

University as connector

How universities can align industry needs and student demand using data



Executive summary

Universities can play a key role as a skills broker, connecting student demand for education with industry demand for skills. This paper explores how to use data to focus industry collaboration and student recruitment in ways that deliver benefits to them and universities.

Around the world many industries are experiencing workforce gaps. One study put the cost of workforce gaps in the United States at US\$8.5 trillion by 2030, and another found the unrealised value of skill vacancies in Canada was already at C\$25 billion in 2020. In Australia, CEOs anticipate that in 2023, 90 per cent of businesses will be affected by staff shortages.

But rather than the problem being simply a shortage of skills, it is more accurate to frame it as a mismatch of skills. That is, employers are finding it difficult to fill many roles due to the lack of workers with the specific skills or experience required, while at the same time many people cannot find work with the skills they have developed.

Universities have an enormous opportunity to act as skills connectors – understanding the demand for study and the demand for skills, and bridging the divergent preferences of students (as prospective or current employees) and industry partners (as employers).

To help universities achieve this, we have developed a methodology that gives universities clear guidance on the biggest questions in their recruitment, industry partnering and course development investment decisions. Integrating key data sets on industry and student demand in Nous Group's Data Insights for Market Analysis (DIMA) platform, this methodology provides a powerful evidence base for universities to generate value for industry partners and students, and to further invest in their own mission.

This paper demonstrates how this methodology can be applied, with a focus on opportunities for universities in Australia, Canada, the United Kingdom and the United States.



About this paper

This paper has been developed with data and assistance from Lightcast (formerly Emsi Burning Glass) and Studyportals.



Comprehensive Labour Market Insights

Lightcast provides the world's most detailed information about occupations, skills in demand, and career pathways. Its skills taxonomy creates a common language for the world of work, helping connect employers, education institutions, communities, and individuals.



A global view of study demand

Studyportals maps over 200,000 courses in more than 120 countries, enabling students to make informed decisions about where to study and providing universities with comprehensive data and analysis to drive informed strategic decision making.



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Introduction

Around the world many industries are experiencing workforce gaps. From power plants battling to find electrical engineers to help keep the lights on, to hospitals unable to find nursing staff to care for patients, workforce shortages are hurting many industries, and the people who rely on them.

The cumulative impact across the economy is profound – lowered productivity, reduced profitability and heightened inflation.

And we cannot expect the problem to be overcome any time soon. One study put the cost of workforce gaps in the United States at US\$8.5 trillion by 2030,¹ and another found the unrealised value of skill vacancies in Canada was already at C\$25 billion in 2020.² In Australia, CEOs anticipate that in 2023, 90 per cent of businesses will be affected by staff shortages.³

Organisations around the world are seeking new ways to fill critical workforce gaps, and governments are searching for an equilibrium that ensures all sectors of the economy can access their share of graduates.

Skills mismatch is at the heart of the problem

Rather than the problem being simply a shortage of skills, it is more accurate to frame it as a mismatch of skills. That is, employers are finding it difficult to fill many roles due to the lack of workers with the specific skills required, while at the same time many people cannot find work as the skills they have developed through previous education and employment no longer align with industry needs.⁴

This mismatch has grown over the past decade, fuelled by technology-based disruption and demographic change. In recent years COVID-19 and rising geopolitical tensions have exacerbated the problem. While labour markets in many countries are at or close to full employment, in practice labour shortages vary greatly across the economy, with skills, experience and mobility key factors.

The upshot is that workforce gaps are now among the biggest issues that will determine the sustainability of many businesses in rapidly evolving, hypercompetitive markets.

Critical skills gaps exist across countries

Employers across Australia, Canada, the United Kingdom and United States are experiencing workforce gaps. Many roles they are seeking to fill share common skills.

Looking at the fields of education most in demand among employers in 2022 (Figure 1), we see some variation between countries but many fields are very similar. In all four countries there is strong demand for engineering, computer science, nursing and business graduates. This reflects both industry scale and skills needs, and critical workforce gaps that employers must address.

While some gaps will reduce as a new post-pandemic normal is established, others will continue as skills change accelerates across industries and countries. Universities will have a pivotal role in addressing these gaps.

¹ BND (2023). [The Skills Gap Is Costing Businesses Dearly.](#)

² The Conference Board of Canada (2022). [Lost Opportunities: Measuring the Unrealized Value of Skill Vacancies in Canada.](#)

³ Ai Group (2023). [Deep dive: Solving the skills shortage crisis.](#)

⁴ Cedefop (2018). [Insights into skill shortages and skill mismatch: Learning from Cedefop's European skills and jobs survey.](#)



Figure 1 | Employer advertised roles by top fields of education and country – 2022 fields of education



Each country shows strong demand for business, computer science, engineering and nursing graduates

Fields of education with the highest employer demand by country (2022). Ranked by number of job ads that require this field of education.

Source: Lightcast, Nous analysis.



University qualifications and global talent will be critical to addressing workforce gaps

In many instances addressing workforce gaps will involve university-level education. This might be as part of an undergraduate degree for a recent school leaver, postgraduate education to specialise in an area and transition to a new career, or through microcredentials or stackable qualifications as part of lifelong learning.

University-level education provides not only the technical skills that engineers, nurses and accountants require, but the digital and soft skills that are now a prerequisite for candidates to be qualified and capable to help organisations grow.

For many employers and industries, tight employment markets and worker availability means that workforce challenges cannot be fully met through local workforces.

Attracting international talent is essential, and many countries have revised policy settings to attract and retain talent in the wake of the pandemic. For example, Australia recently doubled post-study work rights for international students studying a wide range of degrees, and Canada recently relaxed working hour limits. These policies are designed to attract talent and address workforce gaps.

The good news is there is already strong interest globally in studying in areas of existing gaps. Figure 2 compares industry demand and demand for study in each of the four countries considered in this paper across a range of fields. As illustrated, across a broad range of fields there is both strong demand from industry and strong demand for study in each country.

