Governance Models and Frameworks for Smart Specialisation

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Summary

In 2015 the Board of Regional Development Australia (RDA) Hunter committed to the development of a Regional Innovation Smart Specialisation Strategy (RIS3) for the Region. The aim of the Strategy was to be a catalyst for new activities to strengthen the economic development of the region by:

- Informing policy to ensure effective and efficient spending of research and innovation funds.
- Identifying regional priorities based on current strengths and comparative advantages that support high value-add activities and offer the best chances for strengthening competitiveness.
- Recommending potential areas for future comparative and competitive advantages, entrepreneurship and growth.

- Encouraging partnerships (locally and beyond the Hunter) in governance, project delivery, monitoring and evaluation.
- Supporting productive research and innovation activities for smart, sustainable and inclusive growth of the region.

The Strategy was launched in March 2016 by the Prime Minister of Australia in Canberra.

Smart Specialisation is now an integral part of RDA Hunter's ongoing work to grow the Hunter's international competitiveness through innovation. It has provided a solid basis for the development and implementation of an innovation strategy for the Hunter Region. But there are some challenges which were addressed in developing the Strategy which provide methodological insights for other regions committing to a Smart Specialisation approach.

The innovation landscape is enormously complex, with three tiers of government and numerous government agencies present in the region, a large university and government research organisation, many industry associations and professional organisations. All have an interest in innovation and economic development. These entities provide 'context' to innovation initiatives but the RIS3 project found for the Hunter there are not many entities implementing meaningful innovation practices.

Furthermore, there are currently over 130 Commonwealth and State measures available to stimulate private research, technology, entrepreneurial, and innovation investment in the region but their impact and effectiveness is difficult to ascertain. The RDA has taken an initiative in coordinating responses to many of these funding programs.

In developing the Strategy there was, however, a good understanding among stakeholders of the region's capabilities, competencies, competitive advantages and potential for excellence in a global perspective. These had been highlighted by prior work of the RDA through its Innovation Scorecard projects and preparation of Regional Plans.

The RDA has over the last five years gone a long way to fostering stakeholder engagement within the region. For example, it has taken a lead role in implementing an industry led Science, Technology, Engineering and Mathematics (STEM) focused skills and workforce development programme that links industry with schools to encourage student participation in STEM subjects and developing a workforce for the future.

Development of the Strategy raised important questions and issues about governance arrangements and engagement in the implementation and execution of the Strategy, particularly where increasing levels of funding and resources are being provided by government and other agencies.

In particular, governance models and frameworks become increasingly important as the flow of resources for regional purposes increases. Loosely aligned networked arrangements must give way to more formally established corporate arrangements to ensure responsibility and accountability by funding agencies, auditors and national scrutiny bodies. Governance arrangements move from network arrangements through association models and strategic alliances to more formalised corporate arrangements.

The Australian RDA model, as it has evolved in the Hunter, provides a basis not only for the development and implementation of regional strategies, but also for assigning responsibility and delivering accountability.

Regional Innovation Smart Specialisation overview

A regional *Research and Innovation Smart Specialisation Strategy* (RIS3) is an approach to economic development that involves "the development of science, technology, and innovation initiatives for economic development, growth and jobs". According to the European Union (EU) *Guide to Research and Innovation Strategies for Smart Specialisation* (FORAY et al., 2012), RIS3 aims to provide an integrated, place based, and transformation policy framework that:

1. Concentrates public resources on innovation and development priorities, challenges and needs
2. Establishes measures to stimulate private investment in research, technology and innovation investment
3. Builds on regional capabilities, competencies, comparative advantages and potential for excellence in a global perspective
4. Fosters stakeholder engagement and encourages governance innovation and experimentation
5. Is evidence-based and includes sound monitoring and evaluation systems.

The RIS3 approach claims to build on the innovation systems and the entrepreneurship and growth literatures to provide a policy prioritisation logic that is appropriate to promoting innovation in a wide variety of regional settings. It has a particular focus on realisation of economies of scale in high technology and knowledge intensive sectors (MCCANN and ORTEGA-ARGILÉS, 2013). It also includes a governance framework that sets it apart from 'convergence' models of university-business-governance interaction, such as the Triple Helix model (ETZKOWITZ, 2008; ETZKOWITZ and LEYDESDORFF, 1997; ETZKOWITZ et al., 1998; LEYDESDORFF and ETZKOWITZ, 1998; VIALE and ETZKOWITZ, 2010). Giving attention to governance directs consideration to *how* RIS3 objectives, initiatives and actions are implemented in ways that deliver value to a region.

