

1. Introduction: regional innovation clusters

‘Clustering’ within industries – that is, bringing together businesses to connect and collaborate on issues and opportunities of common interest – has long been recognised as a key strategy to stimulate innovative thinking and practice. Clustering is now a key target for regional policy-makers at several spatial scales, including supranational, national and regional (Hassink and Klaerding, 2011). Clusters and agglomeration are viewed as a value way to leverage existing regional value, as well as to create new value. However, the peculiarity of this situation is that ‘operationalisation’ of the clustering concept is often unclear to the on-ground economic development practitioner. That is, whilst it is accepted that clusters are useful and important tools for economic development, there is lack of clear methodology on how and where clusters might be initiated, developed and maintained; how long they ought to last (as they are not permanent); and how dying or declining clusters might be renewed or transformed (Hassink and Klaerding, 2011). A notable exception to this is the detailed manual produced by Sheer and von Zalliger (2007), which describes the success factors of a typical cluster, and the benefits of establishing these in regions wishing to acquire a greater share of the ‘globalisation’ pie.

The original work by Porter (2000) which introduced the concept of industrial clusters referred to “geographical concentrations of interconnected companies with close supply links, specialist suppliers, service providers, and related industries and institutions (e.g. universities, standardising units and branch associations)”. Essentially, clustering was about economic interactions that were almost entirely linked to the spatial proximity of the businesses in question (Bathelt, 2011), and an often implicit notion that clusters would revolve around one particular industry sector. However, emerging work in the field of innovation clusters is now also highlighting the potential of working across industries to exploit the ‘adjacent possible’ (Cooke, 2012; Asheim et al., 2011). This kind of approach is more firmly linked with regions as ‘functional systems’ rather than simply being defined by geo-political boundaries; and acknowledges that mixtures of businesses from different sectors of the economic appear quite as likely to form synergistic groupings as do those from only one sector, providing that they share at least some common resources, challenges or opportunities. Whilst this shift in the academic thinking has opened up the potential menu of clustering activities that might be attempted by regional development groups, unfortunately, it has shed little light on the practicalities of how clusters might be established, and the criteria by which local businesses might be invited to participate.

Simply put, clusters are recognised a technique for driving regional benefit, but they are in fact comprised of individual business entities. Hence, one way to tackle the clustering problem is to first obtain a thorough understanding of not only the overall economic strengths and weaknesses of a region, and the aspirational goals for its future development; but also to pay close attention to the extent and nature of the individual businesses and business cohorts that comprise a region. For example, in understanding the motivation and/or need for particular businesses to participate in a cluster, it is possible to be armed with information about not only which clusters are likely to emerge (either organically or with facilitation), but also their precise composition, as well as the drivers that may be available to accelerate and/or underpin clustering activity. The latter may include shared labour forces, transport routes, or ICT usage; common finance needs (venture capital) and similar regulatory regimes (Vale, 2011). This provides very real and practical information for regional development entities to work with.

2. Central Queensland case study

4.3 2.1 Business development and innovation in the Rockhampton Region

The Rockhampton Regional Council area is located in Central Queensland, with a resident population of almost 110,000 people (ABS, 2012). The region is one of high economic diversity, including a strong industry presence in agriculture, construction and tourism, as well as being a service hub for education, health, and government administration. Notably, the Rockhampton region is part of the broader Central Queensland ‘region of innovation’, as classified under the Enterprise Connect Innovative Regions programme (Enterprise Connect, 2012). Recent business and industry forums and other activities in the Rockhampton region have confirmed both the need and the opportunity to better identify and link regional businesses with each other, as well as with key regional organisations (Kinnear and Ogden, 2011).

To date, much of the consultation and engagement around ‘innovation clusters’ in Rockhampton has been with sub-sets or individual representatives of various industry groupings in the region. Unfortunately, these relationships are not usually developed in any strategic sense; rather, they are organic relationships that occur through personal or professional contact and affiliation. Beyond traditional macro-economic datasets, there is currently no reliable way to assess the actual makeup of particular industries or sectors at the regional level; nor are there readily-available details about innovation performance or the likelihood of participating in (or benefiting from) future business development activities. This is a considerable barrier in attempting to identify and establish new models for business assistance, develop targeted

collaborations, and/or facilitate the growth of emerging industries or cluster development. This situation can also encourage over-servicing of identified, participant companies; potentially at the expense of lost opportunities with others. Most importantly, it is a limitation on the economic potential of the region; for unless the region's true business makeup is understood, planning and service delivery will inevitably be sub-optimal.

