Unpacking Societal Impact Profiles: From data to decisions

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Author biographies

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About the Institute for Scientific Information

The Institute for Scientific Information at Clarivate has pioneered the organization of the world's research information for more than half a century. Today it remains committed to promoting integrity in research while improving the retrieval, interpretation and utility of scientific information. It maintains the knowledge corpus upon which the Web of Science index and related information and analytical content and services are built. It disseminates that knowledge externally through events, conferences and publications while conducting primary research to sustain, extend and improve the knowledge base.

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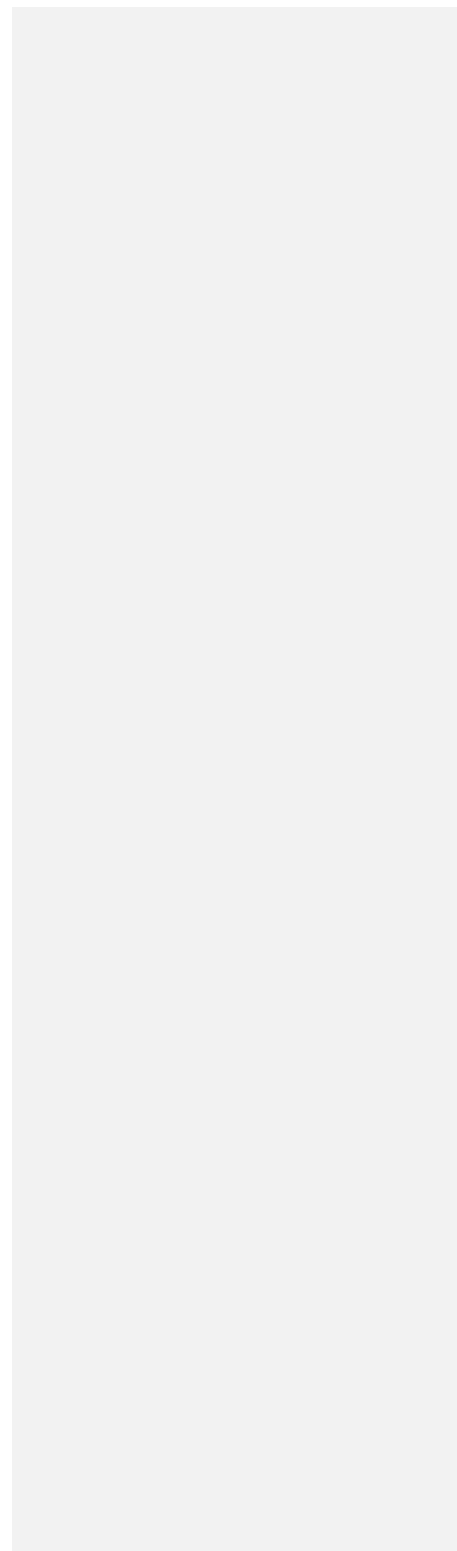
About ISI reports

ISI reports offer concise and informative analyses of topical research trends, using best-in-class citation data and analytics from Clarivate. This paper further develops the topic of evaluating the societal impact of research. It provides examples of how the indicators described in our Societal Impact Framework can be used by institutions to highlight their strategic strengths and potential risks, benchmark against peers, and support decision making to manage performance. It also describes how this can be achieved through Web of Science Research Intelligence platform and various data sources provided by Clarivate.

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1: Executive summary

- Evaluating the return on public investment that a university provides to society and the economy is challenging because research often delivers complex outcomes that have benefits across multiple societal areas and address diverse needs.

- Web of Science Research Intelligence is an AI-native software solution that enables universities and research institutes to analyze, benchmark and showcase the societal impact of their research based on a framework published by the Institute for Scientific Information (ISI).

- The framework maps impact across eight societal facets, each with five retrospective (lagging) and six forward-looking (leading) indicator groups. These groups draw on multiple individual metrics, based on a mix of quantitative and qualitative data from sources beyond traditional scholarly output and activities. The results are visualized in a **Societal Impact Profile**.

- This report presents three real-world examples of how research managers can use Web of Science Research Intelligence to spotlight strategic strengths, flag potential risks, benchmark against peers, and guide performance decisions.

