stakeholders. These indications are provided by the various groups of stakeholders themselves during a number of discussions and research activities.

- Students
  - Students will be better able to identify their preferred higher education institutions and make better choices regarding their study programmes and labour market perspectives.
- Higher education institutions
  - Higher education institutions will be better able to develop their missions and profiles and to engage more effectively in partnerships, benchmarking and networking.
- Business and industry
  - For business and industry, as well as for other organisations, a classification reveals which types of institutions are of particular interest for them, facilitating easier creation of mutual partnerships and stronger relationships.
- Policy-makers
  - Policy-makers in governmental and other contexts will benefit from a deeper insight into institutional diversity. National, but even more so, European

policies for higher education cannot be based on a "one size fits all" approach. Instead, policies need to be attuned to diversity in such a way that it can be made to work most effectively.

- Researchers and analysts
  - A classification serves as a methodological tool for researchers. Analysts and other experts will be facilitated in their policy analyses, international comparative studies, and institutional benchmarking studies, by more insight into institutional diversity in both a methodological and analytical way.

4.3 Classifications and Typologies

Classifying is an activity inextricably related to the human desire to create order out of chaos. The general purpose of a classification is to increase transparency in complex systems, to grasp the diversity within such systems and – consequently – to improve our understanding of phenomena and systems and to support effective communication. Classifications have proven their usefulness in all areas of human life, even in those areas where the uniqueness of each individual or element of the system is recognised.

Perhaps the classification of animals and plants is most appealing to our imagination. The path-breaking work of Linnaeus formed the basis for a better understanding of the differences and similarities between species of animals and plants. Whereas Linnaeus' work lacked a precise theoretical understanding of the evolutionary mechanisms underpinning the differences and communalities, Mendel's work on heredity added much to a better insight in evolutionary processes. Present-day technologies (focusing on the precise analysis of genetic materials) allow us to fully understand the mapping of animal (including humans!) and plant kingdoms.

"A *classification* is a spatial, temporal, or spatio-temporal segmentation of the world" (Bowker & Star 2000, p. 10). Or, in simpler terms, classifying is "the general process of grouping entities by similarity" (Bailey 1994, p. 4). Classifications intend to assess similarities and differences. In the literature on classifications, a number of related terms are used, sometimes interchangeably, which can lead to confusion. In order to be explicit about the concepts used in this book we provide a short resume of the relevant terms.

A classification should be distinguished from a typology. A *typology* is a conceptual classification. A classification orders empirical cases while a typology addresses conceptual entities. The cells in a typology represent concepts rather than empirical cases. A *taxonomy* is a special case of classification with the main difference being that each cell (taxon) comprises an empirical case. This term is generally used in biological sciences. In this book we offer a classification. We have developed a set of dimensions and criteria to be used to group empirical cases (in our case, higher education institutions) and to characterise similarities and differences between these cases.

In the field of higher education, researchers as well as other stakeholders are attempting to understand higher education systems by developing classifications

and typologies of institutions. It is important to clearly distinguish between approaches that result from (more or less clear) conceptual distinctions and those defined on the basis of the actual conditions, behaviour and performances of institutions. The first category (called typologies before) is usually government-driven, prescriptive and often defined by law. The best known example is the binary system that exists in many European countries. The second category (called classifications) consists of approaches that analytically categorise institutions on the basis of empirical similarities and differences. The most well known example is that of the Carnegie Classification in the United States. It is this kind of classification that we are presenting in this volume. In Section 4.4, we take a closer look at the Carnegie classification as it provides important lessons for the development of a European higher education classification.

4.4 The Carnegie Classification of Higher Education Institutions

The Carnegie classification has set the stage in the USA for a continuing debate on the pros and cons of classifications in higher education. The initial objective of the Carnegie Commission, in the early 1970s, was to develop a tool to help (educational) researchers to improve the precision of research on higher education. Given the large differences between US higher education institutions, it proved to be useful to analyse phenomena in fairly homogeneous groups of organisations. In other words, the classification was developed as a sampling device and presented categories of higher education institutions.