4.4 2.2 Research aims

This project set out to provide a comprehensive and current business audit for the Rockhampton region, and then to use that information to identify the potential for innovation relationships between SMEs, the regional university, and various other regional service providers. In particular, the project was focussed on discovering ways to more strategically engage with local industry to facilitate cluster formation, develop R&D collaborations, access business expertise, and promote the region's strengths and advantages.

3. Approach and methodology

4.5 3.1 Desktop review

The project focus was to collect relevant information about business demographics, business activity, and regional economic development indicators in the Rockhampton region. For the purposes of this study, the Rockhampton region was defined as:

- The postcode range 4698-4706 plus 4710, 4711 and 4714;
- Statistical Area Level 2 (under the Australian Geographical Standard); and/or
- The boundaries of the Rockhampton Regional Council local government area.

Where possible, data was compiled for the most recent activities only (e.g. last three to five years).

An extensive search was undertaken to source datasets relating to the range of business activities and regional economic development. For example, this included direct approaches to the Australian Bureau of Statistics, Australian Prudential Regulatory Authority, Australian Securities and Investment Commission, Australian Taxation Office, a range of federal, state and local government departments, utilities (e.g. Ergon Energy, Telstra), and business and industry groups (e.g. the Australian Institute of Company Directors, Chamber of Commerce and Industry (Queensland) and Tourism Queensland).

A full listing of the particular groups, and the datasets sought and/or procured from each, is available from the authors on request.

4.6 3.2 Database development

Available information from the publicly-available ABN lookup tool, and two purchased datasets was collated into a single industry database for the Rockhampton region. The database was then constructed by:

- importing all available information for the desired postcode range; removing inactive ABNs¹; and removing irrelevant entity types¹;
- linking source data by common identifiers, such as ABN or business/trading name, to achieve a collated data set for each unique entity;
- removing duplicates by manual search; and (for selected businesses) manually populating industry code at the division level (by manual search and entry, including re-coding of any ANZSIC 4-digits provided under the old 1993 classification).

Further manual searches were also conducted on selected, publicly available business directories. These uncovered a number of other businesses (approximately 809) who are actively advertising in the Rockhampton region, although they are not registered to the region for taxation or other administrative purposes. These have been added to the database given that these businesses may play an important role in the regional economy, and could potentially be invited to join regional clustering initiatives.

4. Results

It quickly became evident that there is an exceptionally low level of detail to describe businesses and/or business activity at the regional/local government area level. The availability and quality of specific business-level information as outlined in the project brief (e.g. business name, address, contact and industry) fell well below expectations. Publicly available information is limited to that from central registers (such as the Australian Taxation Office and Australian Security and Investment Commission); purchased datasets have patchy, poor coverage; and privacy constraints make it very difficult to understand what linkages have already been made with clients of federal and

¹ Some entries still appear on the master database with 'cancelled ABN' status, or with entity types outside of the target range. These refer to businesses who are still actively advertising in the region, and who therefore are still relevant from the perspective of identifying possible cluster participants.

state government service providers. Duplication of records was a significant problem in compiling the database, with even minor changes in entity names resulting in an entirely new record being generated (e.g. 'ABC Cleaning' as opposed to 'A.B.C. Cleaning').

4.1 Number, type and source location of businesses

Despite the challenges, a database of the Rockhampton Regional Industry Profile was been constructed with some 19,313 entries (Table 1). Coverage of the database varies with respect to different business parameters, ranging from 100% coverage (e.g. entity names and types) to as low as 2% (e.g. available email contacts).

Businesses registered to the postcodes 4700-4703 represent some 86% of those on the database; whilst some 793 businesses appear despite being administered from a postcode outside of the Rockhampton region (Table 2). For the latter, Capella, Brisbane and Mackay were the top centres from which businesses were sourced.

Almost half of the records were individual/sole traders, with only 20% being private companies (Table 3). The breakdown of businesses by industry division proved challenging, with manual coding performed on only a portion of the dataset, and some anomalies being evident when these data were compared with those supplied by the Australian Bureau of Statistics.

Table 1: Summary of fields and level of coverage for the RRIP database, as at 30 July 2012.