  1. Profiles for two generalist and two specialist institutions from North America reveal consistent distinctions between large multi-faculty universities and technology institutes, and show how Web of Science Research Intelligence can support managers in recognizing and interpreting these differences. (Figure 1)

  2. For many leaders, a key question is how their team stacks up against regional peers. The second example benchmarks an Asia-Pacific institution against a regional leader and a peer, using a curated set of similar institutions. The insights support decisions around reputation, recruitment, and research funding. (Figure 2)

  3. To sustain or boost performance in a specific societal facet, managers may need to audit the activities behind a profile. The third example shows how a UK Russell Group university can pinpoint which research outputs drive strong, average, or weak performance, benchmarked globally. (Figure 3)

- Using metrics responsibly means accounting for differences in research fields, institutional age, mission, and portfolio. Future versions of the Societal Impact Profile will include a pre-built formal typology that enables easy comparisons between like-for-like institutional groups.

- Web of Science Research Intelligence will be expanded and additional metrics underlying the indicator groups will progressively enhance and complete the profiled analyses.

2: Introduction

The groundbreaking benefits of research have an observable impact not only on science and the economy but on society and everyday life. Well-known examples include the invention of the World Wide Web by Tim Berners-Lee at CERN, and the development of mRNA vaccines by Katalin Karikó and Drew Weissman, who started as researchers at the University of Pennsylvania.

But how can one assess the impact of research that has had a less profound effect or track the potential societal impact of ongoing research? Research often delivers complex outcomes, not just a single invention or innovation, that have benefits across multiple societal areas and address diverse needs. How can these multiple impacts be counted up to evaluate the complex return on public investment that a university delivers to society and the economy?

Clarivate Societal Impact Framework: Recap

Clarivate has developed a framework that describes how such outcomes can be assigned to eight widely recognized and well established societal facets. Some of these impacts can already be recognized while others can be anticipated as research outcomes are developed, commercialized and applied.

Because research outcomes are neither instantaneous nor simple, we analyze impact from two perspectives. First, drawing on available data that captures impact that is occurring or has already occurred, we proposed five retrospective (lagging) indicator groups. Then drawing on data that relates to ongoing processes and anticipates the effect of emerging recognition and influence, we proposed six forward-looking (leading) indicator groups.

Forward-looking indicators are of particular interest to management in planning, but retrospective indicators are essential in providing a 'truth test' as to recent performance and capacity and thus the likelihood that forward-looking projections can be realized. Observed changes in scale between past and projected impacts in these analyses may be an important signal of either innovation or decline, but understanding change will always be improved by exploring the data.

To minimize the effect of outlying or exceptional data values, no single indicator group depends on just one data point: each is a mix of relevant components. Some components are readily quantified while other aspects of impact are to be value judgements: a mix of quantitative and qualitative methods ensures that an Impact Profile presents a balanced evaluation.

Web of Science Research Intelligence

Clarivate made its new Web of Science Research Intelligence platform available for development partners and early adopters from August 2025. Among other features, this AI-native software solution enables universities and research institutes to analyze, benchmark and showcase the societal impact of their research, based on the framework developed by the Institute for Scientific Information (ISI).

This structured yet flexible framework allows for analysis at different levels of aggregation, which could be: a country; a whole institution; a particular department; or a selected research project or group. Potentially the data can be tracked down to the individual researcher or to a research document. In this first release of the platform, analysis of societal impact is available at the institutional level and data at

finer levels can then be tracked through the Clarivate source databases that lie behind the profiles.

This paper provides three examples of how the indicators described in our previous report can already be used in Web of Science Research Intelligence to highlight strategic strengths and potential risks, benchmark institutions against peers, and support decision-making to manage performance. The current version of the platform will be expanded in subsequent releases and additional metrics underlying the indicator groups will progressively enhance and complete the profiled analyses.

3: Reviewing strategic strengths

The impact of an institution's research, if properly captured in relevant data and analyzed in an informative way, should create a 'footprint' on the broader societal landscape that reflects the nature and mission of the institution and also illustrates the relative scale of these impacts. This is, in fact, a key test of whether the methodology makes sense: do institutions look different; do their footprints differ as we might expect; and do they scale in ways that make sense when we consider their staffing and funding? If the general principles work, then we can have more confidence in the detailed analysis that reveals specific nuances and institutional differences that emerge from peer comparisons.