Universities can play a critical role in connecting these two forms of demand, recruiting domestic and international students that are already interested in studying in areas of industry need.

In some fields employer demand and demand for study is evenly matched, presenting significant opportunities for universities to attract students and connect with industry partners.

In other fields the demand from employers for skills is significantly more than there is interest from students. Where this is occurring, there is opportunity for universities to identify specific markets and student types where interest is strongest and focus marketing and recruitment activity to maximise the number of enrolments.

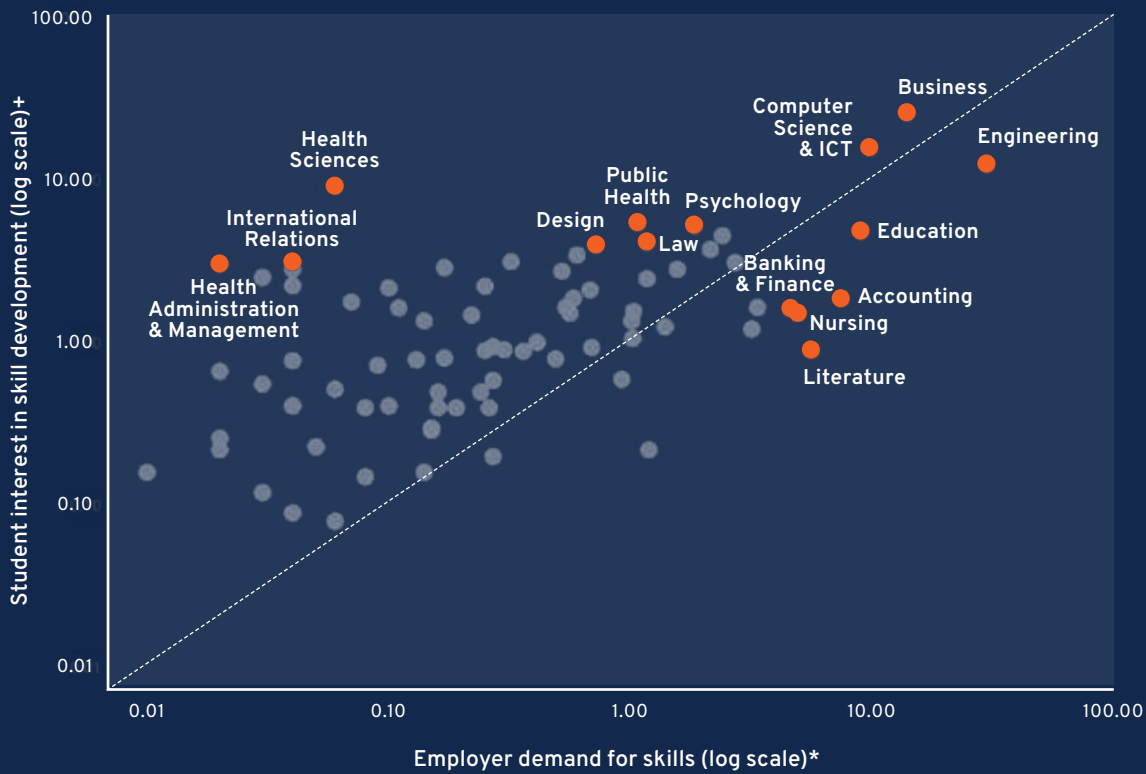
In further fields there is substantially more demand for study than there is need from employers. In these cases, universities can leverage industry partnerships to provide students the opportunity to develop and demonstrate their skills with local employers. This will bolster the value proposition for these courses through targeted work-integrated learning and also demonstrate to industry partners that students from less in-demand fields of education can provide a valuable stream of future candidates.

Figure 2A | **AUSTRALIA** - Industry demand vs student demand for study by field of education (2022)



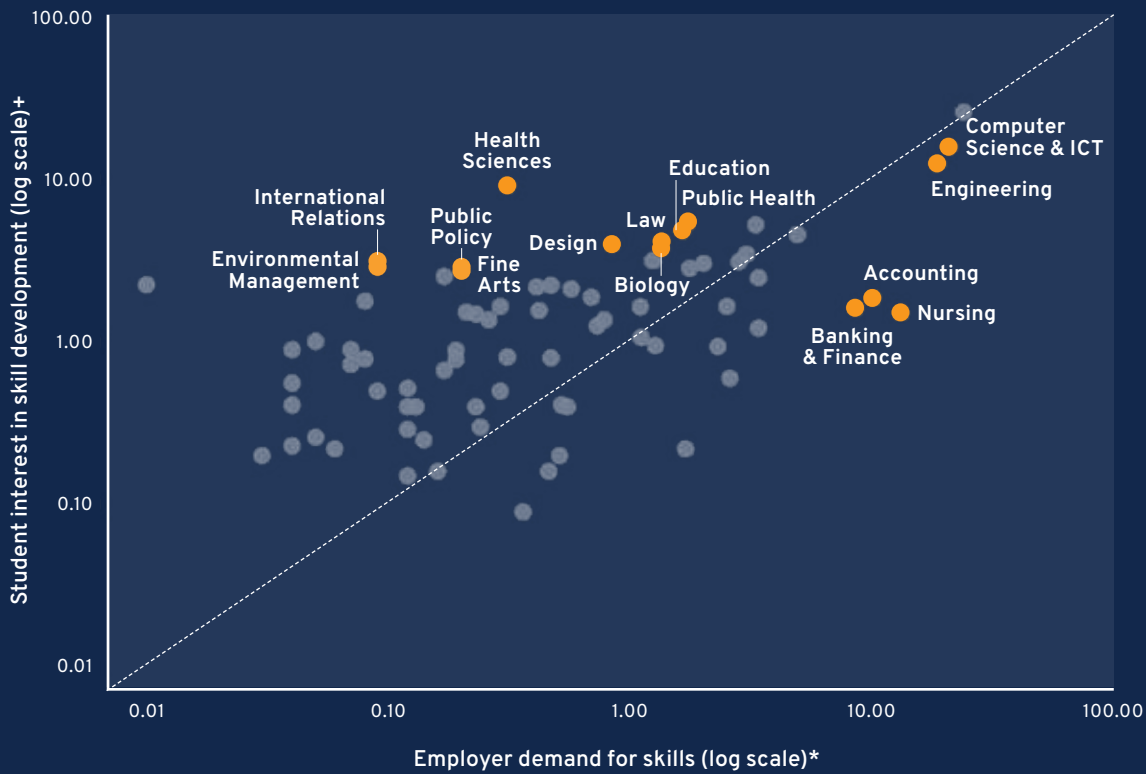
Differences in relative student and employer demand can inform how Universities focus recruitment and industry collaboration