Categorising higher education institutions has remained the basic approach of the Carnegie classification. The 1976 edition – the second edition – for instance distinguished five main categories of institutions: doctoral-granting institutions (subdivided in: research universities I, research universities II, doctoral-granting universities I, and doctoral-granting universities II), comprehensive universities and colleges (subdivided in: comprehensive universities and colleges I and comprehensive universities and colleges II), liberal arts colleges (subdivided in: liberal arts colleges I and liberal arts colleges II), 2-year colleges and institutes, and professional schools and other specialised institutions. The qualifications “I” and “II” were merely indicators of size: size of federal financial support, number of Ph.Ds. granted and student enrolment.

Over time the classification underwent several changes, partly technical, partly in the labels used. But although there were differences through time, the backbone of the classification remained similar: institutions were classified on the basis of their research and teaching objectives, the degrees offered, their size and their comprehensiveness.

The Carnegie classification enabled interesting analyses of the internal dynamics in the US higher education system. Boyer (1994) mentions that in the 1994 classification the total number of institutions grew by about 200. About 400 new

institutions – compared to the situation in 1987 – are listed and 200 institutions either merged, closed or were no longer eligible for inclusion. In addition to births and deaths, the classification made it possible to look at institutions changing positions. In 1994, some 500 institutions were reclassified (Evangelauf 1994). Noteworthy is the large percentual increase (+25%) in the research university I category. Aldersley (1995) analyses the positions of higher education institutions in the classification of 1976, 1987 and 1994 and concludes that traditional indicators of prestige are still important drivers of institutional direction and decision-making. Higher education institutions apparently look "upward" in the classification and actually try to climb the (perceived) hierarchical ladder of reputation.

This raises the question of whether classifications (hierarchical or not) evoke academic drift between the categories. In this respect it is fair to say that the *use* of the Carnegie classification (e.g., by *US News* to develop rankings) may have a more profound impact on institutional behaviour than the Carnegie classification as such (Lombardi 2000, see also Shedd & Wellman 2001). Additionally, referring to the discussion in Chapter 1 of this volume, it should be pointed out that the phenomenon of academic drift is not an effect of the classifications of higher education systems, but rather presents a basic characteristic of the dynamics of these systems themselves.

The Carnegie classification was again adapted in 2000. Quite a number of institutions (about 640) changed position, 500 institutions were new to the classification and almost 200 disappeared (Basinger 2000). A main difference with the 1994 edition is that the four doctoral institutions categories have been collapsed into two categories. The 2000 version puts less stress on research and more weight to education and service. It also got rid of the roman numerals, to avoid connotations with rankings.

In 2005, the Carnegie classification has been revised comprehensively.[1] The challenge was to reap the benefits of the previous classifications and to inhibit some of the downsides. The new classification attempts to forestall the use as a ranking system and aspires to reveal a range of ways in which colleges and universities resemble or differ from one another. Three major innovations have been introduced (McCormick & Zhao 2005). First, instead of one single classification, the new Carnegie classification uses a set of multiple, parallel classifications, thus allowing different dimensions of the US system of universities and colleges to be addressed. These classifications are organised around three fundamental questions: what is taught, who are the students, what is the setting. The result is a set of six all-inclusive classifications on: (1) undergraduate instructional programme, (2) graduate instructional programme, (3) enrolment profile, (4) undergraduate profile, (5) size and setting, and also (6) an update of the existing original classification. Second, a web-based tool has been developed to enable users to combine (categories of) classification schemes and thus to generate subsets of their interest. Third, elective classifications are being developed. These classifications depend on the voluntary participation of institutions. The elective classifications open up opportunities

[1] http://www.carnegiefoundation.org/classifications

to map institutions on characteristics of a special nature. The first elective is on "community engagement" and was introduced in December 2006.

