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Short Communication

Patent Quantity Versus Patent Quality: Rethinking Innovation Metrics in Universities

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INTRODUCTION

In recent years, the generation, protection and commercialization of intellectual property in universities across the world has become an important subject. In this context, patents have become one of the most visible indicators of technological productivity and institutional engagement with applied research. Consequently, many universities now encourage faculty members and students to file patent applications and often treat patent counts as measurable indicators of the performance of a university.

Recent policy initiatives aimed at strengthening innovative research have encouraged universities to increase their engagement with intellectual property and technology transfer. As a result, patenting activity within academic institutions has grown substantially. Reports from the World Intellectual Property Organization (WIPO) indicate that patent filings from India have increased steadily during the past decade such that it was 6th in ranking in the world, and increasing at a rate of 15.7% with 64,480 patents filed in 2023; universities and publicly funded research institutions are contributing an increasing share of these patent applications (WIPO 2024).

The growing emphasis on patenting in India reflects a positive shift toward protecting research outputs and facilitating their translation into practical applications. Institutional initiatives such as technology transfer offices, incubation centres and intellectual property management policies have strengthened this trend. In several countries, university rankings and research evaluation frameworks also incorporate patent statistics as indicators of innovation activity. The Uttar Pradesh State Government, in collaboration with the Council for Science and Technology, U.P (SCT, UP) is also actively establishing Intellectual Property Rights (IPR) Cells in state universities to promote innovation, manage patents, and bridge the gap between academic research and commercialization.

However, the increasing reliance on patent counts raises an important question: should the success of a university's innovation ecosystem be measured primarily by the number of patents filed? The emphasis on numerical targets may unintentionally encourage quantity-driven approaches, potentially overshadowing considerations of patent quality, technological relevance and commercial viability.

Why Patent Numbers Matter

Patent counts are widely used as indicators of technological productivity within national and institutional innovation systems. They are quantifiable, comparable across institutions and easily incorporated into performance evaluation frameworks. An increase in patent filings may signal heightened awareness of intellectual property, stronger engagement with applied research and improved institutional mechanisms for technology transfer.

Evidence from several countries shows that university patenting has increased significantly during the past three decades, particularly after policy reforms encouraging closer collaboration between academia and industry. In this context, patent numbers may serve as visible evidence that universities are actively participating in knowledge-based economic development.

Furthermore, patenting activity may stimulate broader innovation ecosystems within universities. It can encourage interdisciplinary collaboration, attract research funding and promote entrepreneurial initiatives such as start-ups and industry partnerships.

The Limits of Counting Patents

Despite the above advantages, scholars in innovation studies have cautioned against equating patent counts with research quality or technological impact. As noted by Keith Pavitt (1998), patents represent only a partial and sometimes imperfect indicator of the useful research outputs of universities. Not all valuable discoveries are patentable, and not all patents lead to technological or commercial breakthroughs.

Empirical studies also show that the economic value of patents is highly uneven. Only a small fraction of patents account for significant technological influence or commercial returns, while many others remain unused or unlicensed. Consequently, increases in patent numbers do not necessarily translate into meaningful innovation.

Recent research has therefore emphasized the need for more nuanced indicators of patent quality. Measures such as forward

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citations, patent family size and technological breadth often provide better insights into the influence and significance of patented inventions.

Risks of Metric-Driven Patenting

When patent counts become explicit targets of institutions/ universities, unintended consequences may arise. Researchers may feel encouraged to file patent applications prematurely, fragment a single innovation into multiple filings or pursue incremental modifications that yield limited technological value. Such practices may inflate patent statistics without necessarily contributing to meaningful innovation.

Another concern relates to the financial costs associated with patenting. Filing and maintaining patents requires significant expenditure, including legal drafting charges, examination fees and maintenance costs. For universities operating under limited budgets, indiscriminate patent filing without clear commercialization pathways may place unnecessary strain on institutional resources.

Moreover, excessive emphasis on patent statistics may divert attention from fundamental research. Historically, many transformative innovations have emerged from curiosity-driven research that was not initially directed toward patentable outcomes.

Toward a Balanced Evaluation Framework

A more balanced institutional approach would integrate both quantitative and qualitative indicators of innovation performance. Instead of focusing exclusively on the number of patent applications filed, universities could evaluate broader outcomes that reflect the real impact of intellectual property activities.

These indicators may include patents granted, citation impact of patents, licensing agreements executed, technology transfer revenues generated, start-ups incubated and measurable societal benefits arising from patented technologies. Such metrics provide a more comprehensive picture of how research outputs contribute to technological advancement and economic development.

Adopting such an evaluation framework would align institutional patent strategies with the broader mission of universities: the creation, dissemination and application of knowledge for societal benefit.

Policy Suggestions for Universities

Universities seeking to strengthen their innovation ecosystems may consider the following measures:

- Evaluate patents granted rather than only patents filed.
- Use citation-based indicators to assess technological impact.
- Encourage industry collaboration and licensing outcomes.
- Maintain strong support for fundamental research alongside applied innovation.
- Prioritize quality and societal relevance of inventions over numerical patent targets.

CONCLUSION

The increasing emphasis on intellectual property within universities reflects the growing importance of innovation in modern knowledge economies. Encouraging researchers to protect and translate their discoveries is therefore an important institutional objective. However, leadership in innovation cannot be defined solely by the number of patent filings.

True excellence lies in generating patents that are scientifically robust, technologically influential, commercially viable and socially relevant. Universities that combine strong research foundations with thoughtful intellectual property strategies are more likely to produce innovations that have lasting impact.

In the long run, it is the impact of inventions rather than the inventory of patent applications that will define the real contribution of universities to technological progress.

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