Glossary

Absorptive capacity (AC)

Absorptive capacity is a business' ability to identify, acquire, transform and exploit knowledge that is external to the business. Measures such as R&D expenditure, number of researchers in the business and survey methods are used to measure absorptive capacity.

Backward participation

Backward participation measures the value of imported inputs in the overall exports of a country (the remainder being the domestic content of exports). This indicator provides an indication of the contribution of foreign industries to the exports of a country by looking at the foreign value added embodied in the gross exports.

Business Characteristics Survey (BCS)

The BCS is an annual survey and it is the vehicle for the ABS' Integrated Business Characteristics Strategy. The strategy is designed to integrate the collection and quality assurance of data required for input into both the ABS' Business Longitudinal Database and the production of point in time estimates for: Use of information technology; innovation; and a broad range of other non-financial characteristics.

A key part of the BCS is a detailed set of questions on business innovation asked every second year. This is why some business innovation data presented in this report is only available every second year. The detailed survey includes questions on drivers, sources of ideas, and collaboration for innovation.

Business expenditure on R&D (BERD)

R&D expenditure undertaken by the industry sector only.

Business Longitudinal Analysis Data Environment (BLADE)[91]

The ABS' BLADE is a series of integrated, linked longitudinal datasets over the period 2001–02 to 2013–14. It is based on retrospectively reconciling the different reporting structures in ATO and ABS data to facilitate linking survey and administrative data for businesses.

The survey data used here is from two sources: the Business Characteristics Survey, and the Business Expenditure on Research and Development. The administrative data is sourced from the ATO and includes Business Activity Statements and Pay-As-You-Go. In addition, demographic information, such as business age or industry classification, are derived by a combination of data from the ABS Business Register and historical ATO reporting patterns.

Business size

According to the Australian Bureau of Statistics:

- large businesses are considered those employing 200 or more persons
- medium-sized enterprises are those employing 20 to fewer than 200 persons
- small businesses are those employing between five and 19 persons
- micro-businesses are those employing fewer than five people
- non-employing businesses are those run by their owners.
- small- to medium-sized enterprises (SMEs) are defined as businesses that employ one to fewer than 200 persons.

The OECD defines SMEs as businesses that employ fewer than 250 employees, while the United States considers SMEs to include businesses with fewer than 500 employees. When performing international comparisons, we use the OECD definitions of SME and large business.

Capital expenditure

Capital expenditure, or Capex, are funds used by a company to acquire or upgrade physical assets such as property, industrial buildings or equipment. It is often used to undertake new projects or investments by the business. When performing international comparisons, we use the OECD definitions of SME and large business.

Collaboration

Collaboration amounts to interactions both among organisations and between organisations and their surroundings. Systems approaches often highlight linkages as the most vital area for promoting innovation activity. These interactions can consist of informal contacts and information flows, or more formal collaboration on innovation projects. They include adjustments in the value chain, such as closer relationships with suppliers or users, or research on market demand or on the potential uses for technologies. Businesses may have close relationships with other businesses within an industry cluster, global supply or production chain, or be part of looser networks. They may draw on published work from public research institutions, or work directly with them on collaborative projects. The lowest level of links between businesses is when a business draws on information belonging to another

business that is openly available and that does not require the purchase of technology or intellectual property rights, or interaction with the source. Linkage may also involve acquisition of knowledge and technology through procurement of external knowledge and/or purchase of capital goods and services (machinery, equipment and software) which have knowledge and technology embodied in them. The benefits of linkages will depend on how well knowledge is shared throughout the enterprise and channelled into the development of new products, processes and other innovations.

Competitive advantage

Competitive advantage is the value a business is able to create for its buyers that exceeds the business' cost of creating it. Value is what buyers are willing to pay, and superior value stems from offering either lower prices than competitors for equivalent benefits or providing unique benefits that more than offset a higher price.

Competitiveness

The competitiveness of trade-exposed businesses is defined as their ability to succeed in international competition against leading international competitors. For businesses that are non-trade exposed, competitiveness is defined by their ability to be as efficient and effective as global leaders in their industry.