Field	Number of records	Proportion (%)
ABN	19,290	99.9
ACN	3,980	20.6
Entity name	19,313	100
Trading name	14,897	77.1
Postcode	19,313	100
Entity type	19,313	100
GST Registration	19,313	100
<i>Registration date</i>	<i>8,432</i>	<i>43.7</i>
<i>Not GST registered</i>	<i>8,846</i>	<i>45.8</i>
ABN Status	19,313	100
<i>Active</i>	<i>19,052</i>	<i>98.6</i>
<i>Cancelled</i>	<i>261</i>	<i>1.4</i>
Contact address	2,957	15.3
Contact phone	3,331	17.3
Contact email	449	2.3
Website	367	1.9
Industry SIC [^]	2,066 - 3,581	>10%
ANZSIC division ^{^^}	3,308 - 5,899	>17%
ANZSIC (four-digit code)	2,642 - 4,641	>10%

[^]SIC = standard industry codes ^{^^} ANSZIC 2006 coding.

Table 2: Postcode details for business entities located outside of the Rockhampton region, but which continue to advertise and/or operate within the region.

Postcode	Centre	Number of businesses
4723	Capella	40
4000/01	Brisbane	39
4740	Mackay	28
4670	Bundaberg	22
4680	Gladstone	17
2000	Sydney	14
4720	Emerald	14
4870	Cairns	13
4575	Kawana Waters (Sunshine Coast)	11
4350	Toowoomba	10
4551	Caloundra (Sunshine Coast)	10
4558	Maroochydore (Sunshine Coast)	10
4xxx	Other Queensland	384
2xxx	Other New South Wales	91
3xxx	Other Victoria	58
6xxx	Other Western Australia	18
5xxx	Other South Australia	13
7xxx	Other Tasmania	2
	Total	795

Table 3: Breakdown of entity types for active ABNs in the Rockhampton region. Information sourced from the Australian Tax Office ‘ABN Lookup Tool’.

Entity Type	Number	Proportion
ATO Regulated Self-Managed Superannuation Fund	2	0.01%
Australian Private Company	3856	19.97%
Australian Public Company	121	0.63%
Commonwealth Government Entity	1	0.01%
Co-operative	10	0.05%
Discretionary Investment Trust	6	0.03%
Discretionary Services Management Trust	6	0.03%
Discretionary Trading Trust	146	0.76%
Family Partnership	4049	20.97%
Fixed Trust	1	0.01%
Fixed Unit Trust	23	0.12%
Hybrid Trust	3	0.02%
Individual/Sole Trader	9134	47.29%
Limited Partnership	8	0.04%
Local Government Entity	4	0.02%
Other Incorporated Entity	645	3.34%
Other Partnership	995	5.15%
Other trust	182	0.94%
Other Unincorporated Entity	52	0.27%
State Government Entity	66	0.34%
State Government Statutory Authority	1	0.01%
Strata-title	2	0.01%
<i>Grand Total</i>	<i>19313</i>	<i>100.00%</i>

4.2 Breakdown by industry division

Manual coding for industry division, using the ANZSIC 2006 classification, was performed on approximately 6,000 of the businesses listed on the database. This allowed for an interesting comparison to be made with data available from the Australian Bureau of Statistics. For example, the ABS provided business count data, by industry division, for the Rockhampton region at June 2011, which showed a total of 7,825 entities operating in the region. When this is compared with the entries contained in RRIP listing (5,899 businesses), some anomalies were present (Figure 1). The greatest difference was seen in the ‘retail trade’ division (G), with the RRIP data having almost 1,000 more businesses coded to this division than the ABS data. In contrast, the ABS data carried far more businesses in the agricultural,

financial and construction sectors than did the RRIP listing. These differences can be explained partly by the difference in raw numbers of businesses in each dataset, but also by the manual coding process undertaken for the RRIP data. There may also be variations from within the ABS data, as this relies on self-reporting by businesses, who may be strategically labelling their operations as belonging to one or more other categories, for other reasons (e.g. to advertise or capture better the market potential, or so that the listing aligns with the future business growth or expansion plans).