This problem of execution is a major theme in strategic management academic and practitioner literature (BOSSIDY et al., 2002; GOVINDARAJAN and TRIMBLE, 2010). There has been a concern, articulated over many years, about why well developed and articulated strategies often fail to deliver the results envisaged. These failures generally arise because of shortcomings in governance, leadership, management, organisation, technical skills, and supporting systems, and an underestimation of the complexities involved.

The RIS3 approach embraces a method of *entrepreneurial discovery* - an interactive process in which market forces and the private sector are discovering and producing information about new activities, and public organisations [governments, research and teaching organisations] are empowering those actors most capable of realising the potential'. In policy terms, RIS3 would include interventions, such as SME incentives, to promote new adoption and application of General Purpose Technologies (GPTs) and Information and Communication Technologies (MCCANN and ORTEGA-ARGILES, 2014).

The operationalisation of the entrepreneurial discovery process is seen as a major challenge and requires the collection of analysis of information from a diverse range of sources including entrepreneurs, firms and public organisations. Incentives and instruments for disclosing, passively or actively, this information through stakeholder consultations and other approaches, is recognised as being key (OECD, 2013). RIS3 recognises the lack of perfect information and the different levels of progress in any given activity. It is also considered to be much more than the linear 'commercialisation of research' approach.

Essentially, RIS3 focusses on helping entrepreneurs and public organisations to identify their knowledge based strengths at a regional level and facilitating an exploratory approach using strategic analysis, technology foresight and road-mapping. It combines a bottom up and top down process in priority setting for investments in knowledge and its application. Although it means that government efforts do not go to the same extent to all activities, there is an issue about how government will focus its effort.

One of the most challenging aspects of the approach, and particularly in an Australian context, is to meet the RIS3 framework objective 4 - *Fosters stakeholder engagement and encourage governance innovation and experimentation.* This matter forms the major focus of this Paper.

The governance of Smart Specialisation

In this Section EU guidance on the governance of smart specialisation is outlined and identified, in broad terms, as well as strengths and potential shortcomings. This forms the basis for subsequent discussion later in the Paper.

The EU *Guide to Research and Innovation Strategies for Smart Specialisation (RIS3)*, (The *Guide*) indicates that 'no matter who is involved, the RIS3 process needs to be interactive, regionally-driven and, consensus-based (FORAY et al., 2012). This is because:

> . . . far from the stereotype of heroic individuals in labs and garages, the innovation process is increasingly a collective social endeavour in which success, for regions as well as firms, depends on the inter-organisational capacity to absorb, generate and exchange knowledge in a timely and cost-effective manner. Although regional development is also a collective social endeavour in which national and supra-national levels play their part, the regional level is the most important part of the process, not least because no one has a greater commitment to or knowledge of a region than the individuals and organisations that are based there (FORAY et al., 2012)

The *Guide* advises that the most important types of organisation to be involved in the RIS3 process are public authorities, universities and other knowledge-based institutions, investors and enterprises, civil society actors, and international experts who can offer benchmarking and peer review services. It also advises that 'the design of the RIS3 architecture needs to anticipate the risk of capture and make it

more difficult for traditional interest groups to frustrate the process by seeking to preserve the regional *status quo* rather than transforming the regional economy through innovation' (FORAY et al., 2012).

The *Guide* also suggests that 'innovation users or groups representing demand-side perspectives and consumers, relevant non-profit organisations representing citizens and workers,' and intermediaries who offer a knowledge-based and market-facing perspective, should all be involved in the design process' (FORAY et al., 2012). Moreover:

> When it comes to the sensitive moment of deciding on strategic priorities, 'a truly inclusive RIS3 governance structure should be able to prevent capture by specific interest groups, powerful lobbies, or major regional stakeholders' (FORAY et al., 2012).

Regional interest groups can include well-resourced universities and research organisations that have developed their own innovation strategies in accordance with the missions contained in their statutes and strategic directions set by their governing councils. Universities have sought to establish a close link between their first and second missions of teaching and research with their 'third mission' of industry and community engagement.

The *Guide* also makes mention of a need for 'boundary spanners', people 'endowed with an interdisciplinary knowledge or experience of interaction with several different types of organisations' who can 'facilitate new connections across sectors, foster new conversations between disciplines, and inject novelty into the process'. The *Guide* suggests that this will help to overcome the sectoral and disciplinary silos 'that reproduce old habits and routines, locking regional economies into their traditional paths of development (FORAY et al., 2012).