Economic complexity

Economic complexity is expressed in the composition of a country's productive output, and reflects the structures that emerge to hold and combine knowledge. Ultimately, the complexity of an economy is related to the multiplicity of useful knowledge embedded in it. For a complex society to exist, and to sustain itself, people who know about design, sales and marketing, finance, technology, human resource management, operations and trade law must be able to interact and combine their knowledge to make products. These same products cannot be made in societies that are missing parts of this capability set. Increased economic complexity is necessary for a society to be able to hold and use a larger amount of productive knowledge.

Economic complexity index

The economic complexity index (ECI) is a holistic measure of the production characteristics of large economic systems, usually whole countries. As with most of the measurements used in complexity economics, the goal of this index is to explain an economic system as a whole rather than the sum of its parts. The ECI looks to explain the knowledge accumulated in a country's population, and that is expressed in the country's industrial composition. To achieve this goal, the ECI combines metrics of the diversity of countries and the ubiquity of products to create measures of the relative complexity of a country's exports. The product equivalent of the Economic Complexity Index is the Product Complexity Index or PCI.

Employee Share Schemes (ESS)

An employee share scheme (ESS), also referred to as an employee share option plan, employee share ownership scheme, or an employee equity scheme, is a remuneration scheme under which businesses offer to their employees shares, stapled securities, or rights to acquire them (options).

Entrepreneurship

Entrepreneurship has been typically referred to as a creative, risky and innovative idea, activity or process that is converted into new products, processes and organisational forms that enhance economic development and growth. Despite definitional differences, it is generally agreed that entrepreneurship is both a driving force of, and a challenge for, young start-ups that lack funds, human capital and relevant experience.

Export and import of goods and services

Exports of goods and services consist of sales, barter, or gifts or grants, of goods and services from resident to non-residents, while imports consist of purchases, barter, or receipts of gifts or grants, of goods and services by residents from non-residents. International transactions in services differ in many respects from those in goods. The production and the delivery of a service is usually a single operation carried out by mutual agreement between producer and consumer, which requires some kind of prior contact between them.

Goods covers general merchandise, goods for processing, repairs on goods, goods procured in ports by carriers, and non-monetary gold. In accordance with general balance of payments principles, change of ownership is the principle determining the coverage and time of recording of international transactions in goods. Exports and imports of goods are recorded at market values at points of uniform valuation; that is, the customs frontiers of exporting economies.

Forward participation

Forward participation is the share of exported goods and services used as imported inputs to produce other countries' exports. This indicator gives an indication of the contribution of domestically produced intermediates to exports in third countries.

Framework conditions

The efficacy of an innovation system often hinges upon the quality of framework conditions, namely the capacity to ensure an innovation-friendly environment. This is shaped not only by R&D, but also by the interplay of factors that enable knowledge to be converted into new products, processes and organisational forms, which in turn enhances economic development and growth. Framework conditions encompass the quality and reach of governance in a country, an effective banking and financial system, an honest and functioning judiciary, and working educational and health systems.

Full-time equivalent (FTE)

A measure of the total level of staff resources used. The FTE of a full-time staff member is equal to 1.0. The calculation of FTE for part-time staff is based on the proportion of time worked compared to that worked by full-time staff performing similar duties.

Global Financial Crisis (GFC)

The economic downturn of 2007–08. It was a global phenomenon of economic difficulty experienced by markets and consumers. The downturn was cause by a multitude of complex economic factors including unnecessary risk taking by the financial sector, macroeconomic conditions and speculative behaviour.

Global Value Chains (GVC)

Global Value Chains are the embodiment of global collaboration on innovation fuelled by growing international trade, global competition, and greater fragmentation of production processes.

Gross Domestic Product (GDP)

GDP can be defined according to three different methods:

- Output-based definition: Gross domestic product is an aggregate measure of production equal to the sum of the gross values added of all resident institutional units engaged in production (plus any taxes, and minus any subsidies, on products not included in the value of their outputs). The sum of the final uses of goods and services (all uses except intermediate consumption) measured in purchasers' prices, less the value of imports of goods and services, or the sum of primary incomes distributed by resident producer units.

- Expenditure-based definition: Expenditure-based gross domestic product is total final expenditures at purchasers' prices (including the f.o.b. value of exports of goods and services), less the f.o.b. value of imports of goods and services.

