9. Realities and complexities of RII analytics and assessment

9.1 REFLECTION ON UNIVERSITY SELF-APPRAISALS

The findings of our ‘proof of concept’ pilot study were encouraging, offering relevant insights and avenues for further development aimed at possible applications as an assessment tool. The presented self-appraisal reports in Part II, admittedly still only a very small sample of all research universities located in Europe, has revealed the strengths of our analytical approach, but also room for improvement and further development.

Starting with the strengths, the rich and varied content of those self-appraisal reports contain informative backward-looking accounts of their current RII-relevant activities and organisational processes. They describe important aspects of their RII potential and mention RII relevant pathways, while several highlight their RII achievements or how they engage with local or regional authorities and stakeholders. The five case studies presented in the Appendices are interesting illustrations of how their ‘narrative with numbers’ capture these different perspectives. Naturally, their retrospective accounts reflect prior decisions and chosen trajectories, which are not necessarily indicative of new developments or longer-term plans. Following the guidelines for the self-appraisal reports (see Appendix A), universities also incorporated a forward-looking perspective, which provides some relevant information on possible future developments and strategies for improving their regional engagement.

The universities were able to assemble a variety of information from in-house sources on attributes or components of their RII profile. The 20 self-appraisal reports offer valuable insights as to which elements of information are used by universities to describe important components of their RII profile. Our content analysis of these reports produced more than 400 references to distinctive elements. In that sense, the analytical framework also seemed to work reasonably well as an information gathering tool with regards to possible ‘indicators’ (proxy measures) of RII potential or performance. We refrained from analysing those elements in terms of their relevance and
validity as an indicator. We simply tallied the number of references, thus ascertaining which elements are most frequently used and could possibly constitute a ‘fit for purpose’ indicator in the eyes of universities. Some of those indicators are ‘generic’ – they occur quite often and refer to common characteristics of RII-oriented universities, such as ‘the presence of a technology transfer office’. Depending on the university’s RII profile and the RII absorptive capacity of its local or regional environment, some of the indicators are university-specific – for example ‘Co-working and co-creation spaces’ in the case of universities in metropolitan areas with a large services sector or ‘arts and culture’ sector. Half of all indicators mentioned are ‘background indicators’, which do not specify the university’s role in the local or regional environment. These indicators may reveal valuable information on the university’s RII potential, but nothing on RII competences or achievements. For example, we find indicators of university–business cooperation without information about where the partner firms are located or whether such collaborative activities are relevant to local or regional economic goals. In our RII model, set out in section 1.4 (Figure 1.1), such background indicators could perhaps feature as an RII pathway indicator, but need more detail and specificity to count as an RII indicator. The other half are RII-specific ‘foreground’ indicators, those that do reflect the university’s local or regional focus. But very few of those were ‘quantitative’ indicators (see Table 4.2 in section 4.3). There are far more references to RII-specific ‘qualitative’ indicators, such as a commitment in a university’s mission statement to strengthen regional economic development. The relative scarcity of ‘quantitative’ indicators not only reflects the absence of RII-specific information in university management systems, but probably also difficulties to link facilities, initiatives, or activities within the university to possible impacts in a specific geographical area. In both cases, it raises the question of which dedicated resources and incentives are needed to remedy this information gap. Especially in the case of larger universities, their societal mission, organisational infrastructure, and portfolio of activities are likely to be too broad and diversified to be pinned down in terms of the geography of impacts. The prism through which they view the varied outreach of their organisation is not necessarily space/place-bound in terms of clearly demarcated surrounding territories. Even so, large research universities that have invested heavily in infrastructures, facilities, programmes and projects specifically dedicated to engagement with the local surroundings, and aiming to create significant levels of RII, should be able to generate a wide range of high-quality RII-relevant information for monitoring and assessment. In order to bridge the observed information gap, universities should be incentivised to collect more information on observable effects of their investments in regional engagement and outreach, especially those outcomes with significant
and measurable impacts on the local business sector and regional innovation system.