Figure 2B | **UNITED KINGDOM** - Industry demand vs student demand for study by field of education (2022)



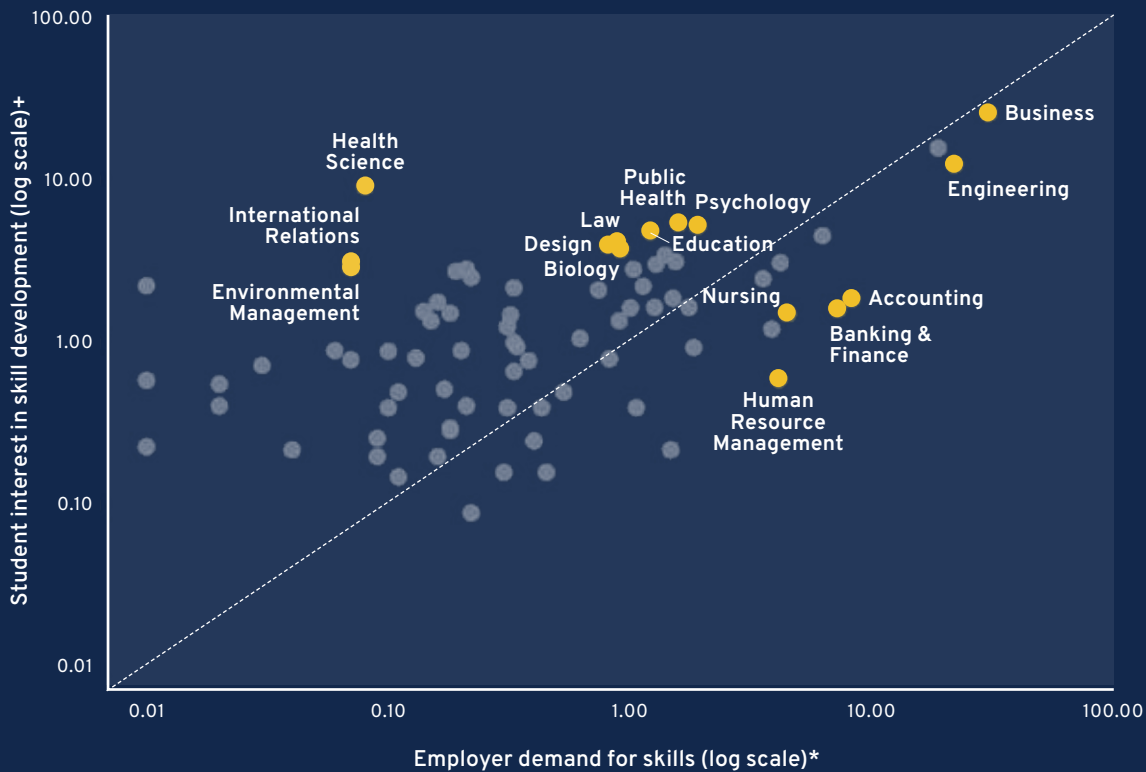
* Proportion of job ads referencing degree requirements.
+ Proportion of web hits by degree programs.

Figure 2C | **UNITED STATES** – Industry demand vs student demand for study by field of education (2022)



Student demand data sourced from Studyportals based on web hits for study in each country and field of education. Industry demand data based on Lightcast data on job advertisements that reference qualification requirements. Fields of education may be underrepresented for some industries in Lightcast data due to local industry job advertisement practices. Nous analysis of joined Studyportals and Lightcast data sets.

Figure 2D | **CANADA** – Industry demand vs student demand for study by field of education (2022)



* Proportion of job ads referencing degree requirements.
+ Proportion of web hits by degree programs.