- Income-based definition: Income-based gross domestic product is compensation of employees, plus taxes less subsidies on production and imports, plus gross mixed income, plus gross operating surplus.

Gross expenditure on R&D (GERD)

Gross expenditure of R&D represents the total expenditure devoted to R&D by the business, government, private non-profit and higher education sectors.

Gross output (GO)

Gross output is an economic concept used to measure total economic activity in the production of new goods and services in an accounting period. It is a much broader measure of the economy than GDP. It is equal to the value GDP plus intermediate consumption.

Gross value added (GVA)

GVA is a measure in economics of the value of goods and services produced in an area, industry or sector of an economy. In national accounts GVA is output minus intermediate consumption; it is a balancing item of the national accounts' production account

GVA = GDP + subsidies – (direct sales taxes)

High-growth businesses (HGFs)

For the purpose of this document, we have followed the OECD definition of high-growth businesses. The OECD defines HGFs as those with more than 20 per cent annualised growth over a three-year period, with at least 10 employees, where growth can be measured by the number of employees or by turnover.

Higher education expenditure on R&D (HERD)

R&D undertaken by universities and other research institutions.

Industry sector definitions

For indicators for which internationally comparable data exists, the industry sectors have been defined in accordance with the International Standard Industrial Classification of All Economic Activities (ISIC), Rev.3.

For national data, industry sectors are defined according to the 2006 Australian and New Zealand Standard Industrial Classification (ANZSIC).

Innovation

An innovation is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations.

Four types of innovation are distinguished: product innovations, process innovations, marketing innovations and organisational innovations.

- **Product innovation**

  A product innovation is the introduction of a good or service that is new or significantly improved with respect to its characteristics or intended uses. This includes significant improvements in technical specifications, components and materials, incorporated software, user friendliness or other functional characteristics.

- **Process innovation**

  A process innovation is the implementation of a new or significantly improved production or delivery method. This includes significant changes in techniques, equipment and/or software.

- **Marketing innovation**

  A marketing innovation is the implementation of a new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing.

- **Organisational innovation**

  An organisational innovation is the implementation of a new organisational method in the business' business practices, workplace organisation or external relations.

Innovation activity

Innovation activities are all scientific, technological, organisational, financial and commercial steps that actually, or are intended to, lead to the implementation of innovations. Some innovation activities are themselves innovative; others are not novel activities but are necessary for the implementation of innovations. Innovation activities also include R&D that is not directly related to the development of a specific innovation.

Innovation system

In this document, innovation system is defined as an open network of organisations both interacting with each other and operating within framework conditions that regulate their activities and interactions. Three components of the innovation system (networks, innovation activities and framework conditions) collectively function to produce and diffuse innovations that have, in aggregate, economic, social and/or environmental value.

Innovation-active businesses

An innovation-active business is one that has undertaken any innovative activity irrespective of whether the innovation was introduced, still in development or abandoned during the reference period.

Innovative businesses, also innovating businesses

An innovative business is one that has implemented an innovation during the period under review.

Intangible capital

Intangible capital includes assets such as data, software, designs, new organisational processes, management quality, R&D, patented technology, reputation (brand equity) and business-specific skills.

Intellectual property rights

Clear intellectual property rights are vital for improving incentives to innovate in some industries, particularly high-technology sectors where R&D plays a central role in innovation. Laws and regulations are part of the framework in which businesses operate. Well-designed regulations and standards can provide a strong signal to support and guide innovative activities. They affect access to information, property rights, tax and administrative burdens (particularly for small businesses). Some enterprises may even avoid some types of highly complex links if they have concerns about the loss of intellectual property. A number of methods are used for protection of intellectual property:

- patents
- registration of design
- trademarks
- copyrights
- confidentiality agreements and trade secrecy
- secrecy that is not covered by legal agreements
- complexity of product design
- lead time advantage over competitors

Knowledge diffusion

The flow of knowledge and technology is at the core of what is often referred to as knowledge diffusion. Knowledge diffusion is relevant both for identifying the economic effects of innovation, and for establishing the shape of an enterprise's network. As with highly interactive linkages, knowledge diffusion is influenced by concerns over knowledge leakages and the methods enterprises use to protect their intellectual property.