As mentioned before, the original Carnegie classification started out as an analytical tool for researchers. And although it never claimed the objective of becoming the dominant classification for universities and colleges, the higher education research community and the public at large adopted it as the major transparency instrument in US higher education. It is now used by a wide variety of stakeholders and for many more purposes than policy analysis or academic research only. Looking back, the introduction of the classification is now seen as "a great leap forward in describing the diversity of higher education in the United States" and one of the Carnegie Commission's most influential projects (Douglas 2005, p. 37). But as McCormick and Zhao note, "by what is largely an accident of history, the [Carnegie] Foundation became the custodian of a classification system that has been used to describe, characterize, categorize colleges and universities for over 30 years, […]. The Foundation has taken on a sometimes enviable, sometimes controversial, sometimes uncomfortable role as the arbiter of institutional classification and comparison" (McCormick & Zhao 2005: p. 53). The 2005 version of the Carnegie classification implies a move that in our opinion is the most appropriate way of dealing with this uncomfortable role, that is by radically putting the users central. The introduction of multidimensionality, the web-based tool and the voluntary classifications allow stakeholders to make choices about what classifications, characteristics or combinations of these are most relevant to them. As we pointed out in Section 2, it is precisely this that makes classifications most valuable: to provide a tool which enables various groups of stakeholders to create transparency regarding the institutional missions and profiles of higher education institutions.

4.5 Design Principles

The design process of the European higher education classification will be described in Chapter 6. Here it is important to indicate that the design has been based on an analysis of the design principles that appeared to be of crucial importance in the various US Carnegie classifications over the years. This analysis resulted in a number of design principles that formed the basis upon which the first version of the European classification has been developed. These design principles have been widely discussed with the various stakeholders and were further developed during a process of consultation. The principles resulting from this process are the following:

- The classification is based on empirical data
  - There is a conceptual difference between the often legal arrangements of governments to distinguish different types of higher education institutions (polytechnics, *hogescholen*, *Fachhochschulen*, *Ammattikorkeakoulo*) and efforts to categorise different types of institutions on the basis of the actual conditions, behaviour and performance of these institutions. In the European classification, higher education institutions will be classified on the basis of empirical data rather than on regulation or policy intentions and distinctions.

- The classification is based on a multi-actor and multidimensional perspective
  - As we employ a multi-stakeholders approach, different characteristics are relevant for classifying higher education institutions in Europe. The relevance of the various dimensions of the classification should reflect the views of the various stakeholders. Because of this we pursue a multidimensional classification approach, which allows institutions to be categorised on various dimensions.
- The classification is non-hierarchical
  - Classifications can be constructed hierarchically or non-hierarchically. The concept "hierarchy" has two meanings here. It either can be interpreted in terms of the structure of the classification (tree-like, with general types at the top and branches indicating subtypes; cf. the five kingdoms in nature) or in terms of the outcomes (the emergent classification implies a rank order). In the classification presented here, there is no hierarchy between dimensions, nor between the categories within a dimension. It must however be noted that any attempt to classify elements cannot prevent hierarchy-related interpretations.
- The classification is relevant for all higher education institutions in Europe
  - The classification should be relevant to all higher education institutions in Europe, which means that the classification must be recognisable for and applicable to all institutions. However, we suggest that only accredited and/or nationally recognised institutions of higher education should be eligible to be incorporated in the classification. This implies that the classification should be related to the European policy on quality assurance, in particular the European Quality Assurance Register in Higher Education (EQAR).
- The classification is descriptive, not prescriptive
  - The classification reflects the factual profile of an institution. It offers a description of the actual situation of an institution on the dimensions and indicators judged to be relevant by the institution itself. It does not judge, nor advise institutions on the basis of this information.
- The classification is based on reliable and verifiable data
  - It is important to decide which types of data are relevant for a classification. Classifications can be based on subjective judgements (of peers, students, etc.) or on more or less objective data. We strive to classify as much as possible on the basis of objective, verifiable and reliable data.
- The classification is parsimonious regarding extra data collection
  - In terms of data gathering, parsimony is important to downsize the costs and efforts of collecting data. The European classification is designed in such a way that extra data gathering needs can be restricted to a minimum.