An example of generalist vs specialist universities in North America

Fig. 1 captures the Impact Profiles of four well-established institutions in North America. It is reasonable to expect that they should all have an appreciable societal research impact, but how well can we separate out different institutions on available data?
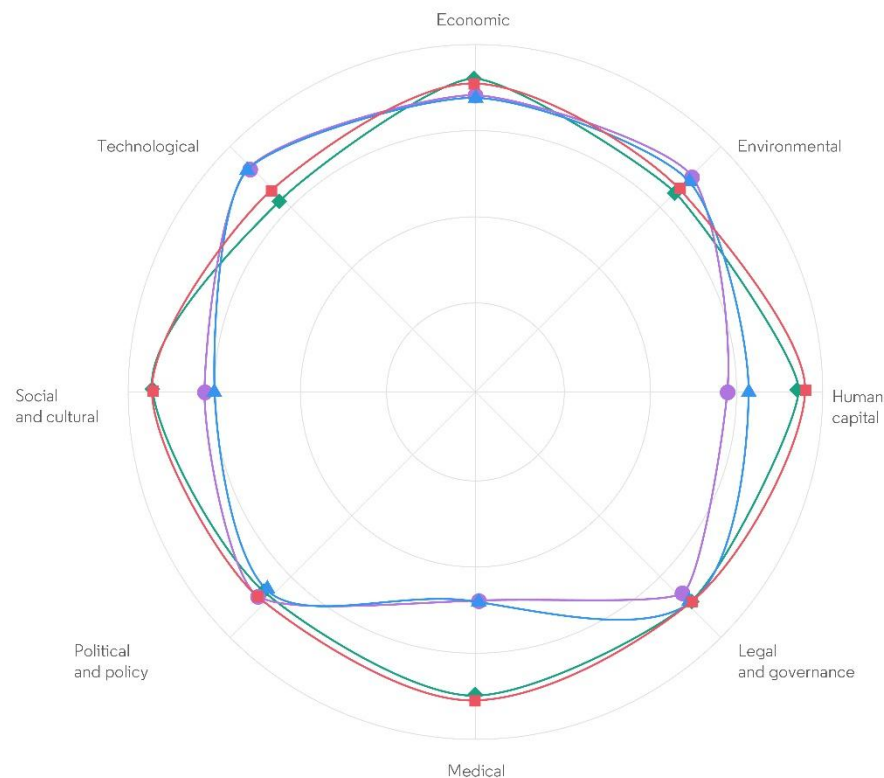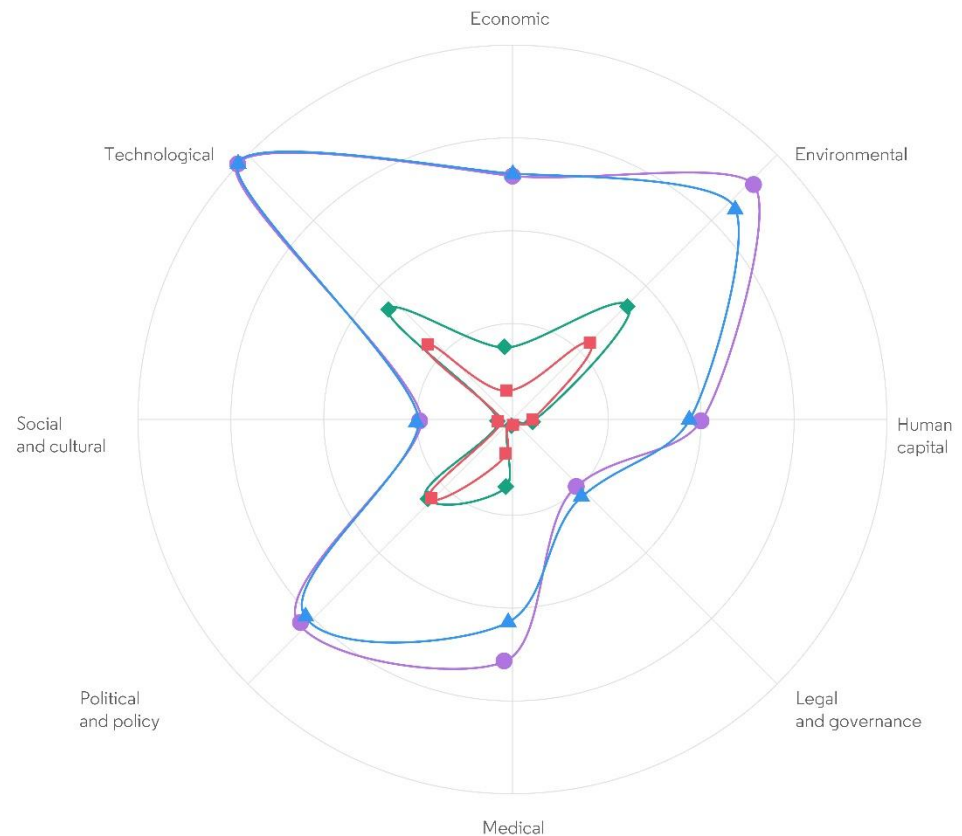