Knowledge management

Knowledge management involves practices for gaining external knowledge and interacting with other organisations, and for sharing and utilising knowledge within the enterprise.

Knowledge networks

Knowledge networks facilitate the exchange of technology and commercial information. Informal networks tend to be based on personal contacts or 'communities of practice', or simply arise in the normal course of business. Formal or managed networks can be organised by business organisations such as chambers of commerce, research associations, technology services companies, consultants, universities or public research organisations, or sponsored by local, regional or central governments.

Large business

See Business size.

Linked Employee Employer Data (LEED)

The ABS has developed an experimental Employee Earnings and Jobs (EEJ) dataset containing personal income tax and business tax data from the Australian Tax Office for 2011–12. This dataset can provide detailed and accurate information on employees such as earnings and its components, occupation levels, and the dynamics of jobs in regions and by industries. It also contains limited business financial information. The dataset is part of the ABS' move towards developing a longitudinal Linked Employer-Employee Database (LEED).

With a longitudinal aspect, the LEED would assist industry policy development by helping us understand the impact of organic versus acquisitive entrepreneurship on aggregate employment and economic growth. Further integrating the LEED with the BLADE will provide rich data about employers as well as employees.

Management Capability Survey (MCS)

The Management Capability Survey is an ambitious project that aims to expand understanding of Australia's business management performance. The MCS is a collaboration between the OCE, the ABS, UTS and Stanford University (USA).

New-to-market innovation

New to the market innovations include innovations that were any of the following:

- new to the world
- new to Australia but not new to the world
- new to the industry within Australia, but not new to Australia or the world.

For more information, see novelty.

Non-technological innovation

Non-technological innovation covers all innovation activities that are excluded from technological innovation. This means it includes all the innovation activities of businesses that do not relate to the introduction of a technologically new or substantially changed good or service, or to the use of a technologically new or substantially changed process.

Novelty

All innovations must contain a degree of novelty. Three concepts of the degree of novelty of innovations are: new to the business, new to the market and new to the world.

New-to-the-business innovation

The minimum entry level for an innovation is that it must be new to the business. A product, process, marketing or organisational method may already have been implemented by other businesses, but if it is new to a given business, then it is an innovation to that business.

New-to-market innovation

Innovations are new to the market when the business is the first to introduce the innovation to its market. The market is simply defined as the business and its competitors, and it can include a geographic region or product line.

New-to-the-world innovation

An innovation is new to the world when the business is the first to introduce the innovation for all markets and industries, domestic and international. New to the world therefore implies a qualitatively greater degree of novelty than new to the market.

OECD+

OECD+ includes China, Taiwan and Singapore in addition to the 35 OECD member countries.

Opportunity cost

An opportunity cost refers to a benefit that a person could have received, but gave up, to take another course of action.

Organisation for Economic Co-operation and Development (OECD)

A group of countries working towards common problems of increasing economic growth, welfare and social problems. The list is comprised of Australia, Austria, Belgium, Canada, Chile, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Latvia, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom and United States.

Product market regulation (PMR)

PMR is the degree to which policies promote or inhibit competition in areas of the product market where competition is viable.

Productivity

Productivity is the ratio of a business' sector's, or economy's outputs to inputs. There are a number of ways to measure productivity. Labour productivity is where the only input being considered is labour costs. Multifactor productivity uses labour and capital costs, and Total factor productivity uses capital, labour, energy, material and services costs as inputs. Productivity growth occurs when growth in industry outputs exceeds growth in inputs.

Real value

Real values are also known as constant values. The real value is a nominal value adjusted for inflation. Real values are obtained by removing the effect of price-level changes from the nominal value of time-series data values that are adjusted for inflation enable comparison of quantities over time.

Relative citation impact

Relative citation impact is defined as the number of citations for Australian research in a specific field of research as a ratio to the world average citations in that field of research.

Research and Development (R&D)

Research and development (R&D) comprises creative work undertaken on a systematic basis in order to increase the stock of knowledge (including knowledge of man, culture and society), and the use of this stock of knowledge to devise new applications.