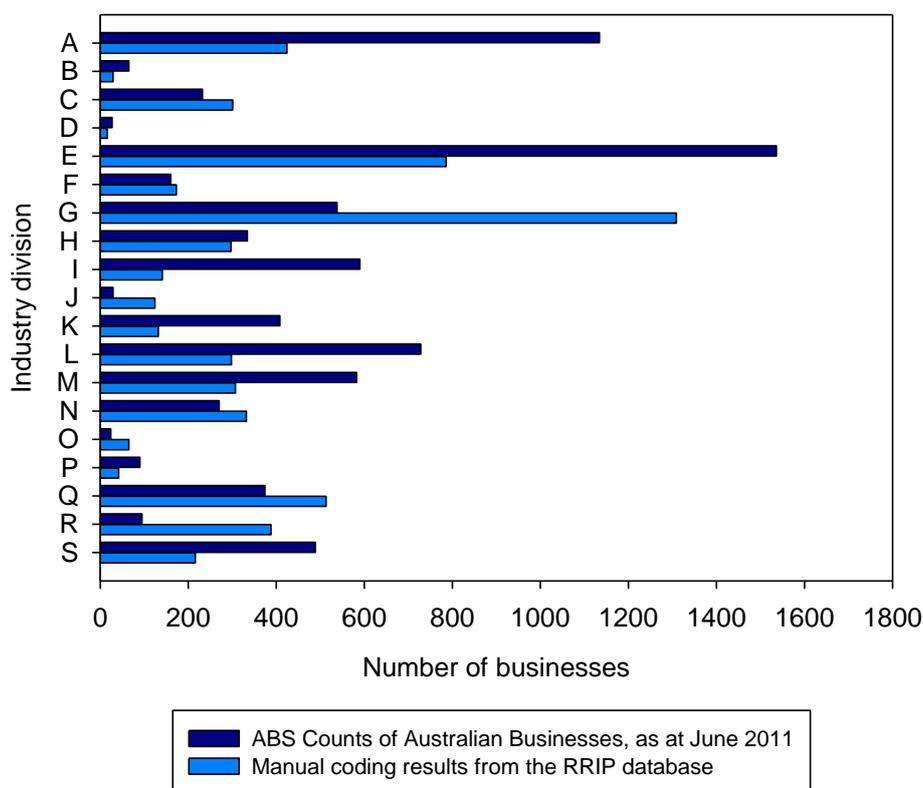


Figure 1: Business counts by industry – a comparison between ABS data and manually-coded information from the RRIP database.

4.7 Innovation activity

The number of patent applications lodged by businesses in the Rockhampton region is relatively low, with only one applicant identified for 2011, and typically five or less applications per regional postcode, for the period 2006-

2011². Patent activity is also low within the broader Central Queensland region³, which is ranked 62 with respect to the number of patent applications lodged per 100,000 people (ALGA, 2012). The regional average application rate for this region is 6.47 per 100,000 people, whilst the Australian average is 21.01.

The most recent and complete dataset from Enterprise Connect notes that for 2009/10, just 16 companies were registered for the R&D Tax Concession in the Rockhampton region, with the total value of R&D registered for that period being \$9.11 million. It was not possible to obtain further information about the businesses, source industries or nature of the R&D undertaken. Furthermore, it appears that the Rockhampton region is showing a declining trend for R&D compared with other regions in Central Queensland, with the relative proportion of R&D in Rockhampton slipping from 20% to only 17% of the total registrations from 2008/09 to 2010/11, respectively (AusIndustry, personal communication, June 2012).

Meanwhile, data from CQUniversity suggest that R&D projects to the value of \$980,000 have been undertaken with 12 different entities within the Rockhampton Regional Council area in the past five years (2008-12). However, the data are difficult to interpret, as some research agreements included sub-contracting, which makes it difficult to discern whether the activity is in fact of local origin.

4.8 Finance and export statistics

The greater project also included a range of other information beyond the scope of this paper. This included the number and valuation of local government rateable businesses, regional business growth statistics, industry output analysis, finance and investment patterns, innovation activity, export statistics, and involvement in business membership groups as well as in various government support programs. Some data about resource use (energy, waste) are also available. Each of these were included because of their ability to inform business clustering initiatives within the region. For example, data from the regional council indicated that one in four 'category one' (commercial and light industry) premises have owners that are not resident within the region, which may be important in considering their likelihood to become involved in clustering activities.

² Includes both standard and innovation patents. Source: by request to IP Australia, 2012.

³ Fitzroy and Central West statistical divisions.