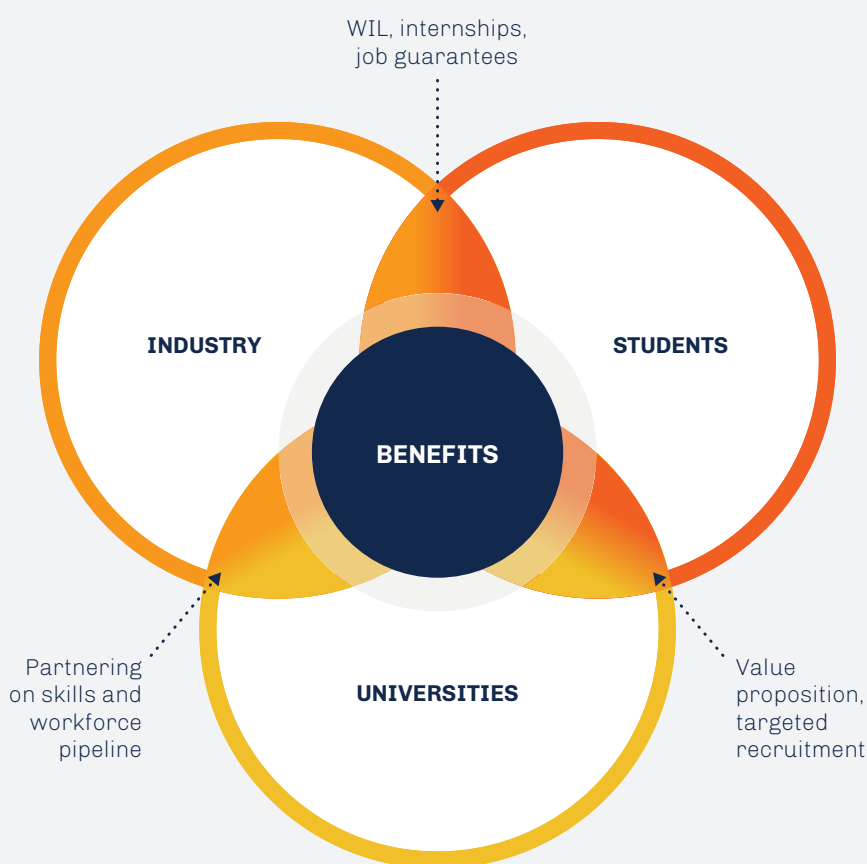


Data can help universities connect industry needs and student demand

Universities are uniquely placed to address these gaps, effectively becoming a skills broker – attracting students and developing the knowledge workers that industry needs, and leveraging the additional value generated for industry and students for investing in the university's mission.

There are three components to this (Figure 3). Each component is discussed on the following pages.

Figure 3 | Universities as skills connectors – key components





Data can tell universities where industry gaps are

Analysing industry skills needs and demand shifts at a granular level is a powerful way to identify potential workforce gaps and opportunities. Valuable insights can come from drilling down into particular professions and skills to prioritise industries and individual employers where demand is strongest, and where needs are changing fastest. Universities can use this type of information to identify the specific employers they can partner with to address needs and boost recruitment to relevant courses.

For example, in all four countries examined in this paper there is a critical gap in engineering and technology-related roles. Australia faces a concerning shortage in qualified engineers for public infrastructure projects,⁵ while in the UK employers are looking closely at how they can address the continuing STEM skills gaps left by the 'great retirement'.⁶

Figure 4 focuses on industry demand in engineering and technology in Australia. This highlights the types of roles being advertised, the specific skills in most demand, and which organisations are hiring for engineering and technology-related vacancies. This type of analysis can provide powerful insights into where to focus skills development as part of degree programs. Critically, it also provides the basis for prioritising which employers to engage and build partnerships with.

Many employers will be interested in collaborating with universities, where universities can demonstrate the value in doing so. Examples could include:

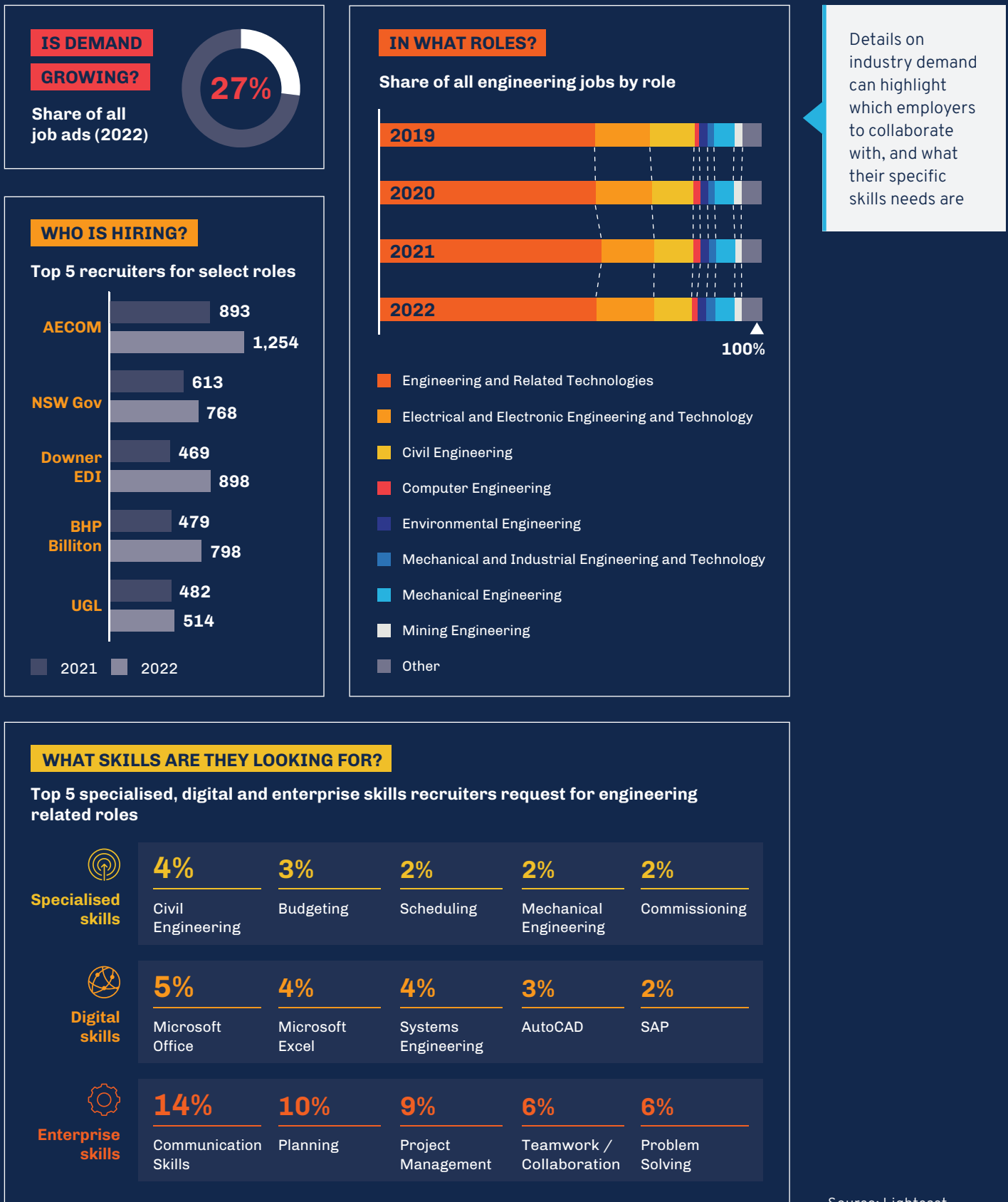
- work-integrated learning (WIL) and internships that both build student skills and begin to address employer workforce needs quickly, well before students graduate
- guarantees of employment, subject to degree completion and performance in WIL placements, providing a level of certainty in the future supply of hard-to-find skills
- employer-funded scholarships, tied to paid holiday roles, to attract and retain students and supplement the existing workforce.