Boundary spanning activities are identified as technology transfer, knowledge exchange, venture funding, business services, and management consultancy. The Guide notes that '(f)ormal recognition of the boundary spanning role, and its significance for universities, businesses and the regional economy, would do much to promote a skill set that is critically important to the moderation of the RIS3 process, particularly of the entrepreneurial process of discovery, which lies at the heart of the process' (FORAY et al., 2012).

The *Guide* suggests that in order to ensure that all stakeholders own and share the RIS3 strategy, decision-making should be flexible enough to let each participant have a role, and eventually take a lead in specific phases of RIS3 strategy design, according to characteristics, background, and capacities (FORAY et al., 2012). It is the case that Australian universities have tended to take a lead role in regional innovation policy due to the combination of an absence of commitment and policy instability by the national government. (GREEN and HOWARD, 2015a, b; HOWARD, 2015b). However, regional business organisations and networks in many regions are also starting to take a leadership role.

The *Guide* suggests that achieving RIS3 outcomes will require a form of *collective leadership.* (FORAY et al., 2012) which is identified in its political, managerial and intellectual dimensions. However, it does not suggest which form of leadership is the best or the most appropriate, 'because this is a decision that needs to be made at the regional level, where the choice can be informed by local knowledge of competence, credibility and character, the essential attributes of a leader' (FORAY et al., 2012). Nor does The *Guide* offer advice on the decision process for identifying, selecting, and appointing RIS3 leaders.

Leadership in innovation systems has been canvassed in a number of contexts (HENTON et al., 1997; HOWARD PARTNERS, 2008; SAXENIAN, 1996; WALSHOK, 1995), but it is by no means clear how innovation system leadership can be nurtured and implemented. It is apparent, however, that senior executives in universities can have a major role as well as start-up champions, business chambers, and 'grass roots' advocacy organisations, as well as regional and local governments. But that role must be ongoing, committed, inclusive, and supported by the host organisation.

The *Guide* refers to *relational leadership*, which is seen to be 'a dynamic relationship between leaders and the led in which both sides play an active role in finding joint solutions to common problems'. This process is also referred elsewhere in the literature to as *engagement* (GIBBONS, 2003; GODDARD and PUUKA, 2008; JOHNSTON and HOWARD, 2003). The *Guide* also suggests that a way to 'secure understanding and ownership of the main strategic orientations is to allow for effective *collaborative leadership* among the key actors involved in the process' (FORAY et al., 2012). The *Guide* notes:

> In the case of RIS3, collaboration among stakeholders holds the key to successful implementation of innovative practices, implying that leadership has to be shared and exercised across organisations.

Collaborative leadership requires the emergence of collaborative practices, as actors must find ways of managing conflict themselves (FORAY et al., 2012).

The concept of collaborative leadership connects with the notion of *collaborative governance*, defined as 'the processes and structures of public policy decision making and management that engage people constructively across the boundaries of public agencies, levels of government, and/or the public, private and civic spheres in order to carry out a public purpose that could not otherwise be accomplished.' (EMERSON et al., 2012).

According to the OECD, smart specialisation requires a governance and coordination framework to set common goals and draw up regional strategies for the allocation of public funding. It is expected that strategies will be interlinked across institutions by complementary activities at a 'horizontal level and require horizontal policy coordination'. The OECD envisages that these arrangements are

> … co-defined by the 'vertical' alignment of entrepreneurial activity, partnering in clusters, regional development strategy and interregional and international arrangements that are all part of a multi-level governance structure for smart specialisation. Setting common goals therefore constitutes a powerful governance mechanism for the vertical alignment of these strategies, without jeopardising a market-oriented process of resource allocation. The multi-level governance co-ordination requires the synchronisation of both national strategies and regional strategies and the synchronisation of different regional strategies (e.g. innovation strategies, research strategies, industrial strategies) to support regional priorities (OECD, 2013)

The challenges for building this framework in a contemporary public administration environment are immense and frequently understated. The OECD identified many difficulties in developing an efficient coordination of innovation related policies across different ministries and agencies required for innovation strategies in the smart specialisation process.

The EU *Guide* advises, on the basis of a survey of RIS3 strategies, that 'local diversity can exist within a generic governance system' involving three elements: Steering Group, Management Team and Working Groups. This is outlined below.

