State of Innovation Project - Insights Note #1

High-Growth SMEs and STEM Workforce

Small and Medium Enterprises (SMEs) are an important contributor to the economy. They make up the majority of business enterprises within Australia and are the largest employer.[1]

SMEs which achieve high-growth hold great potential for economic impact. A significant number of jobs are generated by a relatively small proportion of businesses which achieve high-growth. In contrast, the average business has a modest impact on job creation.[2]

STEM qualified workers offer skills and capabilities needed across industries. Technological advances and globalisation are changing the nature of work in a way that places demand on STEM-related skills and literacy.[3]

It is recognised that other types of qualifications, training and skills are needed to spur innovation to achieve economic, social and environmental outcomes.

This Insights Note draws on the findings of a 2023 **State of Innovation collaborative research project** between the Department of Environment, Science and Innovation (DESI) and t**he Australian Institute for Business and Economics (AIBE) of The University of Queensland (UQ).**

It provides a snapshot of Queensland SMEs in terms of achieving high-growth status, as well as the STEM workforce they employ.

Results are benchmarked against other jurisdictions where relevant.

Queensland Government

1 Australian Banking Association. (2022). SME Lending Report
2 Sterk, Vincent, Petr Sedláček and Benjamin Pugsley. (2021). The Nature of Firm Growth. American Economic Review, 111 (2): 547-79.
3 Australian Government. Office of the Chief Scientist. (2020). Australia's STEM Workforce 2020

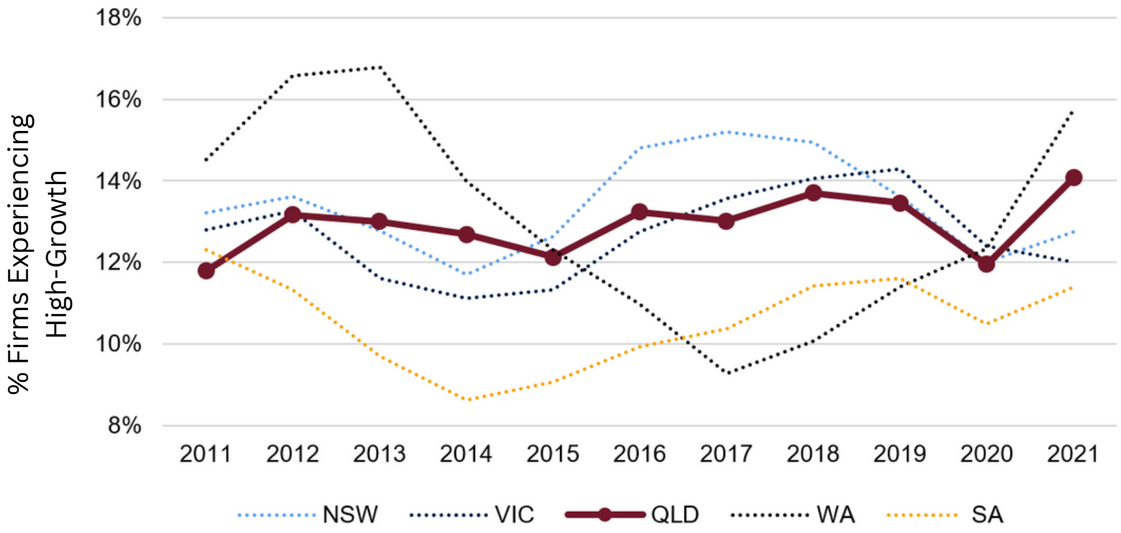
Approximately 13% of SMEs in Queensland experience high-growth annually

Queensland's trend exhibits less variation than other states, typically hovering between 12% and 13% with few exceptions.

Queensland appears to have rapidly recovered from the post-COVID dip in 2020, with SMEs recording a peak high growth of 14% in 2021.

SMEs that experienced high-growth typically employed higher proportions of STEM-qualified workers.