Figure 1a. Generalist universities

Figure 1b. Technology institutes

Figure 1. Societal Impact Profiles of two generalist and two specialist universities from North America, each having a substantial tenured staff capacity, significant annual funding for research over an extended period, and a large annual output of research graduates. Size-normalized indicators, 2020-2025. Comparison within a custom selection of around 200 institutions of similar characteristics. One institution is represented by red and green lines (forward-looking and retrospective indicators respectively), another one by blue and purple lines (forward-looking and retrospective indicators respectively)

An important consideration in looking at these institutional 'footprints' is the effect of scale. For profiles that are graphed together, we need to base the indicators in each facet on a common scale. Each set of indicators will have their own baseline, because of differences in data types and magnitudes, but the data for each institution need to be benchmarked in the same way. We could set a global benchmark, drawing on the entire Clarivate data pool for approximately 12,000 academic institutions, ranging from the very large to the very small and from generalist to highly specialized. Or we could set a more contextual baseline specific to a particular analysis group. In this instance, the baseline draws on data for a data pool of around 200 regional institutions meeting the research characteristics described for the four in Fig. 1.

The two institutions in Fig. 1a are large state universities with a subject portfolio that covers all of the typical faculties that a large university would want to maintain: medicine, science, engineering, social sciences and humanities. The figures show that their impact is generally well-rounded and both institutions have a large footprint on this scaled landscape: they are significant research entities with substantial impact relative to similar institutions (not individually graphed) in the benchmark dataset. An important difference is that one has much lower Medical impact than the other. A quick check establishes that this institution is only currently establishing its Medical School and that this difference was exactly what should be expected.

The other two institutions, shown in Fig. 1b, have explicit missions as institutes of technology. Their footprint is not at all rounded but highly concentrated in facets related to Technological, Medical and Environmental impact. They also have a significant impact on Policy which might be less expected but is in fact critical in the context of safety, regulation, standards and so on.

The multi-faculty universities and the technology institutes have very different shaped footprints, so the Impact Profiles are appropriately differentiating on the basis of institutional typology. Within the two groups the shape of the footprints is highly comparable, so the Impact Profiles are consistent in defining the footprint of an institutional type.

The profiles also illustrate both the retrospective indicators and the forward-looking indicators for each institution around each impact facet. Medical impact, for example, is anticipated to be less than in the past for both the technology institutes. These changes draw attention to areas where management may need to look to ensure that actual outcomes match up to past achievements and to where more investment may be required.

4: Benchmarking against peers

We see that Clarivate Societal Impact Profiles make sense, that similar institutions will have comparable footprints in shape and scale, and that different institutional types will be sensibly differentiated. We can now move forward with confidence to see how this can be applied to the management strategy of a specific institution when compared to two national peers: institutions with a similar typology and mission but with some aspirational characteristics that management might wish to emulate.

An internal institutional focus will likely lead to questions on the faculty-wide spread of recent impact (do parts of the institution contribute less to societal impact than expected?) as well as contributing to forward planning (the likelihood that impact can be sustained, or improved).

Building the picture of an institution's recent and projected research impact is valuable, and then benchmarking this against an appropriate peer set is even more informative. For many managers and researchers, the key question is often about how their team performs against a relevant national group. This influences reputation, affects recruitment and relates to both public and private sector research income.