RIS3 Generic Governance System

Steering Group: responsible for the overall performance of the project, normally including members of the business community, local and regional government, and key innovation actors. An appropriate balance was a membership of around fifteen people meeting as a group every two or three months. The main tasks would typically include: setting objectives and monitoring activities, selecting the members of the Management Team, supervising the work programme, political and institutional support, and liaising with the European Commission. The chair of the SG was invariably a local notable drawn from the business community, academia or the public sector.

Management Team: responsible for implementing the RIS project under the general guidance of the SG. The composition of the MT has varied between the regions, though all regions had a Project Manager who was supported by a small team of up to three people. The main tasks of the MT often included: liaising with the EC and providing progress reports, providing a secretariat to the SG, launching and coordinating the study assessment tasks of the project, and fostering regional consensus around the project, acting as a focal point for networking with other RIS regions to draw on their experiences. Choosing the location of the MT was an important decision because how the project was perceived was largely a function of where it was physically situated.

Working Groups: the WG mechanism helped to build regional consensus for the RIS project throughout the region and it provided a means to engage the business community, especially if the Working Groups were sector-based. Where they were most effective, Working Groups had clearly defined terms of reference and a credible timetable for the delivery of results. The conclusions of the Working Groups were supposed to inform the strategic discussions in the Steering Group.

Foray D., Goddard J., Beldarrain X. G., Landabaso M., McCann P., Morgan K., Nauwelaers C. and Ortega-Argiles R. (2012) *Guide to research and innovation: strategies for smart specialisation*. European Commission, Brussels.

The governance framework outlined above implies a relatively loose, or *networked governance structure* around a collaboration imperative. However, the extent to which this governance arrangement can be extended to handle a greater complexity in strategic direction, resource allocation, project management, and accountability for outcomes is a significant matter for consideration. More resources and more participants may demand a more formalised and documented approach. This is particularly the case if the governance system is expected to take responsibility for the *implementation and delivery* of strategy.

The *Guide* notes that 'getting firms, universities, development agencies and regional governments to accept that innovation is a collective social endeavour is arguably the most important ingredient in the 'recipe' for purposeful entrepreneurial search'. It follows that the costs and risks associated with entrepreneurial search should be shared and do not become too prohibitive for firms that are leading the search process (FORAY et al., 2012).

The *Guide* suggests, somewhat aspirationally, that

> '(T)to tap the potential of related variety, regional authorities and development agencies will need to behave less like traditional public bureaucracies and more like innovation 'animateurs'[1], brokering new connections and conversations in the regional economy. New opportunities are emerging in old regions as a result of connections and conversations that are now occurring but which never occurred in the past despite the parties being co-located in the same region (proving that cognitive proximity is far more important than mere physical proximity) (FORAY et al., 2012).

The approach to governance outlined in the Guide has a number of shortcomings. In particular, establishing the groundwork for public organisations to behave less like traditional bureaucracies and more as innovation advocates, could be a major problem for RIS3 planning, implementation and delivery.

Moreover, translating new regional connections and conversations into action can be a major challenge, especially for large public organisations. National and State (provincial) organisations with a regional presence tend to function, largely for control purposes, in rigid organisational structures defined by mission and function, with very tight budgetary and resource constraints, and a rules driven system of delegated decision responsibility.

It is often the case that narratives about collaboration in innovation systems have a strong prescriptive orientation, about what *should* happen, but abstracts from institutional realities and rigidities. *Networked governance* is almost a default position. But such structures have major governance challenges (GOLDSMITH and EGGERS, 2004), particularly in relation to designation of responsibility and accountability where there are complex tasks and significant resources involved.

Horizontal synchronisation of strategies across regional participants may be elusive unless there is significant, local autonomy, additional external funding for RIS3 activities, and substantial devolution of decision making responsibility. These constraints may be addressed by more formalised governance structures that clarify responsibilities and accountabilities for planning, budgeting, and control over resources. Other governance structures are represented in *associations, strategic alliances*, and *incorporated joint venture organisations*. This will be addressed later in the Paper.

In a 2000 study, it was concluded that regional innovation requires a 'package of innovation measures covering finance, management and workforce training, marketing training, and competitiveness advice' and there must be 'at its core strong university-industry innovation networking programmes'. (COOKE et al., 2000). These programmes inevitably require strong governance arrangements that clearly articulate responsibilities, accountabilities, and expected results, particularly if public funding is involved.