It is also of note that the types of data that are unavailable for the region can, in themselves, give guidance on where future economic development efforts might be focussed. For example, access to venture capital is a key enabler for start-ups, but it was extremely difficult to locate any information relating to availability, or consumption of venture capital finance within Rockhampton. No venture capital investments have been made under AusIndustry's venture capital programs since July 2008⁴, for any business operating in the postcodes 4699 through 4706. AVCAL is the National Association for venture capital in Australia, and it reports that none of the participants in their Australian private equity and venture capital community have had direct investments in companies headquartered in Rockhampton⁵. However, AVCAL notes that Rockhampton could potentially observe spillover effects from private equity investments; for example, investment in national franchises may flow into the region where outlets for those stores exist. Clearly, obtaining more data about regional venture capital sources, and increasing the visibility and uptake of these finance options, would be useful in helping to generate a greater focus on new business activity within Rockhampton.

A similar situation also exists with respect to information on regional export statistics. Consultation with AusIndustry, AusTrade and the ABS has confirmed a lack of information about export activity at the local government area-level. Data available from the ABS is disaggregated only to state level, with the exception of information specific to port activity (the nearest applicable site being Gladstone). For the Fitzroy region, conservative estimates from Trade and Investment Queensland suggest that the region generates approximately \$450 million in non-coal and non-mineral commodities exports; with about \$80-100 million in services exports not including tourism and education. With respect to export of education services, information from CQUniversity's International Office shows that the Rockhampton campus hosted a total of 192 students in the 2011 calendar year, with a further 150 through the Language Centre and some 140 on short term study tours. The estimated value of this to the University was \$2.1 million. However, it is unclear what this figure may be in total, once it includes the regional multiplier effect that is created by attracting students into the region (e.g. flow on expenditure by extended family through residency and/or tourism). In academia, regional economic theories tend to highlight the importance of export activity as a mechanism for regions to become embedded in the globalised marketplace, and attain sustainability beyond their (typically small) regional markets. Economic development and local government

⁴ AusIndustry reviewed their databases for the Innovation Investment Fund (IIF), the Pooled Development Funds (PDF), the Early Stage Venture Capital Limited Partnerships (ESVCLP) and the Venture Capital Limited Partnerships (VCLP) Programs.

⁵ AVCAL, personal communication.

practitioners can embrace this, through trade talks and tours to potential export destinations. However, in the absence of clear information describing what a region's export goods are, and where the market destination is (extra-regional domestic, or international), such activities are much less likely to be fruitful.

4.9 Priority sector case studies

A case study focus was also used to prepare in-depth information about three areas of the Rockhampton economy, selected because of current interest and activity by regional stakeholders: transport, tourism and the digital economy (information, communications and technology). For the latter, quite a narrow definition of the sector was applied, with relevant businesses being those who 'trade in' digital communications and technology, as opposed to those who are simply intensive users of this (e.g. healthcare, distance education providers).

Summary statistics were generated from the database for these three sectors, largely using the information linked with businesses' ABN details (Table 4). This was made possible through the use of the query function within the Access database, which allowed for extraction of not only businesses with a particular industry coding (e.g. industry division 'I' for transport), but also those with relevant keywords in the entity or trading name⁶. This function was particularly important for those areas that are of particular interest with respect to regional economic development, but which do not appear with specific or unique ANZSIC codes ('tourism' being one such example).

⁶ For example, within 'transport', search terms included variations of rail, air, road, haulage, container, bulk, warehouse, distribution, transport, courier, freight, storage, handling and logistics. Entries were then checked manually following the data yield to remove irrelevant records.

Table 4: Comparison of selected business statistics for three priority sectors in the Rockhampton economy

	Transport, storage and distribution	Tourism	Digital Economy
Number of businesses in RRIP database	320	326	211
Proportion of businesses registered to Rockhampton postcode	70%	60%	38%
Dominant business entity types	Private company (48%) Individual/sole traders (22%) Family partnerships (17%)	Private company (22%) Family partnerships (24%) Individual/sole traders (27%)	Postcode location unavailable for more than half Individual/sole traders (22%) Private companies (<10%)
GST registrations	17% not registered 19% registered for a decade or more 10% new entries [^]	14% not registered 20% registered for a decade or more 5% new entries	13% not registered 10% registered for a decade or more Less than 5 entries per year since 2001 <i>NB: only 20% of businesses have active ABN status</i>
e-contact ^{^^}	Approximately 25% of the cohort	Approximately 12%, but with prospect of many more via manual retrieval from websites~	Approximately 13-18% of the cohort

[^]registered for GST less than three years ago. ^{^^} Number of businesses with known email address. ~A preliminary search highlighted that many (probably most) tourism businesses have active websites, as these are used for e-promotions and online bookings. However, most do not have easily identifiable direct email addresses, instead preferring to provide web-based query forms, which avoids businesses being spammed by webcrawlers searching for 'name@domain' links.