Example of peer universities in Asia-Pacific

Fig. 2 illustrates such a group. These three universities are located in the Asia-Pacific region and will be very familiar with one another's research and broader academic profile. The universities would be seen as well-ranked peers, of which one is globally recognized as a regional leader. Again, the data for each institutional profile has been baselined against a larger regional comparator group with a shared funding, policy and cultural environment.
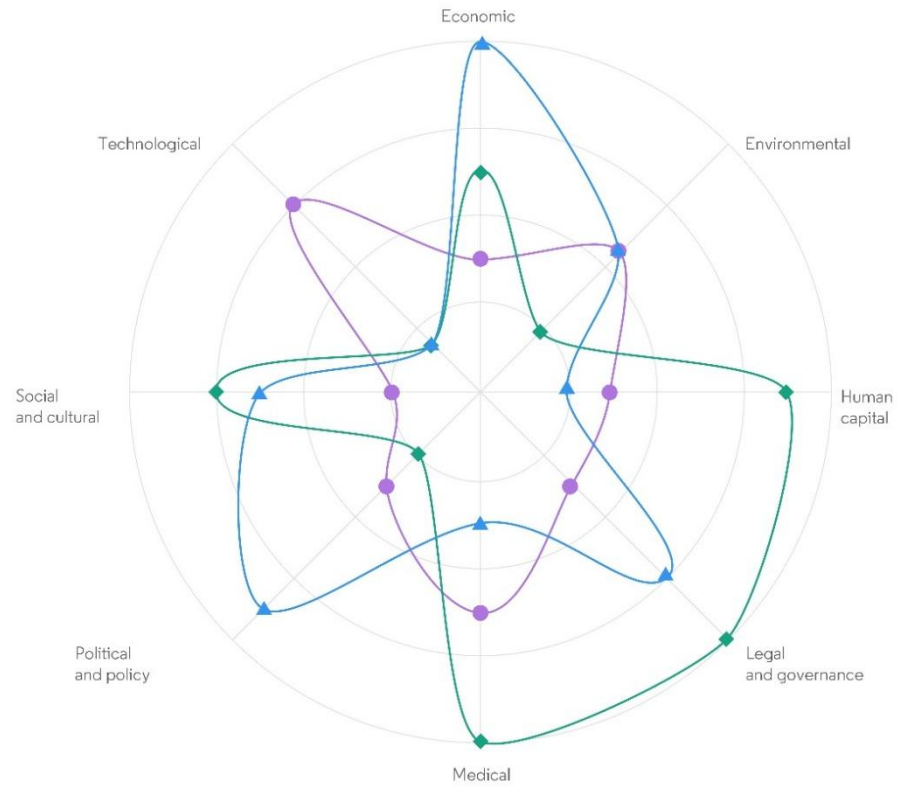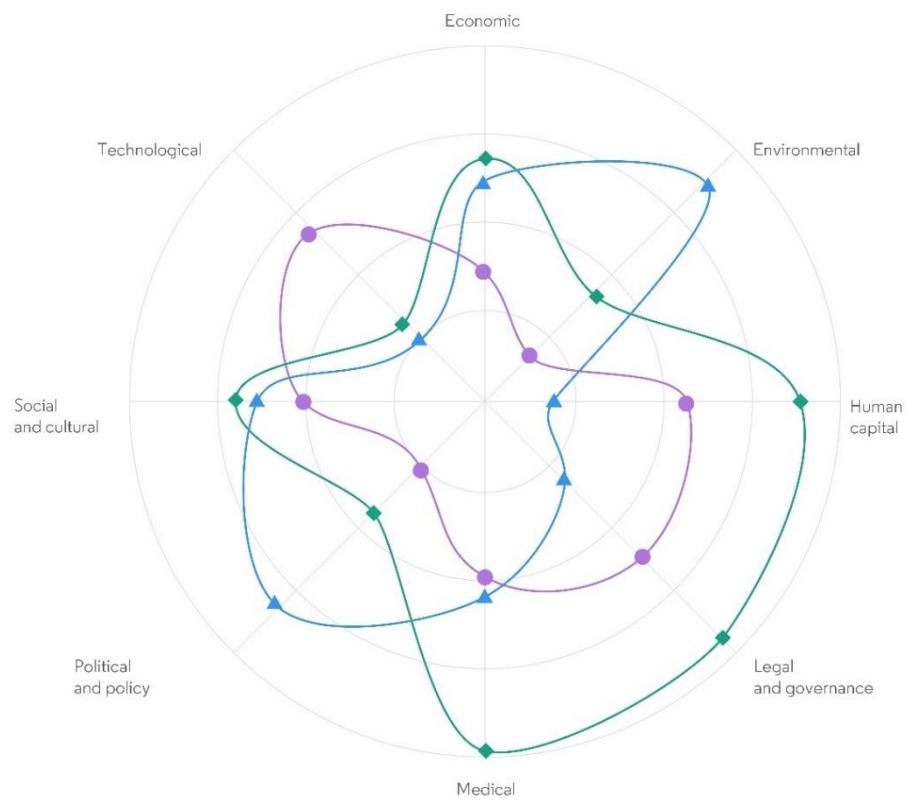
Figure 2a. Retrospective indicators