As for possible improvements, further steps are clearly required to upgrade the analytical framework. Not only to test its practical feasibility as an information-gathering tool and for analytical purposes, but also to determine the framework’s value added for designing or supporting evidence-based policy initiatives. These follow-up studies will have to confront several technical, methodological or organisational issues, but also address a series of more fundamental questions: how relevant and useful are the self-appraisal reported facts and figures in their ‘narrative with numbers’ reviews? Does the proposed analytical framework live up to expectations from stakeholders when applied to performance monitoring or in evaluative settings? Is the approach appropriate for in-depth self-analysis for gaining insights into RII potential and performance, such as the impact of motivational factors and incentive systems? As is to be expected in such time- and size-constrained self-appraisal reports, some features of the university’s RII profile will inevitably remain obscure. Although a few of the surveyed universities may have implemented incentive and reward systems to engage in local or regional orientation, outreach or cooperation (see section 4.2), they refrain from addressing the (possible) effectiveness of those measures. There is no mentioning of RII performance targets or stakeholder expectations concerning investments in engagement-supporting resources. Although many universities collect in-house information on various aspects of their regional engagement (see section 4.2), it is not clear if and how such information is made accessible for application outside the university management domain. Nor are there any studies within universities to assess the effectiveness of their regional engagement activities and investments.

Furthermore, something else and more fundamental is also missing – both in the self-appraisal reports by universities and in our framework. To describe that deeper gap, let us briefly return to Part I of this book, where we presented our analytical model (Figure 2.1, section 2.1). It specifies inputs, stages of development and processes that seem to follow pre-determined ‘linear’ paths or ‘non-linear’ feedback loops, where ultimate achievements and impacts may, or may not, reach users in the local environment or spill-over beyond the geographical area. This particular model is of course a crude reflection of complex and dynamic realities. Importantly, it cannot incorporate chance events, coincidence and serendipity. Some RII processes or events can be largely attributed to deliberate intent, others are mainly determined by randomness. Moreover, whatever the university does or does not do, we can never be certain of what will happen, or could have happened, in terms of alternative regional engagement trajectories or RIIs. Hence, we are in the dark about possible options or missed opportunities that a university could have pursued to (further) develop RII potential or enhance the effectiveness of its RII delivery space. Should
comprehensive RII models aim to capture the role of unexpected external developments, organisational ‘optionality’ and ‘what if’ counterfactuals? One can easily dismiss this as an inevitable shortcoming, given the complex dynamics of environments in which universities operate, but including the fundamental notion of uncertainty in the model would help to present a better contextualised account of RII success stories and failures.

9.2 FROM ANALYTICAL FRAMEWORK TO ASSESSMENT FRAMEWORK

Our ‘narrative with numbers’ analytical framework seems to work reasonably well as a self-appraisal reporting tool but is it also useful for RII assessment? For such applications we are still at a very early stage. Assessment frameworks need careful consideration and a robust design to avoid implementation problems that one could encounter when adopting a more critical stance. Verifiable narratives are needed. And more numbers, especially those that can be verified. Moreover, a poorly designed framework can reinforce existing power structures within universities or their RII systems, thereby perpetuating ‘old ways’ of RII-related thinking, incentivising and acting. For example, one should avoid an overemphasis on ‘RII endpoint assessment’, which ignores the many mitigating factors that might have contributed to a university’s success or failure in an RII trajectory. RII assessment should be primed to carefully consider the entire setting surrounding the performance of an RII pathway, an intermediate outcome, or an RII itself. The aim should be to recognise and identify, as much as possible, the particular circumstances or major contributing factors that may have contributed to the identified output, outcome or impact. This kind of approach, which may include counterfactual thinking, enables a contextualised analysis of RII practices, processes, and causation, rather than an almost myopic focus on ultimate outcomes or impacts. Clearly, such an assessment toolkit requires a customised set of indicators and expert judgement.