5. Discussion

5.1 Application for economic development and ‘clustering’ initiatives

In scanning across the Rockhampton region for clustering potential, it is important to have regard to a number of influences:

- the current economic diversity, strengths and weaknesses of the region;
- the interests and capacities of the various regional stakeholder groups in supporting regional businesses in innovation clustering activities; and
- the regional aspirations in terms of future growth, diversity and innovation.

A matrix analysis (not shown here) has highlighted that many of the economic development interest groups in the Rockhampton region share the same priority industry areas (e.g. agriculture, manufacturing, tourism and education). On the one hand, this suggests that some synergies are likely to emerge in terms of collaborative clustering, with support available from not only one, but many regional stakeholders; on the other, it also suggests that work in these areas could easily become crowded, with multiple players vying for the same KPIs⁷ and regional businesses placed at risk of being over-consulted.

The RRIP database was constructed for the targeted use by regional economic development practitioners within the Rockhampton region. Discussions with the project sponsors and other stakeholders highlighted some common themes in terms of applying the research findings. For example, all tiers of government, including local (regional economic development corporations), state (state development department) and federal (Regional Development Australia, Enterprise Connect) had an interest in the data. Across these groups, a high value was placed on having current email contacts for businesses, as this was seen as a key mode for both approaching, and maintaining, contact with businesses. Simultaneously, however, there was agreement that use of e-news or email-based engagement activities (e.g. to advertise business support workshops and other initiatives) was rarely successful unless personal contact was already in place. The ability to search across the database by not only business ‘code’, but also business name, was seen as particularly valuable.

⁷ Key Performance Indicators. For example, this might include the number of industry participants at workshops or referrals for business services.

By contrast (and somewhat surprisingly), most of the practitioners did not see direct value or use in having access to information about the age structure and entity types of businesses within particular cohorts, or with respect to the endogenous or exogenous location of the business' registration.

4.10 5.2 Key learnings for other regions

In exploring and applying the datasets that were available for Rockhampton, some of the broad messages for stakeholders there (but equally so for other regions), might include the following:

- in extracting business lists for the purposes of guiding clustering activities, sector analysis has to go beyond ANZSIC coding if the listing is to be complete. For example, many businesses engage in activities relevant to 3-5 sectors, but can only nominate one or two when completing forms or lodging an advertisement on most directories. Construction and use of a database that allows searches based on industry division, 4-digit coding, business category and/or entity or trading name, can assist in identifying relevant businesses.
- in researching regional business profiles, a large proportion of the ABN's listed to a postcode range will not be of direct use for economic development activities. For example, many of these will represent ABNs obtained for administrative or convenience purposes and/or for non-employing businesses.
- many businesses may be administered out of the desired postcode range region, but could play a key role within the region (particularly for highly mobile industry sectors). This introduces the need to take a 'regional systems approach' to economic development, including the potential for inter-regional linkages. For example, this may involve Council-to-Council collaboration based on the key postcodes from which business linkages are sourced. Furthermore, clustering activities maybe more fruitful when they are focussed on regional (and interregional) systems as 'functional' units, rather than simply as geographic ones. Applying superficial boundaries to clustering activities may risk excluding key elements of an industry or group.

In addition to the above, five key challenges were identified as a result of this attempt to profile the Rockhampton Regional industry base. Firstly, there is a genuine lack of data available at the regional level, with many of the large datasets being available only at the statistical division or state level. Whilst there are several smaller datasets generated at the local level, these tend to require case-by-case processing in terms of identifying the source (e.g. ABS,

ATO, or other); checking the validity of the data (including conflict with other datasets) and then combining these into a single reference tool.

Secondly, the arrangements in place for privacy protection make it extremely difficult to source contact information for regional businesses. Unfortunately, this is often the only way of discerning whether a business is actually operating in the region and/or whether the ABN registration instead refers to an ‘administrative’ point. Contact details are also essential for informing direct engagement with businesses, once potential clustering initiatives have been identified.

Thirdly, with respect to industry coding or categorisation, many government (e.g. ATO) and commercial (e.g. Sensis) sources rely on self-declared business information. These are reliant on individual registrants to correctly enter information regarding industry division and business capability. These data thus require careful interpretation given that one person’s understanding and application of industry coding may differ from another’s. The use of different classification systems (SIC, ANZSIC 1993, ANZSIC 2006) also frustrates efforts to collate data into a single reference source.