Figure 2b. Forward-looking indicators

Figure 2. Societal Impact Profiles for three Asia-Pacific institutions, including two well-established universities: G1 and G3 (purple and blue lines) and one research leader G2 (green). Size-normalized indicators, 2020-2025. Comparison within a predefined small set of similar institutions.

The focus institution, G1, for this discussion is outlined in purple. The Impact Profile reflects a sound, reasonably well-rounded institution that, though having a smaller footprint than its selected peers, holds a mid-ranking position within the comparator group as a whole. Fig 2a illustrates proven relative impact strength, particularly in Technology, Environment and Medical areas. However, impact is behind the other two on Social, Economic and Legal facets.

How does that compare with the regional leader, G2, shown in green? That university appears to have a visually more extensive footprint (Fig 2a) but we must be careful not to over-interpret its net impact: the profile's area cannot in itself be an indicator, it is rather a preliminary impression of net impact. However, G2 has greater indicative forward-looking impact (Fig 2b) than G1 in all areas except in Technology, so its impact is more evidently sustainable.

The third institution, G3 in blue, has an Impact Profile with some evident weaknesses reflected in lower relative impact in Medical areas, Technology and Human Capital. However, it matches G1 in Environmental impact and outshines it in Policy, Legal, Social and Economic impact. It has evidently established an almost complementary mission. Their combined footprints would provide an interesting challenge to competing institutions!

So, for G1's management there are some immediate conclusions from comparing retrospective indicators in Fig 2a. It has well-established strengths but may want to pay attention to opportunities for enhancing its research impact in Policy, Legal and Economic areas if it is to work towards the same kind of profile as G2 in these facets. One route to doing this might be by considering what can be learned from the impact strengths of others. Another conclusion might be that the present strong, but more selective portfolio is exactly what G1 wants to sustain and enhance.

The forward-looking indicators in Fig 2b (right) point to where G1 may already be headed. This suggests that management may have some work to do to enable the current impactful groups to maintain their profile in the future. Its forward-looking impact in Environment and in Policy is considerably less than is currently the case. This would result in a contraction in its overall footprint, despite a likely strengthening of its impact in Legal areas.

By coincidence, Legal is an area in which G3 has been strong but falls back. G3 also sees a weakening of its strong position on Economic impact while strengthening its Environmental societal impact. It is important to recall that these are all *relative* to the wider group and so some changes could be attributed to things happening elsewhere. However, where changes vary between comparator institutions – as opposed to appearing uniformly across the group which could suggest influence by an external factor – then it is more likely that the analysis is showing us real and specific shifts.

The next step for users' understanding of their institutional societal impact is to start to look at the Clarivate data feeding the indicators for each facet and thus to see which components are making the greatest contributions. A further step will be to ask which parts of the university are making the most significant contributions.