High-quality assessment frameworks should also balance their level of ‘inclusiveness’, that is, capturing as many (potential) impacts as possible, but weighed against the operational costs of information gathering. Overly ambitious assessment exercises are not cost-effective. Many universities are already overloaded by administrative and bureaucratic pressures, being subjected to streams of compliance-driven information requests from governments and other agencies. A workable analytical framework should be as ‘light’ as possible administratively, in order to keep the data collection efforts and reporting burden at an acceptably low level. Ideally, such RII information demands should be coordinated and synchronised between the university and its key ‘external actors’; local or regional authorities, other RII relevant part-
ners or funders. To organise implementation processes, we need to distinguish between four main modes of assessment: internal versus external, and summative versus formative. The first dimension relates to the actor conducting the assessment, the second dimension describes the assessment’s main analytical perspective.

Figure 9.1 presents a stylised overview of those four assessment modes, each described in terms of analytical framework attributes and performance parameters from Figure 2.1 (section 2.1). Rather than polarising between the different modes, this diagram is meant to emphasise similarities and overlaps: some ‘integrated’ assessments may involve internal and external views and information, other assessments may include both backward-looking and forward-looking elements. Where summative assessments are outcome-oriented and often backward-looking, aimed to identify and learn from observed strengths and weaknesses in the university’s past performance, formative assessments are process-oriented and geared towards generating ideas and collecting information on opportunities and challenges within the university. The distinction between summative and formative also defines the nature of relationships with the external stakeholders concerned. In those cases where RII self-appraisal reports or self-assessments inform external RII performance reviews, the interactions with stakeholders are likely to be more intensive and focused on meeting assessment requirements (like providing verifiable proof of RII achievements).

![Table](image)

<table>
<thead>
<tr>
<th><strong>External assessment</strong></th>
<th><strong>RRI incentives, end products, impacts, spillovers</strong></th>
<th><strong>RRI funding, incentives, resources, facilities, practices, processes and intermediate outputs</strong></th>
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<tbody>
<tr>
<td>(funder, stakeholder or other)</td>
<td><em>(utility, efficacy, value)</em></td>
<td><em>(focus, relevance, alignment, coherence, consistency)</em></td>
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<tr>
<th><strong>Self-appraisal or self-assessment</strong></th>
<th><strong>RRI incentives, practices, processes, end products, impacts</strong></th>
<th><strong>RRI goals, motivation, resources, facilities, practices, processes and intermediate outputs</strong></th>
</tr>
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<tbody>
<tr>
<td>(by university or university unit)</td>
<td><em>(efficiency, effectiveness, value)</em></td>
<td><em>(focus, relevance, alignment)</em></td>
</tr>
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**Summative** | **Formative**

![Figure 9.1](image)

*Four modes of RII analysis and assessment*

Most of the information presented in this book are summative self-appraisal reports and fall in the lower left-hand quadrant. Those assessments should
focus on issues of efficiency, effectiveness, and value – in other words, how well has the university done in terms of creating (opportunities for) RII. Several important attributes and parameters are indeed dealt with in those self-appraisal reports, but many are not (well) covered. Information on final impacts, and the effectiveness of the universities’ activities and investments receive much less attention. This leads to the question of how informative those self-appraisal reports are in terms of their overall value for assessment? This topic is addressed in section 9.3. The other three quadrants, especially the top quadrants (external assessment), are further introduced in section 9.4 where the added value of incorporating other perspectives in RII assessments is discussed, especially those of expectations and accountability vis-à-vis external funders and stakeholders of universities.