Notably, these types of value generation can be attractive to both employers (by addressing workforce needs quickly) and students (by providing certainty, experience and employment). In turn, this makes recruitment and retention easier for universities, and builds the value proposition for study at the institution.

⁵ Nous Group (2021). [Australia's infrastructure skills supply is headed for a critical shortage – the time to act is now.](#)

⁶ Financial Times (2022). [Employers test new approach to plug skills gap in engineering.](#)

Figure 4 | Demand analysis for engineering and technology in Australia



Source: Lightcast.



Where to target recruitment

Attracting students interested in studying in areas of greatest need is critical. Marketing and promotion activities can be expensive and scattershot, particularly in international recruitment. Knowing where to focus spending can substantially boost return on investment (ROI).

Studyportals data is a rich and powerful resource for exploring education demand. It provides valuable insights of demand for education in particular disciplines and degree programs at a country and city level, and how interest varies for each destination country and institution. It is also a strong predictor of future enrolments, providing a level of confidence in future load that is enormously helpful for future forecasting and planning.

The data sampled here (Figure 5) shows the global demand for engineering and technology degrees at universities in our four focus countries.

This shows that a handful of countries – including India and Pakistan – have high demand and so are particularly attractive for recruitment.⁷ It also demonstrates the strength of demand and differences in interest between destination countries – for example, South African students are more interested in studying in Australia, whereas Nigerian students are more interested in studying in the United Kingdom.

⁷ China is not represented in the above analysis due to limitations in Studyportals data collection as a result of Chinese internet restrictions and biases in search engines.

Figure 5A | **AUSTRALIA** – Global demand for engineering and technology degrees

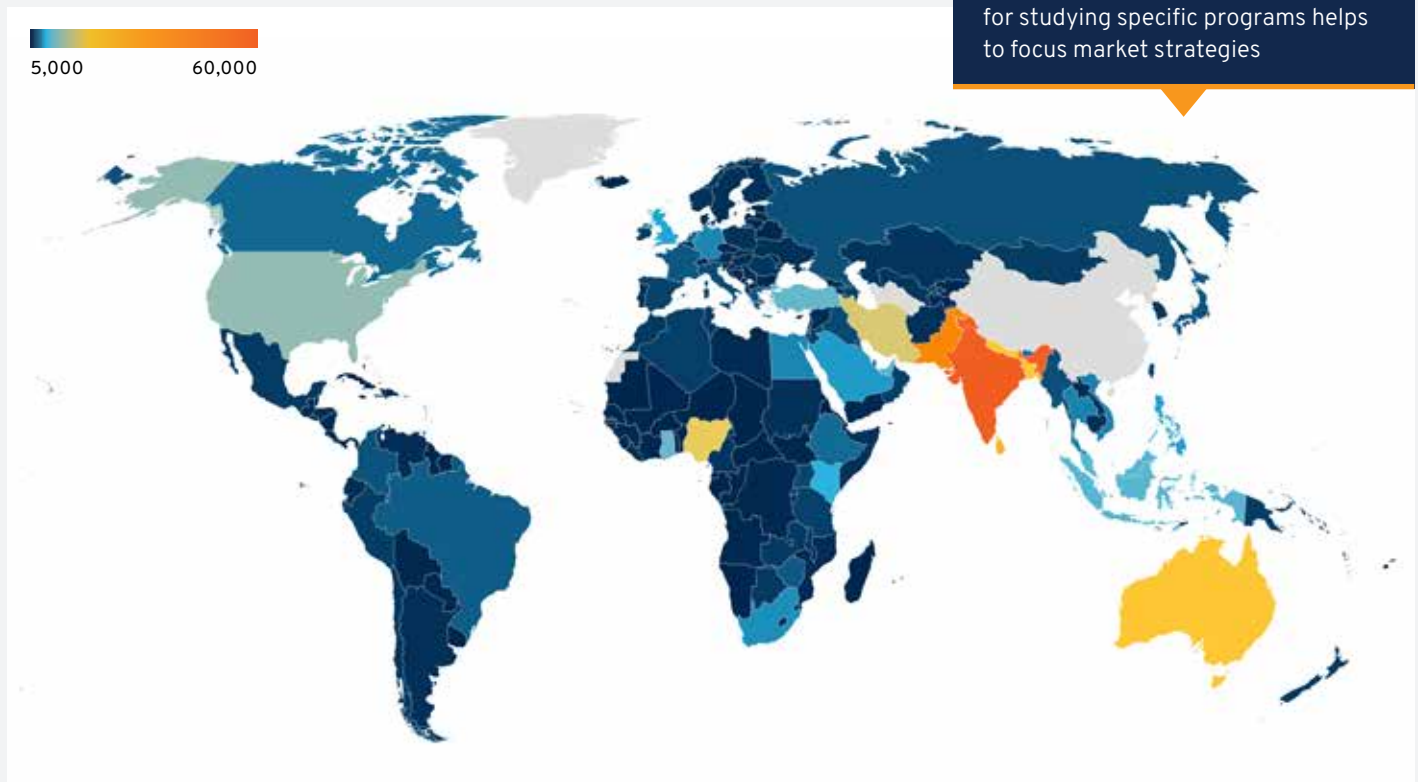


Figure 5B | **UNITED KINGDOM** – Global demand for engineering and technology degrees