5: Auditing the impact portfolio to manage performance

Example of multi-faculty United Kingdom Russell Group university

In this example, institutional data for all indicators has been benchmarked against global baselines. The Societal Impact Profile (Fig. 3) describes an institution that performs well across most facets: this level of performance could most effectively be sustained, or even improved, if management could identify and review what activity populates the profile and so direct support accordingly. The metrics and raw data underlying the indicator groups shown below (Table 1) are drawn from the August 2025 release of Web of Science Research Intelligence and other Clarivate sources. Drilling into the data allows users to identify the research outputs and activities that drive excellent, average and weak performance.
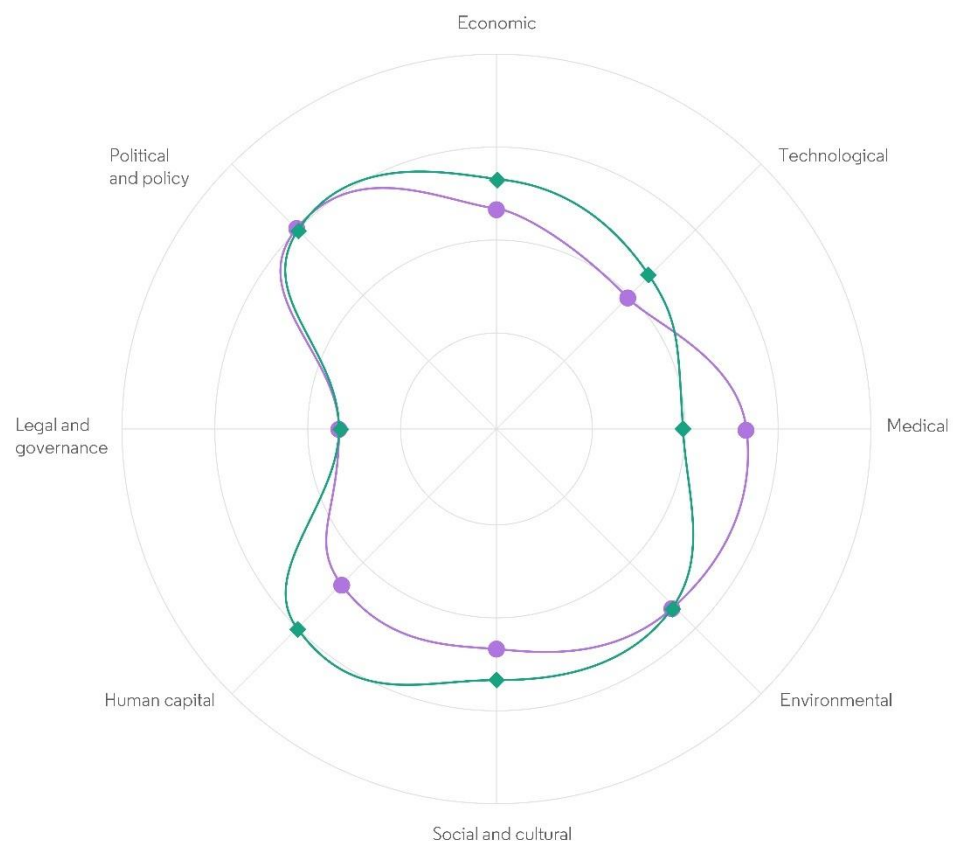

Figure 3. Societal Impact Profile of a United Kingdom Russell Group university. Size-normalized indicators, 2015-2025. Global comparison. Purple line represents forward-looking indicators, green line – retrospective indicators. Source: Web of Science Research Intelligence

The institution's strongest performance (top 20% among all academic institutions globally) is related to its impact in the Political & Policy facet, which has a focus on societal needs that are associated with effective policymaking and political systems.

The number of papers relevant to a facet is an indication of focus or commitment. The proportion of facet-relevant papers co-authored by non-academics is an indication of how frequently an institution collaborates outside the academic network. Engagement is a critical part of transferring knowledge from research producer to user and much more impactful than simple reporting within the scholarly community.

If it is relatively frequent, compared to peers, then this is a signal that the research is more likely to have wider and greater impact.

A good example of the value of retrospective indicators is "Uptake in R&D beyond academia", measured by the proportion of papers cited by non-academics. This is an indication of how frequently the institution's output is being used by non-academics in their own work. Drilling into the underlying Web of Science data reveals nearly 13% of the university's published research to be on topics relevant to the Political & Policy facet, of which, critically for wider impact, 56% was cited by non-academic, predominantly governmental, organizations. This indicates that the research is acknowledged as relevant to such organizations and therefore likely to impact their own planning or actions.

Web of Science Research Intelligence allows the user's focus to move from the institution to a selected societal facet. Out of 8,585 documents relevant to the Political & Policy facet, 27 were from a single research group in a science department. This team is researching resilient food systems – in the United Kingdom, European Union and globally – which respond to the challenge of finite resources and climate change while meeting growing demands on public health and economic success.

Management can explore the societal impact of this group in detail through the metrics and underlying data available in Web of Science Research Intelligence and other Clarivate sources.