4.6 The Components of the European Classification

We propose a first version of a classification of higher education institutions which is made up of 14 dimensions and a set of indicators per dimension. A dimension reflects a characteristic of higher education institutions upon which differences and

similarities can be mapped. Each dimension highlights a different aspect of the profile of the institutions included. This multidimensional set up of the classification implies that institutions can be grouped and compared in a variety of ways. Indicators provide (quantitative) information and can be used to assess the position of a higher education institution on the dimensions.

How did we develop the dimensions? Our starting point was the principle that the diversity of higher education institutions must be reflected in relevant characteristics, while at the same time respecting parsimony. As pointed out before, the relevance of characteristics depends on the subjective interests of stakeholders. Hence, our approach to selecting dimensions has been heuristic. Through an iterative process long-lists of dimensions were discussed with stakeholders and higher education researchers. Next, we tested the relevance of the dimensions through in depth case studies and both a pilot and a larger survey. For the detailed reports on the case studies and the outcomes of the surveys, we refer to Chapter 6. As a result, we have generated 14 dimensions that provide, on the one hand, ample opportunities for institutions to profile themselves in a variety of ways and, on the other hand, provide different other stakeholders with relevant information on the various higher education institutions in Europe. These dimensions are presented and briefly explained in Table 4.1.

As noted earlier, indicators were selected to allow an assessment of an institution's position on each dimension. The indicators make it possible to differentiate between

Table 4.1 Dimensions

1. Degree level	Information on the degrees offered at institutions
2. Subject mix	The range of subjects offered
3. Orientation of programmes	Reflecting the institution's degree of vocational orientation
4. Involvement in lifelong learning	The institution's commitment to the learning by all age groups
5. Research intensiveness	Revealing an institution's commitment to scientific research
6. Innovation intensiveness	The extent to which an institution is engaged in commercial exploitation of its research
7. International orientation: teaching	Institution's engagement in international collaborations in teaching and learning
8. International orientation: research	Institution's engagement in international research programs
9. Size	Categorising institutions according to their overall size in terms of student enrolment, staff numbers and financial turnover
10. Mode of delivery	The mode of delivery of educational programmes
11. Public/private character	Grouping institutions on the basis of their public/private funding base
12. Legal status	The legal status of a higher education institution
13. Cultural engagement	Institution's commitment to not-for-profit activities in the community or society
14. Regional engagement	Institution's role in its regional context

institutions and to construct different classes per dimension. The indicators were selected after many discussions with stakeholders and various tests in a number of research activities. For more details we refer to Chapter 6. Table 4.2 presents an overview of the indicators per dimension.

The dimensions and indicators presented in Tables 4.1 and 4.2 have been selected after direct communication with representative bodies of the various stakeholders,

Table 4.2 Indicators per dimension

1. Degree level	1a: Highest level of degree on which programmes are offered
	1b: Number of qualifications granted in each type of degree programme
2. Subject mix	2a: Number of subject areas covered by an institution using the UNESCO/ISCED subject areas
3. Orientation of programmes	3a: Number of programmes leading to certified/ regulated professions as a percentage of total number of programmes
	3b: The number of programmes offered that address a particular need of the labor market or of specific professions (as percentage of total programmes)
4. Involvement in lifelong learning	4a: Number of adult learners as a percentage of total number of students by type of degree
5. Research intensiveness	5a: Number of peer reviewed publications per FTE academic staff
	5b: The ISI based citation indicator, normalised per field, also known as the "crown indicator"
6. Innovation intensiveness	6a: Number of start-up firms
	6b: Number of patent applications filed
	6c: Annual licensing income
	6d: Revenues from privately funded research contracts as percentage of total research revenues
7. International orientation: teaching	7a: Number of degree-seeking students who are foreign nationals, as percentage of total enrolment
	7b: Number of incoming students in European exchange programmes, as percentage of total enrolment
	7c: Number of students sent out in European exchange programmes
	7d: International staff members as percentage of total staff
	7e: Number of programmes offered abroad
8. International orientation: research	8a: Financial turnover in European research programmes as percentage of total financial research turnover
9. Size	9a: Number of students enrolled (headcount)
	9b: Number of staff members employed (FTE)
10. Mode of delivery	10a: Percentage of total programmes delivered via distance learning