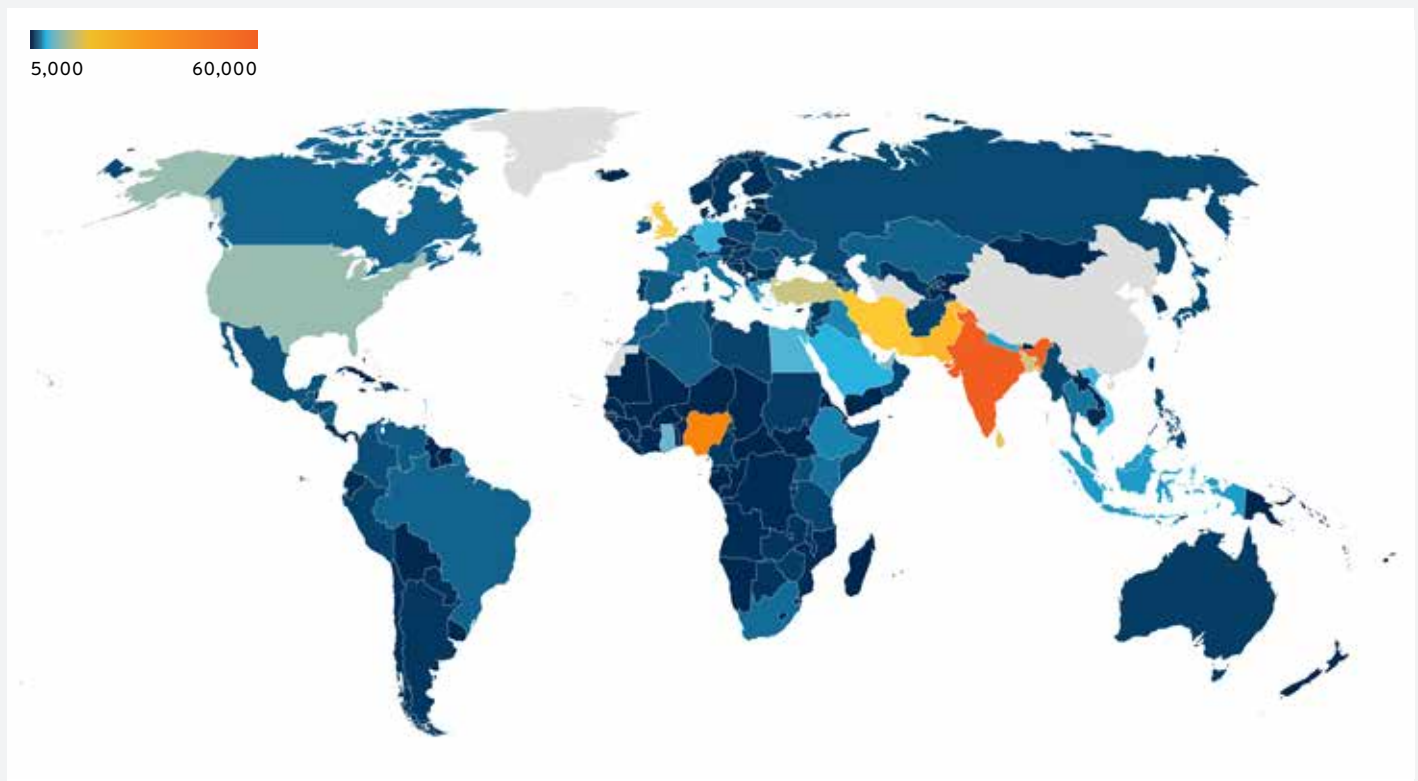


Figure 5C | **UNITED STATES** – Global demand for engineering and technology degrees*