9.3 FROM SELF-APPRAISAL TO SELF-ASSESSMENT

Recognising the fact that each university is distinctly different in terms of ‘scale and scope’, and acknowledging that their RII profile is characterised by its own unique interconnected mix of ‘space, place and resource’ parameters, what can we expect from RII self-appraisal reports? As explained in the previous two sections such analytical exercises have to deal with complexity and uncertainty. Information on organisation-level RII profiles and portfolios is, by definition, incomplete and usually retrospective. There is no hope of capturing all RII relevant information on a university’s organisational constraints or opportunities. Facing these inherent limitations, how likely is it that self-appraisal reports will be able to deliver at least some essential information on their RII potential and performance? What can one expect from ‘narrative with numbers’ accounts in terms of information value?

Most of the self-appraisal reports presented in this book tend to focus on high-profile success stories, stress the university’s organisational strengths, and introduce grand ambitions for further development. Producing such self-appraisal reports, often within a relatively short space of time, illustrates the ability of universities to access internal sources and deliver RII relevant information that complies with external specifications. Moreover, the response rate and information value of the empirical material supplied by universities implies that they are able to translate the concept ‘regional innovation impact’ into internal organisational structures and concrete activities. Judging by their input for each of the four pre-defined RII domains, these are also seen as meaningful from the university perspective.

Furthermore, most self-appraisal reports remain ‘broad stroke’ descriptive overviews, rather than analytical and detailed narratives. That is understandable in view of the instructions and size constraints imposed by the editors.
Appendix A) which forced universities to be selective and report succinctly. But, from a more critical viewpoint, we see that the quality of the information varies significantly per university and per domain. We may assume that this outcome reflects the scarcity of available information within universities, or a lesser sense of urgency to invest in gathering such information. Obviously, data collection efforts and subsequent reporting may come at considerable cost in terms of resources, which some universities can afford more easily than others.

More extensive assessment reports, and more resources for information retrieval or gathering, would be helpful to address such issues. Ideally, some information should be unearthed on underpinning causal mechanisms, pointing out the most productive RII practices or pathways, or attributing high-profile RIIs to all the primary contributors within a university. For instance, such advanced ‘narrative with numbers’ would allow universities to both contextualise their performance (e.g. relative to the absorptive capacity of the region and surrounding economy) while explaining, for example, why results that appear to be negative, when considering only the numbers involved, may actually be positive and in line with the university strategy.

Contextualisation is essential for interpretation of the ‘numbers’ and drawing meaningful conclusions from the available statistical data. The specific type of university and its geographical location should be factored in. Universities should supply sufficient data on their size in terms of organisational capacity in both education and research, an important parameter to determine the scale of RII potential and possible scope for RII performance. It is imperative that data produced by universities are supported, as much as possible, by related data from local or regional authorities, especially with regard to their innovation capability and RII absorptive capacity.

National institutional and regulatory contexts may also affect the type of RII activities a university is able or allowed to develop. When looking at the possible driving forces of RII, especially political pressure from regional authorities and domestic funders, a ‘crisis driver’ such as economic decline is likely to stimulate universities to enhance their public commitment. Even so, most universities will have several barriers to overcome should they decide to step up their regional engagement activities. Can they, for instance, overcome a lack of resources to create effective RII pathways, or overcome their own internal tensions in trying to achieve multiple (perhaps competing) missions? And how to do deal with the ‘regional innovation paradox’ in economically lagging regions, where the need to invest large sums of public investment in innovation capability conflicts with the region’s capacity to absorb these funds (Oughton et al., 2002). Such ‘peripheral’ regions may also suffer from what is referred to as ‘institutional thinness’ (Tödtling and Trippl, 2005) characterised by relatively weak business sectors or fragmented industrial clusters as well as
a lack of public and private organisations that may actively promote or support university-supported innovation (Zukauskaite et al., 2017). The thinness of innovation systems could also make it easier to assess and monitor a university’s RII. In highly developed regions with very ‘thick’ systems, comprising many higher education institutions and many business sector players, it might be more difficult to single out the impact of a single university.