Proportion of High-Growth SMEs by State, 2012-2021

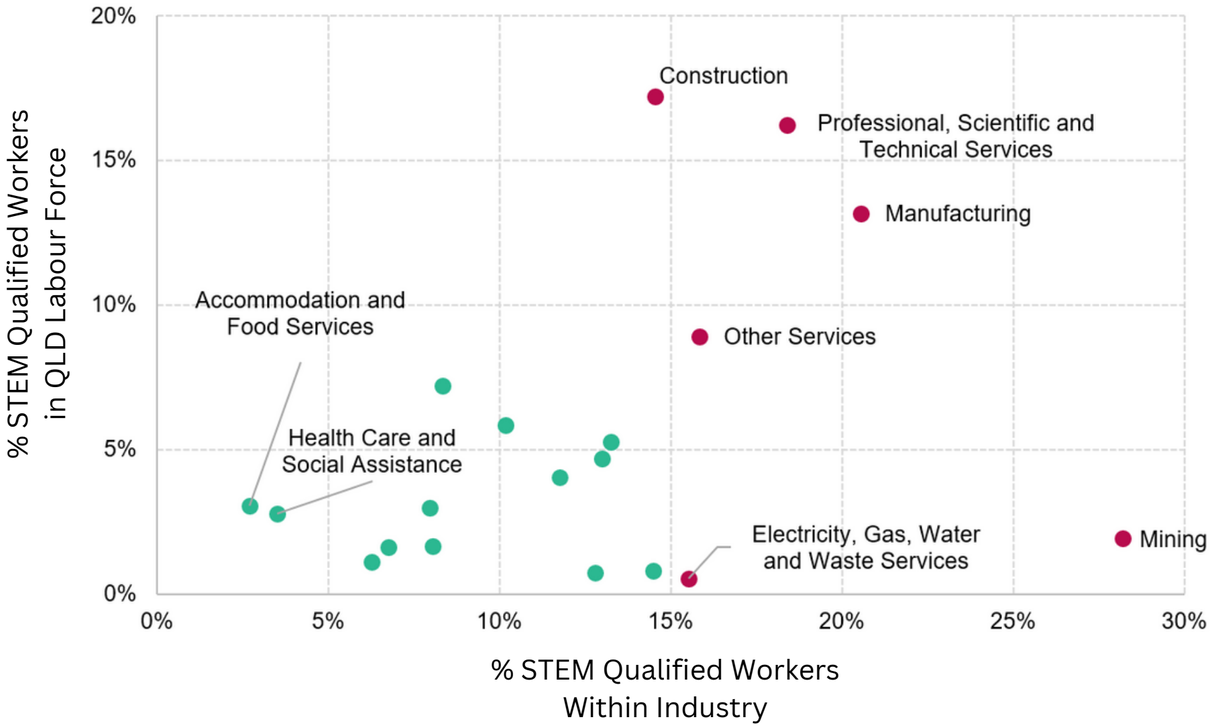


Source: Australian Bureau of Statistics (2023)
Microdata: Business Longitudinal Analysis Data Environment, BLADE [DataLab]

Around 11% of workers in SMEs are STEM-qualified, and they are distributed across industries

STEM qualified workers bring critical thinking and technical capabilities which enable technology adoption and innovation in businesses, regardless of industry.

Distribution of Queensland's STEM workforce in SMEs by industry, 2020FY



Source: Australian Bureau of Statistics (2023)
Microdata: Business Longitudinal Analysis Data Environment, BLADE [DataLab] and;
Microdata: Multi-Agency Data Integration Project, MADIP [DataLab]

- Almost half of Queensland's entire STEM workforce in SMEs is employed in 3 industries:
  - *Construction*
  - *Professional Scientific and Technical Services*
  - *Manufacturing*
- More than 3 of 4 employees in *Mining* SMEs are STEM qualified
- More than 4 of 5 employees in *Manufacturing* SMEs are STEM qualified

Across every industry, STEM qualified employees in SMEs typically earned more than their non-STEM qualified counterparts