Fourthly, there is poor clarity about the actual collection method of many business statistics, and thus how they might be used. For example, the registered address recorded for each ABN/ACN may refer to:

- the physical premises at which operations are conducted; or
- the mailing address for the business owners/operators; or
- the mailing address for the taxation agents who handles the business affairs.

Consequently, when conducting searches by location (postcode), different interpretations of the data are possible. Summary data and statistics derived from postcode analysis should therefore be interpreted carefully. In another example, information about total employee number, or business turnover amounts, is often registered to business headquarters, rather than just the regional branch location. This can cause leakage in terms of reporting, with regional branches having their contributions reported under metropolitan head offices. The reverse may also be true, if a regional location hosts the lead branch of a company with multiple locations.

Finally, establishing the accuracy of the dataset and accounting for exogenous business activity are also critical problems. The ABN lookup tool provides a good method for identifying businesses registered to a target postcode range (notwithstanding the difficulties described above); but the source data changes daily, in reflection of ongoing updates to ABN information. Furthermore, it does not provide information about businesses that may be trading, or are intending to trade, within a region despite not being registered there. Beyond

ad-hoc searching of commercial business directories, there is currently no clear way to account for those businesses that have a presence in CQ, but which are headquartered out of the region.

Whilst it is important to protect privacy and to minimise the reporting burden on business operators (and those who engage with them), there clearly needs to be considerably more effort devoted to compiling meaningful statistics on businesses and their activities at the regional level. Maintaining the currency of such a data compilation over time will also be important in informing regional (and other) decision-making.

4.11 5.3 Areas for future research

In light of the dataset that is now available, and the challenges that have been identified in compiling this dataset, recommendations for future work in guiding economic development activities with businesses in the regional Australia might include:

- using of a database to identify particular businesses that may suit inclusion in clustering activities, and employ a range of search methods to develop a full and complete listing
- acknowledging that many of the listed entries represent ABNs that have been obtained ‘for convenience’, and which may not necessarily be interested in participating in collaborative initiatives
- give consideration to methods for identifying the range of businesses that may be administered out of the desired postcode range region, but could play a key role within the region (particularly for highly-mobile sectors).

Lobbying for change in the collection and reporting of regional-level business data should also be a key activity for those regions wishing to have a strong evidence-base on which to build regional economic development initiatives. For example, a range of critical information gaps relating to regional business profiling were highlighted by this research, particularly in the areas of economy, finance and investment; employment and skilling; resource use; information technology; regulatory and licencing profiles; and research and development activities (Table 5). This information has since been lodged in a submission to the ABS’ Essential Statistics for Australia (ESA) consultation⁸. Here, it was noted that many of the existing parameters identified by the ESA

⁸ *Essential Statistical Assets for Australia – Investing in the Information that counts most*, ABS, May 2012.

may well be identified as ‘definitely in’ or ‘probably in’ with respect to whether collection of those data would continue; however, the problem is that most of these area are not disaggregated to the local government (statistical local area 3) level.

Table 5: Examples of gaps in business data and statistics at the local government area-level (Rockhampton Regional Council area).

Domain	Parameter(s)
Economy, finance and investment	<ul style="list-style-type: none"> • total business value by industry sector (e.g. derived from annual turnover figures) • business lending patterns (summaries by postcode) • supply chain partners at the business level • uptake of venture capital • alternative valuation of regional business activities, using combinations of employment and productivity figures, to help explore the potential impacts of infrastructure and business investment in a region* • inputs necessary to prepare locational quotients and other metrics, such as employment figures, wages and salaries, sales and service income, total income, total expenses, operating profit before tax, and industry value added** • breakdown of capital expenditure figures (e.g. plant, machinery and equipment; dwellings and buildings/structures; and other (land, intangible assets))⁹.
Employment and skilling	<ul style="list-style-type: none"> • total employment by industry sector (e.g. employment numbers) • total number of employing businesses (with each identified, if possible) • relevant skills areas (current, forecasted) • source location of labour force
Resource use	<ul style="list-style-type: none"> • information on solid waste outputs – for example, volumes and nature of waste (regulated, recyclable) • patterns of use for public transport (current and forecasted) • renewable energy patronage
Information technology	<ul style="list-style-type: none"> • identification of all businesses with websites • existing needs and forecasted growth with respect to digital infrastructure (mode of access, download speed and capacity) • number, type and distribution of telephony and

⁹ ABS Catalogue 8155.0 Australian Industry, 2010-11.