The question of how to stimulate a thin system by a good university is very pertinent, especially if there is only a weakly developed external demand for university educated graduates or for other services. But if the region’s absorptive capacity is at a relatively low level, with few suitable external partners, it may be unreasonable to expect universities to create sustainable RII-conductive environments. We therefore need to be realistic with regard to RII performance. Most universities are not ‘RII challenge’ driven, and many of them probably never will be.

Universities may operate in environments which impede them to fully develop their RII potential or prevent them from generating any significant level of regional engagement (Kempton, 2019). These obstacles may be ‘internal’ to the university (legal, organisational, financial, or others) or may relate to ‘external’ factors within their municipality, metropolitan area or region (such as regulations, governance structures, insufficient absorptive capacity). These inevitable ‘background’ characteristics and barriers need to be made explicit and explained in high-quality RII self-appraisal reports. Context-sensitive assessments should take such circumstances into account, as well as the vision, mission and strategies of universities to overcome external challenges and internal obstacles. As discussed in section 3.2, the RII analytical framework (Jonkers et al., 2018), needs to be expanded and include the development of a ‘Theory of Change’ (ToC) in which the university explains its current strategy to achieve RII-related objectives (see section 3.2). In fairness to the universities that produced the self-appraisal reports, it is important to stress that the current list of general questions (see Appendix A) should be supplemented by ‘evaluative’ questions that target organisational self-enhancement, where the university would be queried about the targets they set themselves in terms of specific RII performance, who should be asked to analyse and explain their RII performance, but also the barriers they face and their strategies to overcome them.1 The final list of such questions will depend on where and how the

1 The Institutional Evaluation Programme by the European University Association (www.iep-qaa.org) includes the following set of performance-enhancement oriented questions:

What is the university trying to do in terms of improving its RII performance? (mission and objectives);
How is the university trying to do it? (policies and processes);
analytical framework is implemented. More specifically, it will depend on the nature of the funding instrument to which it would be tied (see Chapter 10).

Truly informative ‘deep’ assessments should venture even further and try to collect data on RII relevant investments or strategies that did not (yet) produce the intended or anticipated results. Not only because such in-depth information would highlight those RII pathways that might be underdeveloped, but it may also indicate where (additional) in-house incentives and reward systems may create significant positive effects on RII performance. These insights, when properly contextualised and interpreted, would allow universities to develop better strategies and more effective practices to improve future RII performance. Detailed information on successful RII cases that occurred under less favourable regional conditions could also provide informative messages. Furthermore, time-dependent and context-dependent ‘impact story’-type of information, on the chronology of key events leading up to an RII, would offer the opportunity to gain insights into the nature of processes and causal relationships.

An analytical framework should not just monitor and evaluate the impact of universities on their local environment, but also lead to an evidence base for more targeted decisions and priorities. RII-funding applications from universities (and regional partners) should provide persuasive narratives on RII potential, with relevant indicators and convincing numbers. Most universities will need to upgrade their internal information systems and management administration to gather the required RII data and background information for monitoring and evaluation. By adding the narrative part and a university-specific Theory of Change, the framework would enrich usual methods, such as counting patents, spin-off firms or student internships in the region, with facts that statistical data alone cannot easily capture. Narratives may offer deeper insights into how RII related initiatives and activities are progressing and the role of the human factor. Such a framework should be highly sensitive to the diversity of universities. It should weigh RII performance against the characteristics of the region in its actual state of development. If coupled with a multi-annual funding instrument as discussed in the next chapter, the framework has the potential to shift the attention of ‘global’ research-intensive universities to their regional roles, as well as help re-balance EU and national-level innovation policies that have been rendering the regional engagement missions of universities less prestigious than boosting their national visibility or international reputation.

