Drivers and indicators of international collaboration

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Outline

- Context and aims of the study
- Rationales for and drivers of internationalisation
- Indicators and strategic intelligence
- Current use of indicators
- Future indicator developments?
- Analysis and summary
Context

- Growing attention to STI co-operation and internationalisation in the context of
  - Educational and demographic trends in Europe (interest in retaining and attracting HRST)
  - Globalisation and the emergence of BRIC countries (and especially China)
  - Severe global challenges such as climate change
  - ERA developments and the broader European agenda
The study

- It was in this context that we explored through interview based (mini) country case studies and a conference:
  - Drivers for internationalisation of STI at the policy level
  - Indicator use in 10 member states and 10 non-member states
  - The potential for further indicator development in this area
Rationales and drivers

- Internationalisation is both a policy goal in itself and a means to other policy goals
- Narrower paradigm: Science/research focus
  - Promotion of excellence in research
  - Competition for human resources in S&T
- Broader paradigm: STI seen as a means to achieving a wider range of policy goals
  - Domestic competitiveness
  - Tackling societal challenges
  - Supporting overseas development
  - Furthering diplomacy and security
Indicators and strategic intelligence

- Rise of the broader paradigm implies an increased need for/use of ‘strategic intelligence’
- We compiled a set of country studies to explore the drivers in each and to look at indicator developments and use
- We can conceptualise the different uses to which indicators can be put in the policy process...
Four dimensions of indicator use

- **Actors (who?)**
- **Drivers (why?)**
- **Modes (how?)**
- **Role in policy process (when?)**
Indicator needs in the ‘policy cycle’

- Indicators: What is our position? Do we have a problem / opportunity?
- Drivers: why are S&T collaboration policies set up?
- What have we achieved? Where do we stand?
- Indicators: Attached to goals & targets
- Objectives for InterColl policies
- Design InterColl policies and mechanisms
- Strategic intelligence on policies/practices elsewhere
- Indicators for measuring success
- Definition ‘success’ and targets
- ‘success’ and targets
- Strategic intelligence on policies/practices elsewhere
Current use of indicators

- We found that indicator use is largely limited to one-off or ad-hoc ‘contextual’ studies, or to evaluations and impact assessments of specific internationalisation initiatives.
- (Despite the perception amongst policy-makers) we found little evidence either of the systematic monitoring of internationalisation as a phenomenon, or of the overall impacts of policy interventions on the broader policy goals behind internationalisation efforts.
- We found that most efforts focus on a limited set of basic ‘narrow’ input/output/activity indicators (e.g. co-publication, co-invention, programme participation).
Future indicator developments?

- There is a high level of interest in the more systematic use of indicators – but little progress thus far
- Interaction between member states of the kind just beginning to be seen now around this topic could lay the foundations for further development of an indicator agenda
- In the report we discuss a number of possible directions such future developments could take, starting from the indicator needs from the idealised policy cycle (and working from the ‘narrow paradigm’ outwards)
Summary

- Policy interest in internationalisation is growing, and many member states have an explicit strategy - but indicator development is lagging behind
- ‘joined up’ policy learning is therefore rare (despite the proliferation of high-level councils)
- The trend appears to be towards a broader ‘paradigm’ revolving around a more complex mix of policy goals
- The supposed causal mechanisms by which internationalisation is expected to achieve these broader goals are rarely made explicit (and it is hard to do so)
- This fuzziness creates profound challenges for indicator definition, development and use, compounded by a tendency to conflate policy activity with STI activity…
Summary

- A comprehensive set of indicators is a long way away if it is possible at all - but member states and the EU can work together to steadily improve indicator definition, data collection and indicator use, perhaps pragmatically working from ‘narrower’ paradigm indicators outwards…
## Possible indicator directions

<table>
<thead>
<tr>
<th>Stage</th>
<th>Indicator need</th>
<th>Possible indicators?</th>
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<tbody>
<tr>
<td>1 ‘status quo’ analysis</td>
<td>1.1) Analysis of the STI strengths and weaknesses of the country; 1.2a) Analysis of scale/scope of existing international activities of individual researchers; 1.2b) Analysis of scale/scope of existing international activities of research-performing and innovating organisations; 1.2c) Analysis of existing policy interventions promoting STI internationalisation. 1.2d) Governance structures (policy)</td>
<td>1.1) Whole existing array of RTDI indicators; 1.2a) Co-publications and co-inventions, co-operation data, citation impact of co-publications, share of researchers co-publishing, analysis of co-operation patterns (partner analysis), HRST mobility indicators; 1.2b) All the above but aggregated to appropriate level, expenditures on internationalisation, orientation indicators for the organisation (e.g. number and nature of formal agreements); share of income from overseas sources), R&amp;D related FDI, share of R&amp;D conducted overseas, share of patents overseas, pattern of overseas activity; 1.2c) (For internationalisation initiatives) participation rates, impacts, patterns by country; (For national programmes) openness to overseas researchers, patterns of overseas involvement (country and policy goal), participation in EU programmes, participation in international organisations and infrastructures 1.2d) Mapping and budgeting of initiatives, orientation indicators for policy (existence of policy units, collection and use of indicators)</td>
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<td><strong>2</strong> Setting targets</td>
<td>Do explicit targets exist? Are they quantifiable?</td>
<td>3.1) As for (1.1) and (1.3) above</td>
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<td>What kind of targets are they (i.e. are they amenable to scale/scope of activity or to impact indicators)?</td>
<td>3.2) As for (1.2) above</td>
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<td>Challenges of setting quantifiable targets – no ‘optimum’ level of internationalisation</td>
<td>3.3) Diffusion patterns, purchasing power, regulation, public procurement.</td>
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<td><strong>3</strong> The international opportunity environment</td>
<td>3.1) Scientific and technological profiles of possible partner countries; 3.2) Analysis of specific organisational hotspots by field or sector; 3.3) Demand and market indicators; 3.4) Scale and nature of existing collaboration with possible partner countries 3.5) Nature of funding opportunities and policy orientation in possible partner countries</td>
<td>3.4) As for (1.2) above</td>
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<td>3.5) As for (1.2d) above</td>
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<td><strong>4</strong> Monitoring and evaluation</td>
<td><strong>Regular monitoring of relevant indicators</strong>&lt;br&gt;<strong>Investigation of behavioural changes</strong>&lt;br&gt;<strong>Attributable impacts on RTDI performance indicators</strong></td>
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