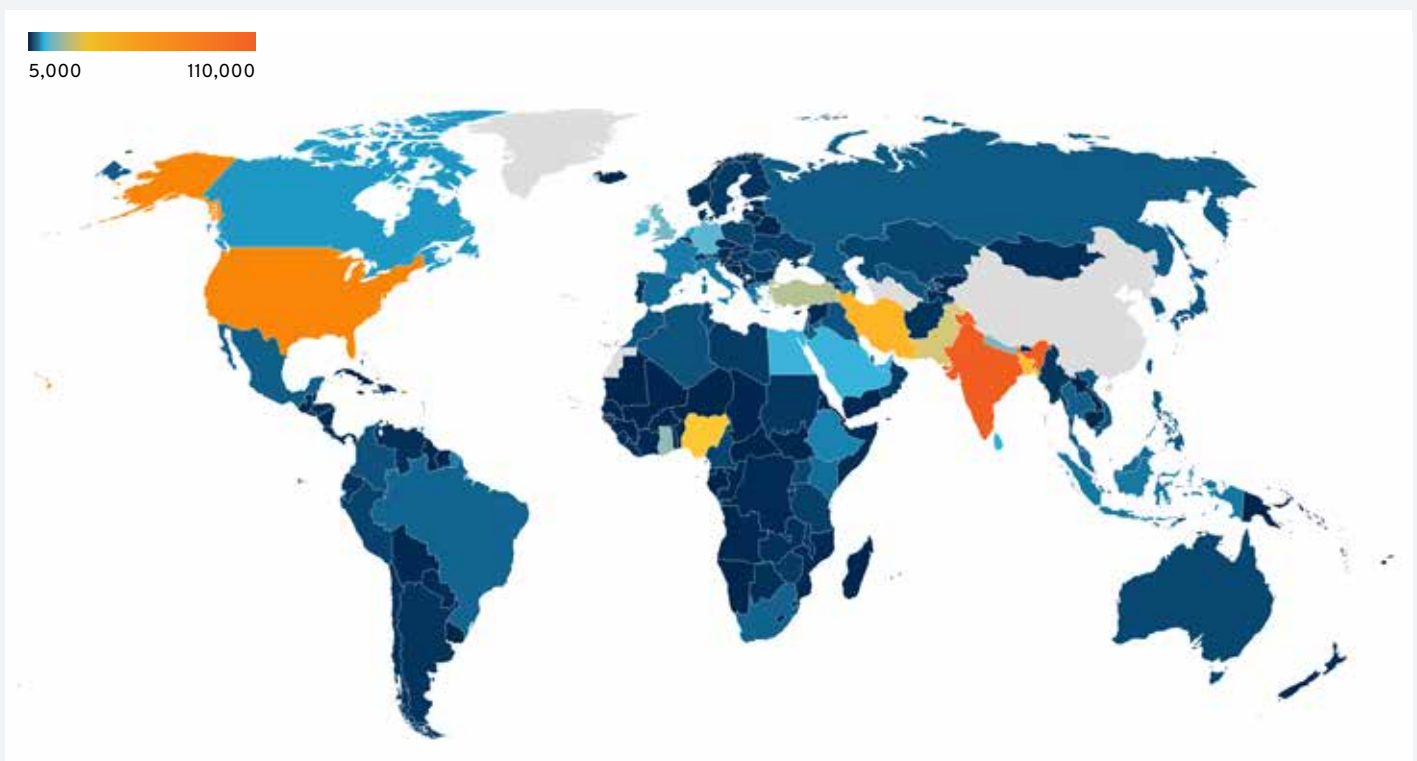
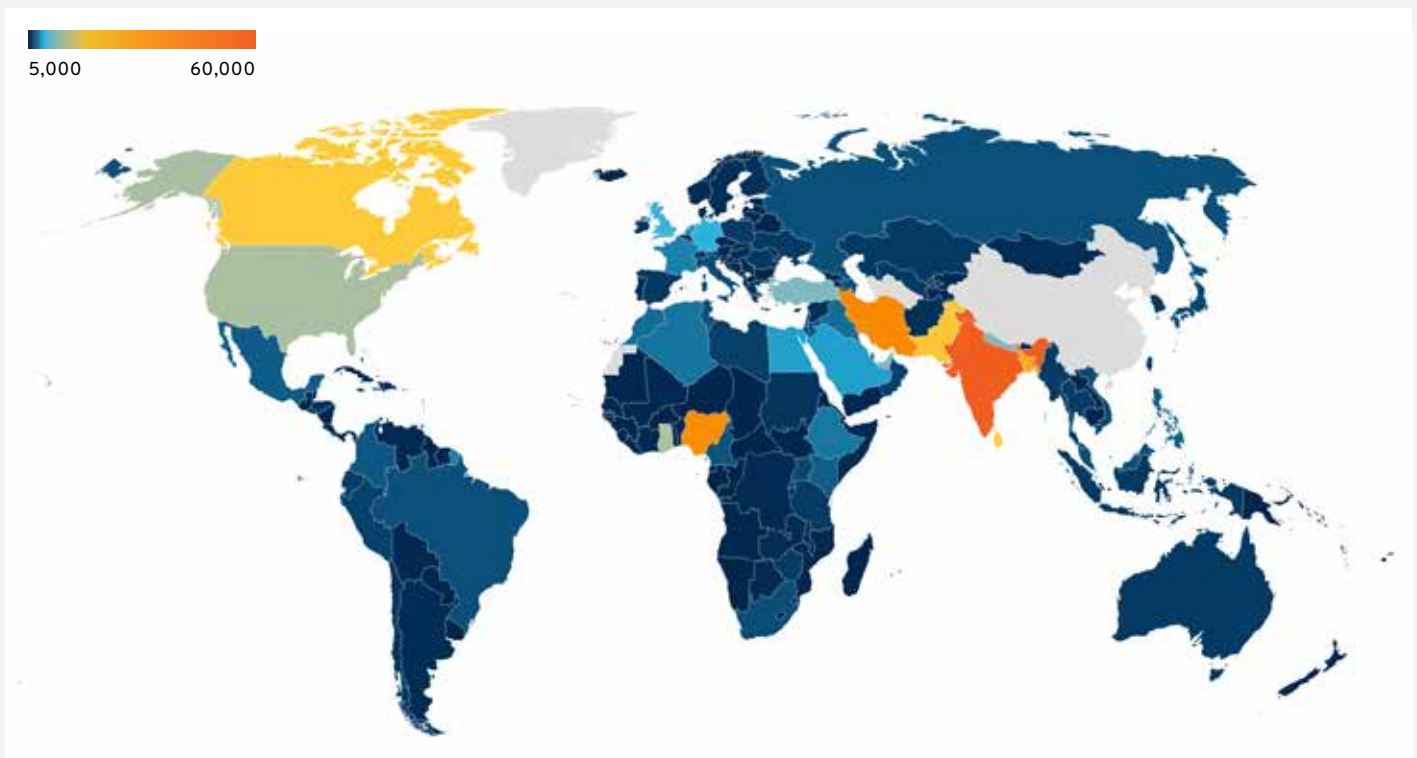


Figure 5D | **CANADA** – Global demand for engineering and technology degrees



* The map for the United States is on a different scale to the others due to the volume of demand.



By drilling down to a city level, the data allows universities to tightly target where marketing and recruitment investment is most likely to succeed.