Regulatory and licencing profiles	<ul style="list-style-type: none"> • other IT connections • the Acts and/or Regulations influencing particular business operations, and the cohorts of businesses impacted by these.
Research and Development	<ul style="list-style-type: none"> • engagement with R&D providers • R&D expenditure

* these are already available (at cost) from regional growth models (e.g. in NIEIR¹⁰; REMPLAN), but not at the local government level . ** these data are available at the national and state levels, but not at the level of local government areas.

6. Conclusions

This paper has described some methodologies that can be used to collate and explore information about regional businesses and their activities. It also highlights some of the challenges and opportunities that regions face in generating an evidence-base about their local business profile. It also touches on the implications of this research in terms of constructing regional advantage through economic development activities, and in particular, through partnering with SMEs for innovation.

Clusters are often comprised by a complementary mix of active companies within a particular sector, supplemented by others in their supply chain, as well as specialist knowledge generators (Sheer and von Zalliger, 2007). It is worth noting that the research reported above largely concentrated on profiling regional businesses; however, it is widely accepted that clusters are sustained not simply by business-to-business interaction, but also by leveraging the regional value that sits with R&D organisations, such as regional universities. Thus, mapping the current and future capacity of these and other resources within a region is also likely to provide practical information that can be put to use in cluster development activities. Equally, it must be acknowledged that corralling ‘like’ businesses based on dry statistical information is unlikely to be successful unless there is some indication that the businesses have a willingness to participate, and (preferably) that they can be guided through cluster development by experienced facilitators.

Perhaps one of the key suggestions to arise from this work is the possibility of introducing a (regional) business census in parallel to the national residential census. For the latter, Australia undertakes a census at five-yearly intervals, with the data being used to inform investments and decision-making, as well as to identify trends and patterns (which in turn, can signal both challenges

¹⁰ National Institute of Economic and Industry Research

and opportunities). Gathering consistent, reliable and longitudinal data about key business parameters, and having these disaggregated and accessible to the local-government area level (privacy protections for proprietors notwithstanding) could provide an enormously rich dataset that could be used for multiple purposes. In turn, this can help accelerate business-based innovation in Australia's regions, with benefits accruing to rural and regional communities, as well as to the nation as a whole.

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8. References

- ABS (2012) *2011 Census Quickstats profile, Rockhampton (Statistical Area Level 3)*. Retrieved May 2012, from http://www.censusdata.abs.gov.au/census_services/getproduct/census/2011/quickstat/30803?opendocument&navpos=220
- Asheim, B., Boschma, R., Cooke P. (2011) Constructing regional advantage: platform policies based on related variety and differentiated knowledge bases. *Regional Studies*, 45, (7), 893-904.
- Bathelt, H. (2011), Innovation, learning and knowledge creation in co-localised and distant contexts. In Pike A., Rodríguez-Pose A. and Tomaney J. (Eds.) *Handbook of Local and Regional Development*, (pp. 149-161). London : Routledge.
- Cooke, P. (2012). *Complex Adaptive Innovation Systems Relatedness and transversality in the evolving region*. London : Routledge.
- Enterprise Connect (2012). *Innovative Regions Centres*. Retrieved May 2012, from <http://www.enterpriseconnect.gov.au/who/innovativeregions/Pages/InnovativeRegions.aspx>
- Hassink, R. and Klaerding, C. (2011), Evolutionary approaches to local and regional development policy. In Pike A., Rodríguez-Pose A. and Tomaney J. (Eds)

Handbook of Local and Regional Development, (pp. 139-148). London : Routledge.

Kinnear, S. and Ogden, I. (2011) *The Central Queensland Innovation Prospectus: Report to the Department of Industry, Innovation, Science and Research, June 2011*. Centre for Environmental Management, CQUniversity.

Porter, M. E. (1990). *The Competitive Advantage of Nations*. New York : Free Press.

Sheer, G. and von Zalliger, L. (2007). *Cluster management – a practical guide*. Economic Development and Employment Division, Ministry of Economy, Labor and Entrepreneurship, Republic of Croatia.

Vale, M. (2011). Innovation networks and local and regional development policy. In Pike, A., Rodríguez-Pose, A. and Tomaney, J. (Eds) *Handbook of Local and Regional Development*, (pp. 413-424). London : Routledge.