(continued)

Table 4.2 (continued)

	10b: Number of part-time programmes as percentage of total programmes
	10c: Percentage of students studying part-time
11. Public/private character	11a: Percentage of total revenue derived from (competitive and non-competitive) government funding
	11b: Percentage of income from tuition fees
12. Legal status	12a: Legal status as defined in formal legislation
13. Cultural engagement	13a: Number of official concerts and performances (co)-organised by the institution
	13b: Number of official exhibitions (co)-organised by the institution
14. Regional engagement	14a: Annual turnover in EU structural funds as percentage of total turnover
	14b: Percentage of graduates who remain in the region
	14c: Number of extracurricular courses offered for regional labour market
	14d: Income from local/regional sources

and hopefully reflect their views and ambitions. Nevertheless, the dimensions and indicators are not set in stone. Generally speaking, the classification intends to be flexible, not only in the sense that higher education institutions can "move" on the various dimensions and indicators given their specific developments and performances over time, but also in the sense that these dimensions and indicators themselves can be adapted and expanded. The European classification of higher education institutions is assumed to cater for the needs of the various stakeholders and should allow these needs to have an influence on its compilation and appearance. As a special facility the classification therefore offers a number of web-based classification communities that provide discussion platforms on the dimensions and indicators. In these communities stakeholders can discuss the various elements of the classification and design new and additional indicators, as well as reduce and remove them. For more information see: Chapter 6 and www.u-map.eu.

Furthermore, the classification presented here is a first version. The number of dimensions and indicators is still relatively large and may need to be reduced. The communities mentioned earlier will play a major role in the reduction of the number of dimensions and indicators. A second version of the classification will probably contain a smaller number of dimensions and indicators.

The European higher education classification needs data in order to be usable. In the case of the Carnegie classification in the USA these data are largely available at the level of the federal government. In 1968 the US federal government established the Higher Education General Information Survey (HEGIS). However, this instrument had significant limitations, lumping together a broad range of institutions and hindering careful analyses. Later on HEGIS became IPEDS: the Integrated Postsecondary Education Data System. The IPEDS has a major impact on US higher education. Postsecondary institutions wishing to establish or maintain their eligibility in federal student aid programmes must annually report a wide range of

data to the US Department of Education (USDE). USDE collects the data through a series of surveys which together constitute the IPEDS. Most of the data are raw data on students, staff and finances, with some added performance measures. As with any data system, in the IPEDS basic definitions and measures are necessary to collect the data. Examples are definitions of what constitutes a full-time or part-time student, and how to categorise finances by activity area (teaching, research, administration and public service).

In European higher education so far, an overall Europe-wide data system does not exist. The national statistical offices in the various European countries all have their own data systems with more or less elaborate information on their higher education systems. Although these national data systems show interesting overlaps, a Europe-wide data system cannot easily be created on the basis of these national data sets. In addition to the national data systems, a number of European and international surveys exist that offer some information on European higher education institutions. However, these surveys are too fragmented and limited to allow a Europe-wide approach to analysis in the context of a European higher education classification system. As a consequence, in order to be able to use the classification, the data will have to be provided by the higher education institutions themselves. The design principle of parsimony underlines that the extra burden this creates for these institutions should be kept to a minimum.