How does the university know it is working? (monitoring and quality assurance); How does the university change in order to improve? (capacity for change).
Clearly, the self-appraisal reports presented in this book have barely scratched the surface of what is happening across research-active universities in Europe. The current version of these self-appraisal reports will not plug the information gap on a university’s RII performance, but may certainly help to bridge it. Adding evaluative questions about RII performance will narrow the gap but will not close it. We need to wade further into the unknown and expand our evidence base beyond the institutional vantage point. We need to supplement university self-assessments with external assessments.

9.4 EXTERNAL ASSESSMENT

RII self-appraisal reporting represents a one-sided view. Grasping the spectrum of its RII portfolio can be a daunting task for any university, if only because it requires information on achieved impacts. Inevitably, most of those impacts have occurred outside, often beyond the university’s observational horizon. Any relevant external information to supplement the organisation’s perspective is therefore likely to be helpful. Detailed information from reliable, independent sources is especially important. Such inputs may bring new perspectives on a university’s RII performance, raise important questions about the usefulness of indicators, or point out overlooked possibilities for impact monitoring. The process of moving from self-appraisal to external assessment will require the selection of suitable quantitative and qualitative indicators, to fit the ‘narrative with numbers’ approach outlined in this book. Such indicators should be useful for university management applications as well as provide a meaningful breakdown between RII potential and RII performance. Part of the problem in selecting or customising those indicators by universities could be solved if they knew about the assessment criteria in advance. Guidance would need to be provided to external evaluators to ensure that they have all the information required to make an accurate and appropriately contextualised RII assessment.

External assessments can add significant informational value to university self-assessments; they are in fact essential for user-driven *ex post* assessments of RII performance. How then to value, or critically appraise, the benefits of such external assessments? There is obviously no ‘one size fits all’ external assessment framework. It requires tailored ‘case by case’ approaches, not standardised ‘box ticking’ exercises. It is also clear that university-generated narratives with numbers are a key input and will then have to be accessible and understandable for external users and reviewers, notably their regional partners and local civic society. Major institutional stakeholders or funders may also want to provide relevant feedback. All that information is vital to fully assess and contextualise a university’s RII potential and performance within a larger setting of economic development and societal needs. Alignment
of information from such external sources with the internal information from self-appraisal reporting, requires a joint ‘integrated’ framework based on a shared understanding of a university’s RII ecosystem, guided by a ‘dialogue model’ of engagement to obtain a comprehensive overview of a university’s RII profile.

As indicated in the model of the RII analytical framework (section 2.1, Figure 2.1), a full scale RII assessment would also include input from local or regional authorities/partners as to either the utility, efficacy or the value of a university’s ‘RII delivery space’. Incorporating such information creates a range of options for assessing the university within its broader RII ecosystem as wider impacts (section 3.1, Figure 3.1). Such an external assessment would relate to RIIIs directly originating from universities, those where the university was indirectly involved, or specific RII pathways with a significant impact. The two key questions at the top of the list in many of those ecosystems: are there RIIIs that significantly contributed to our local or regional economic competitiveness? How can a university contribute to student employability in the region?

While most research-active universities are conditioned to accept external reviewers when it comes to the assessment of their academic performance (including scientific impact), it is less clear to what extent this willingness holds when it comes to expert review panels to assess RII, which is a new and still ambiguous evaluation object. The notion of ‘innovation impact’ is not as well understood as ‘scientific impact’. Moreover, external experts are not necessarily good at judging the value of socio-economic impacts, let alone the relevance of RII potential, practices, pathways or performance. Clearly, external experts with specialised knowledge will be required. An expert panel should be sufficiently broad and diverse to incorporate the necessary differences in disciplinary background, sufficient knowledge of the entire university and its region, as well as an appropriate skill set. The fact that the key concept ‘regional innovation impact’ may not be understood the same by all experts, suggests the application of expert panel reviews in external assessments. Such panels allow for contesting and conflicting opinions which can be played out and negotiated to reach better understanding and consensus (Derrick, 2018). External assessments would be strengthened by including interviews of representatives of universities for fact-checking and gathering essential background information.