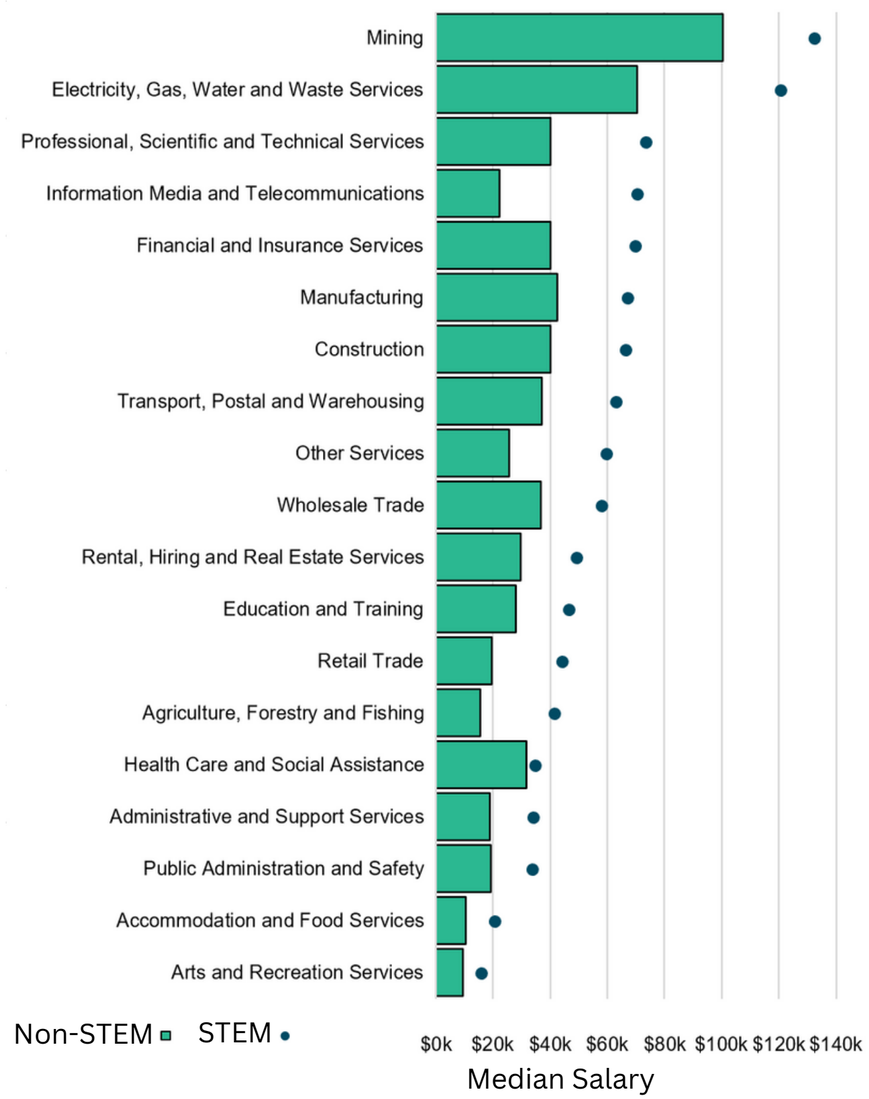
Within Queensland industries, salary differences between non-STEM and STEM qualified employees varied significantly ranging from:

- 10% difference in *Health Care and Social Assistance*, to
- 220% difference in *Information Media and Telecommunications*

Many industries with higher paying salaries also had higher proportions of STEM qualified employees. The top 4 highest paying industries for STEM were:

1. *Mining*
2. *Electricity, Gas, Water and Waste Services*
3. *Professional, Scientific and Technical Services*
4. *Information Media and Telecommunications*

Median Salaries of Non-STEM and STEM Qualified Employees in SMEs by Industry, 2020FY



Source: Australian Bureau of Statistics (2023)
Microdata: Business Longitudinal Analysis Data Environment, BLADE [DataLab] and;
Microdata: Multi-Agency Data Integration Project, MADIP [DataLab]

Background & more information

State of Innovation Project

The State of Innovation (SOI) Project was established in 2021 to develop rich data and insights on the Queensland innovation system to support evidence-based policy and decision making.

Collaborative research with the Australian Institute for Business and Economics (AIBE) of the University of Queensland (UQ)

This research project was developed to generate multi-jurisdictional insights about High-Growth SMEs and the STEM-qualified workforce.

More information

For more information about the SOI Project, the collaborative study and or this Insights Note contact: advancequeenslandcorro@dtis.qld.gov.au

Data Source

This Note uses the Australian Bureau of Statistics (ABS) Business Longitudinal Analysis Data Environment (BLADE) and Multi-Agency Data Integration Project (MADIP) data sets.

Many data sources within these have been brought together to create a longitudinal view of employees and the businesses they work in.

Limitations

Data within BLADE and PLIDA is administrative in nature and originates from many government agencies.

Data coverage is therefore imperfect, which may result in data mismatches.

Mitigations have been implemented where appropriate to minimise the impact on results.

Definitions

Several concepts and calculation methods used in this study have been adopted from the *Organisation for Economic Co-operation and Development* (OECD) and the *Australian Office of the Chief Scientist*:

SMEs[1]
Businesses with 10-249 employees.

High-Growth[2]
Any business (including SMEs) that experiences 20% or more annualised average growth over 3 years in headcount or turnover.

STEM qualified employees[3]
Employees with Certificate 1 or higher qualifications in:

- Natural and Physical Sciences
- Information Technology
- Engineering and Related Technologies
- Agriculture, Environmental and Related Studies

1 OECD. (2007). Eurostat-OECD Manual on Business Demography Statistics.
Exclusion of 'micro' sized businesses with less than 10 employees allows for sensical growth calculations.
2 OECD. (2007). Eurostat-OECD Manual on Business Demography Statistics
3 Australian Government. Office of the Chief Scientist. (2020). Australia's STEM Workforce 2020