The term R&D covers three activities: basic research, applied research and experimental development. Basic research is experimental or theoretical work undertaken primarily to acquire new knowledge of the underlying foundation of phenomena and observable facts, without any particular application or use in view. Applied research is also original investigation undertaken in order to acquire new knowledge. It is, however, directed primarily towards a specific practical aim or objective. Experimental development is systematic work, drawing on existing knowledge gained from research and/or practical experience, which is directed to producing new materials, products or devices; to installing new processes, systems and services; or to improving substantially those already produced or installed.

Research specialisation

Research specialisation is the ratio of the proportion of a country's research publications that are in a particular field to the proportion of the world's research publications that are in that field. A specialisation value of 1.00 would indicate that the field comprises the same proportion of that country's output as it does of world output, while 2.00 would indicate that it comprises twice as high a proportion in the country as in the world. It is important to note that it is quite possible — and even common — to have high specialisations in fields that are only a small proportion of publications.

Researchers

Researchers are defined as professionals engaged in the conception or creation of new knowledge, products, processes, methods and systems, as well as in the management of these projects.

Revealed comparative advantage

Revealed comparative advantage (RCA) is an index calculated using exports, providing a measure of relative specialisation of a country's export activities in an industry. The RCA is calculated as the proportion of a country's exports in that industry divided by the proportion of world exports in that industry. If the RCA is greater than one, a comparative advantage is 'revealed'. If the RCA is less than one, the country has a comparative disadvantage in that industry.

Schumpeterian growth

Schumpeterian growth theory features quality-improving innovations that displace previous technologies, and are motivated by prospective monopoly rents. It predicts that a higher rate of growth should be associated with a higher rate of business entry and exit, and that exit can enhance productivity growth.

Science and engineering degrees

Science degrees include: life sciences; physical sciences; mathematics and statistics; and computing. Engineering degrees comprise: engineering and engineering trades; manufacturing and processing; and architecture and building.

SMEs (Small- and Medium-Sized Enterprises)

See Business size.

Spillover

The situation in which the costs of producing or the benefits of consuming a good spill over onto those who are not producing or consuming it. Spillover effects are also known as externalities.

Statistical Area Level 3

Statistical Areas Level 3 (SA3s) are geographical areas that are used for the output of regional data, including census data. The aim of SA3s is to create a standard framework for the analysis of ABS data at the regional level. SA3s are designed to provide a regional breakdown of Australia. They generally have a population of between 30,000 and 130,000 people. In the major cities, they represent the area serviced by a major transport and commercial hub. They often closely align to large urban local government areas (e.g. Parramatta, Geelong). In regional areas, they represent the area serviced by regional cities with a population of over 20,000 people. In outer regional and remote areas, they represent areas that are widely recognised as having a distinct identity and have similar social and economic characteristics.

Trade in Value-Added

Traded-exposed goods and services are composed of inputs from various countries around the world. However, the flows of goods and services within global production chains are not always reflected in conventional measures of international trade. The joint OECD–WTO Trade in Value-Added initiative addresses this issue by considering the value added by each country in the production of goods and services that are consumed worldwide.

Trademarks

Trademarks are the outcome of establishing recognisable designations and symbols for goods and services, as well as business' identities. They play a crucial role in the process of marketing innovations, being instrumental in differentiating the attributes of goods and services in the marketplace. Trademark data is considered a useful complementary measure of innovation activity in business compared with patents because of its broader applicability to service industries.

UTS

University of Technology Sydney

Value added

The amount by which the value of an article is increased at each stage of its production, exclusive of initial costs. In national accounts, value added is often obtained by deducting intermediate consumption from gross output.

Venture capital

Venture capital is defined as high-risk private equity capital for typically new, innovative or fast-growing unlisted companies. A venture capital investment is usually a short- to medium-term investment with a divestment strategy, with the intended return on investment mainly in the form of capital gains (rather than long-term investment involving regular income streams).

The following describes various stages at which a venture capital vehicle may make investments:

- Earlier stages (includes pre-seed, seed, start-up or early): products are in development, testing or pilot production. Investee companies may not be fully operational, and may not yet be generating revenue.
- Expansion (includes early expansion, expansion or late expansion): developed products are in the market, and the investee company has significant revenue growth and may be approaching, or at, profitable operating levels.
- Later stages (includes turnaround, late, buyout or sale): a mature investee company that may require financing for turnarounds (because of flat or declining revenue), consolidation and selling of the business.