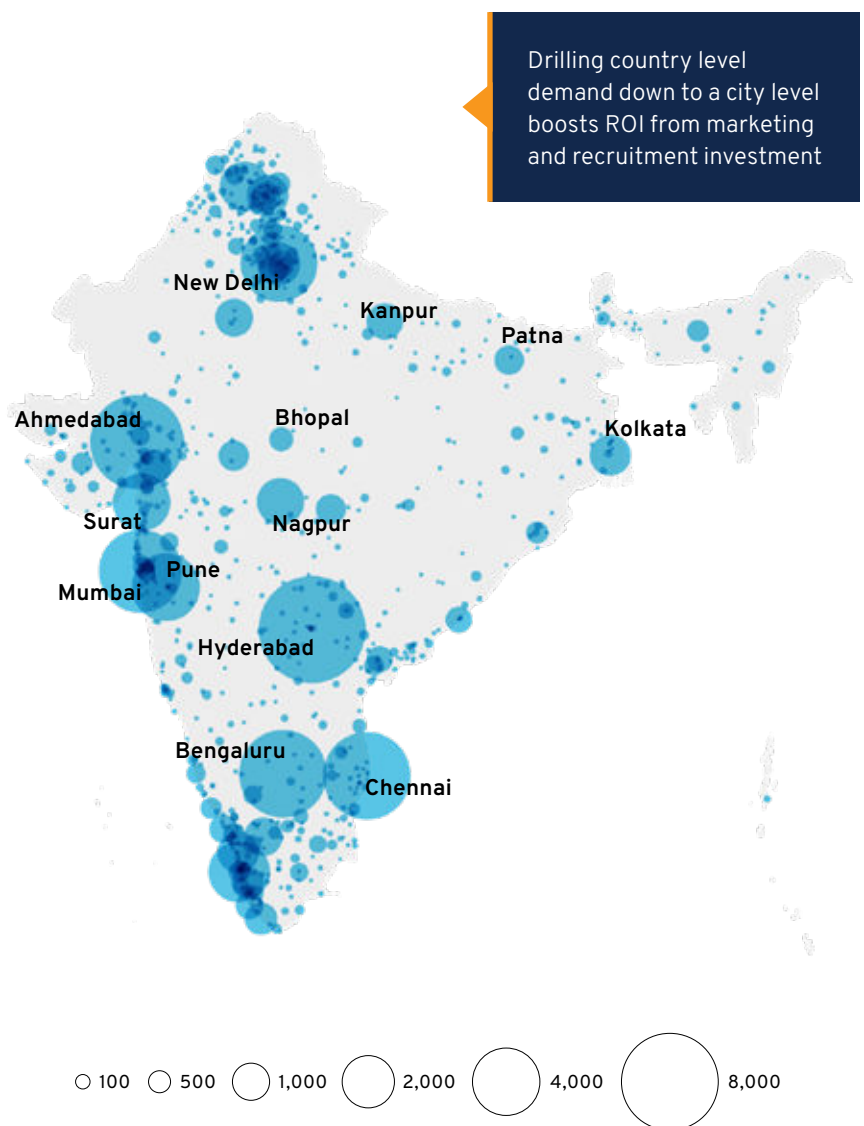
For example, the map in Figure 6 demonstrates demand for study in Australia for engineering and technology degrees at a city level across India, highlighting Hyderabad, Mumbai and Chennai as key cities.

We can drill down further into the data to gain more insights, for example:

- degree titles that are more and less effective in building student interest
- relative interest in any given country and city, to determine with even greater nuance which degrees are of particular interest in select cities
- market gaps and saturation (supply data), through assessing the spread and competitor degrees gaining interest in each market
- relative interest between different products across an institution's product portfolio.

This ability to drill down means marketing and recruitment investment can be focused to maximise ROI. Combined, this allows universities to maximise their chances of success by targeting the right markets with the right products.

Figure 6 | Demand for studying in Australia from locations in India by page views in 2022



Source: Nous analysis of Studyportals data

Being a skills connector will advance the mission of universities

Enabling strong graduate outcomes, including providing students with the knowledge and skills needed to excel in their chosen field of study, is a core part of a university's mission. This connector role can allow universities to boost graduate outcomes, strengthening the university's value proposition and market position.

We know that work-integrated learning (WIL) and work experience during studies contribute to stronger graduate outcomes, particularly for international students. WIL and targeted internships, alongside targeted adjustments to curriculum, can also ensure graduates enter the workforce with the soft skills that are universally required, such as communication, planning and project management.

Acting as a connector enables universities to grow by:

- reducing per-student acquisition costs, growing recruitment pipelines and boosting student retention
- boosting demand while enabling increased fees and margins to be reinvested in other activities
- broadening and deepening industry partnerships into research collaborations.

You can apply this in your institution

Building your university's role as a skills connector involves a detailed understanding of industry partners and their needs, and linking this to student demand in ways that allow highly targeted investment in marketing and recruitment. The data to do this is readily available through licencing arrangements with Studyportals and Lightcast.

In our experience, the challenge for universities lies in data linkages, detailed analytics and generating actionable insights.

Nous works with universities to overcome these challenges and deliver evidence-based insights and recommendations quickly. Our Data Insights for Market Analysis (DIMA) platform has been co-designed with education providers to support strategic decision making in higher education.

DIMA can link Lightcast and Studyportals data, along with myriad other data sets, to remove the challenge of data linkages, simplify and accelerate analytics, and move to actionable insights faster. We can partner with you to assess where and how to address industry and student demand gaps, or to enable your own team to leverage DIMA to generate insights.

Get in touch to explore how to apply these approaches at your university.



Nous Group

Our people are experts in universities and in data

Nous Group is an international management consultancy with over 750 people working across Australia, Canada, Ireland, New Zealand and the United Kingdom. Together with our specialist benchmarking team at Cubane Consulting, we are committed to partnering with higher education institutions to solve strategic challenges, drive performance and build capability.

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