Recently the European Commission and EUROSTAT have launched an initiative to support the development of a European higher education and research census. If such a census can indeed be developed in the coming years, an important condition to "fill" the European higher education classification with empirical data will be fulfilled. The classification will then offer a wide range of options for analyses and applications.

4.7 Conclusion: Institutional Profiles

Classifications use the principles of ordering and comparison to categorise. Higher education classifications characterise similarities and differences among institutions of higher education. Our European classification of higher education institutions allows categorisations according to the number of dimensions being applied in the classification. As already indicated, the first version of the European classification presented here is a multidimensional instrument, providing a number of categories in which institutions are grouped that show similar "scores" on specific dimensions and indicators. The classification indeed is an instrument for "mapping" the European higher education landscape. The European classification of higher education institutions thus differs from aggregated rankings in that it allows multiple scores for individual institutions. It also differs from rankings in general because it does not intend to create hierarchical comparisons, leading to one "league table". However, this will not stop users from developing their own rankings of tailor-made subsets of institutions within the classification. This is not necessarily a bad thing.

At least the use of subsets of largely similar institutions reduces the diversity within these groups of institutions and consequently implies that these institutions are not unfairly ranked. In this sense, we believe that the European classification of higher education institutions is a relevant and significant prerequisite for better rankings in European higher education. In Chapter 5 this topic is discussed in more detail.

An important objective of developing a multiple classification system is to provide a series of lenses through which we can examine and analyse important similarities and differences among higher education institutions. The European higher education classification offers users and stakeholders a set of varied pictures of the European higher education landscape, capturing in a useful way the true complexity and diversity of European higher education.

The European classification allows users and stakeholders to make deliberate choices about which dimensions are relevant for their purposes. In this sense the classification offers the possibility to present and compare institutional "profiles", descriptive representations of the conditions and performances of higher education institutions on a selected number of dimensions and indicators.

As an illustration in Fig. 4.1 these profiles are presented in a few statistical "spider webs". In these webs different higher education institutions score differently on a number of selected dimensions of the classification, showing in this way their individual authentic profiles.

Institutional profiles, as presented in Fig. 4.1, can be important and useful instruments for higher education institutional management. They can be the basis for internal strategy development, for external benchmarking, for developing inter-institutional cooperation, or simply for effective communication. Institutional profiles capture the relevant characteristics of a higher education institution, particularly because they are the results of the institution's own policies and performances. In this context it may be pointed out that higher education institutions can of course decide on which dimensions of the classification they would like to present themselves. The classification allows higher education institutions to analyse and present themselves according to their own priorities (see Chapters 9 and 10, for example).

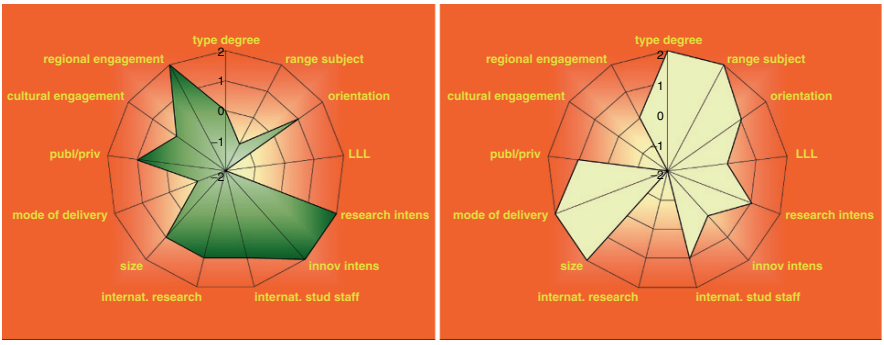

Fig. 4.1 Higher education institutional profiles presented as statistical spider webs

Creating institutional profiles is also a way to address the institutional diversity of European higher education. Based on the European classification of higher education institutions, these profiles can contribute to making this diversity more transparent. They are relevant elements in the process of mapping the European higher education landscape.

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