Table 1: Exemplar data related to the selected research group to evidence its contribution to an institution's societal impact in the Political & Policy facet		
Indicator type	**Indicator group**	**Examples of the data underlying the metrics within indicator groups**
Forward-looking	Relevance	75% of publications (27) from this group are related to the Political & Policy facet (SDG 13 and 17). The analysis below refers to this set of publications.
	Engagement	89% of the documents acknowledge major funders including Canada First Research Excellent Fund and the Children's Investment Fund Foundation.
	Collaboration	25% of the documents are co-authored by non-academics, including authors from the UN, NASA and international food policy organizations
	Communication	85% of the documents are open access, facilitating wider visibility of research
	Transferability	The research group co-authored several influential industry reports, including the UN's Intergovernmental Panel on Climate Change and the EU Common Agricultural Policy, reflecting knowledge transfer beyond academia.
	Attention	50% of the documents have Web of Science records that were used in the last 180 days
Retrospective	Uptake in R&D beyond academia	96% of the documents are cited by non-academic organizations.
	Uptake beyond R&D	▪ Two documents are cited by policy documents. ▪ Advisory services to the United Kingdom government's National Food Strategy and membership of a Global Resource Initiative Taskforce on sustainable supply chains. ▪ Collaborative work with a major United Kingdom supermarket chain on product sourcing emphasized local suppliers; and a research partnership with a large United Kingdom greengrocery supplier developed business intelligence software on supply chain resilience
	Media coverage	Published research covered by over 100 mentions in news and opinion articles including *The Financial Times* and *The New York Times*.
	Recognition	No signals revealed using the set of metrics included in the initial release.
	Nurture	No signals revealed using the set of metrics included in the initial release.

This research group is evidently a good exemplar for the institution, identifying work that management would want to sustain and encourage others to emulate. The overall institutional picture is balanced between academic and applied impact and the forward-looking indicators suggest that performance indexed by retrospective indicators will continue.

6: Discussion and prospects

The Clarivate approach to <u>responsible metrics and indicators</u> addresses the innate, often subject-based, biases that ISI has recognized over 50 years in using and interpreting many forms of research and societal impact assessment. For example, in basic research analysis, some fields (e.g., biomedicine) cite at faster and higher rates than others (e.g., engineering). A research analysis of any kind, be it current performance or forward-looking impact, must acknowledge this and preferably use indicators that also account for such factors.

There will be differences in both scale and type of impact between research fields and therefore between institutional types according to their age, portfolio and stated mission. Fig. 1 showed the consistent distinction between large multi-faculty universities and technology institutes. Web of Science Research Intelligence can support managers in recognizing and interpreting these differences.

Collaboration and co-authorship with industrial and commercial partners will be more common among institutions of technology and applied sciences, while citation by government and policy organizations may be more common for old institutions with established reputations. The latter will tend to make Policy impact more likely and perhaps also feed into Economic and Legal facets.

Strengths in particular facets may therefore be driven by the more or less specialist nature and portfolio of the institutions, so a multi-faculty (generalist) university may be outperformed by a series of different specialists in different relevant facets. For example, MIT (a true generalist institution today, despite its historical name) publishes only 5% of its journal output in subjects grouped in the Technology facet, while a specialist institution might easily publish more than a third of output in that area.

These are all factors that may influence the Societal Impact Profile of generalists and specialists with a tendency for the latter to have high but narrow scores on a comparator analysis. The well-rounded and balanced, but less peaked, pattern for generalists is equally expected. Again, an informed user will opt for appropriate peer comparisons (as shown in Fig. 2) to confirm that the profile of their institution is typical rather than exceptional.

Institutional differences will be further informed in future versions of the Societal Impact Profile by enabling easier comparisons between like-for-like institutional groups through a pre-built formal typology. Other variants to data types may include size-dependent profiles, which will likely enhance the profile of longer established generalists.

Further development of the Impact Profile technology may also include the addition of new groups of metrics (e.g., communication and funder-level metrics as additional forward-looking components). The current suite of facets is based on sound and widely used researcher models but may need adapting as economies and technologies change. As this happens, so the assignment of research activity to each facet may also evolve with tuning of the indicators of facet relevance.

Throughout these developments, Clarivate will be drawing on user advice and experience, both in the content of the profiles, their presentation, commentary on interpretation, and the routes by which users can change any 'view' of the analysis and access the data that underlie this information.

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