The challenge of institutional capacity, governance, and governance options, is not well addressed in the smart specialisation literature. It tends to have an academic and somewhat utopian understanding of networks and collaboration, and limited understanding of the practical aspects of financial management and resource allocation decision making in joint action. Smart specialisation is 'a challenging approach to implement because it requires high levels of cooperation between different types of institutions at various geographic levels' (EDWARDS et al., 2015). In particular:

> The integration of different perspectives and interests, including government departments, private firms, researchers or civil society at large is therefore at the heart of smart specialisation. This process can be described as building institutional capacity. It is a crucial pre-requisite for the successful implementation of smart specialisation strategies. However, recognising the importance of institutions is one thing, and another is changing their behaviour (Rodríguez-Pose, 2013). As with the place based dimension to selecting priorities, strategies must take into account the specific nature of regional institutions and not attempt to replicate governance systems in different institutional contexts. (EDWARDS et al., 2015)

Research undertaken by the European Policies Research Centre indicates that institutional capacity 'is crucial for successfully enduring leadership, partnership and prioritisation' in RIS3 initiatives, and 'in order to build and enhance capacity, regions use specialist bodies to deliver complex instruments and initiatives' and while some have introduced learning mechanisms 'there is surprisingly little focus on capacity development, which is absent from most strategic documents' (CHARLES et al., 2012).

Empirical research undertaken by the London School of Economics and EU Joint Research Centre indicates that there is a positive and strongly significant impact of the regional quality of government on the capacity to achieve higher levels of innovation and that 'good quality government institutions may be considered as an essential prerequisite for effective innovation strategies in Europe'' (RODRIGUEZ-POSE et al., 2014). The research concludes:

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[1] A person who enlivens or encourages something, especially a promoter of artistic projects

> The novel approach to innovation policy represented by Smart Specialisation – which requires the adaptation of policies and strategies to local contexts – is even more dependent on the quality of the local institutional framework than past top down innovation policies. The RIS3 logic is by definition more ambitious and more complex than the one-size-fits-all intervention. It assigns an important role in the policy-making process to regional actors and puts them at the very heart of the strategy design and implementation process. … Local and regional authorities become key players in the promotion of the interactive collaboration between all relevant regional stakeholders for the collective identification of key innovation assets and long-term strategic priorities (RODRIGUEZ-POSE et al., 2014).

The research identifies a number of relevant implications for the definition of an ideal institutional environment for Smart Specialisation and subsequent public policy action.

> First, they confirm the central role of an effective regional government in the whole process, coordinating and monitoring the advancement of the policy action plan and stimulating the participation of all regional innovation agents in a concerted effort. In order to develop the necessary collaborative leadership skills, public sector bodies with scarce experience in promoting collective strategies should encourage formal action learning programmes of the kind of the Place-Based Leadership Programme suggested in the European Commission's RIS3 guide (RODRIGUEZ-POSE et al., 2014)

In the absence of a regional government, the experience of the Hunter Region draws attention to the complexities of regional governance, and the interplay of the regional initiatives of research organisations and universities, State Government organisations, Local Governments, and the contribution of regional business organisations and networks. The Hunter Region also draws attention to options for an *evolutionary approach* to governance as commitments, confidence, and resources for RIS3 are extended.

RDA Hunter has provided an important facilitatory role in designing a RIS3, but implementation will require a stronger and more integrated regional governance structure the underlying objectives of smart specialisation are to be achieved. A genuinely whole-of-region governance structure must be in a position to deliver and implement programs and projects.

Challenges for regional economic development in Australia

Australia has a federal system of government, and three identified 'spheres' – national (referred to as Australian, Commonwealth, or Federal), State (provincial), and local. There are multiple and often conflicting policies and programs across most spheres of government endeavour. At the regional level these tend to interact in a largely haphazard way which sub-optimises regional development opportunities.

The critical question for this paper is the extent to which the RIS3 approach can assist in bringing this regional development effort together and the scope for developing a governance framework that delivers implementation, responsibility and accountability.

▪ **What is a region?**

Regions have been identified and defined by the Commonwealth and State governments for statistical, administrative, and service delivery purposes. They tend to be described by aggregations of local government areas (LGAs), established by State Governments under local government statutes.

Most LGAs have an elected *general purpose* local council with responsibilities for making regulations and delivery of a range of land use and municipal type functions. Some have taken on an economic development role. Their principal sources of revenue are property taxes (rates). There are wide variations in how local government councils approach these roles, which can be a source of frustration for business and the community. Decisions taken by councils can be overturned by a State Minister or by a State Land and Environment Court.

Local governments also receive specific purpose payments from other governments to carry out functions in areas such as road construction and maintenance, aged care, and disability services. But they quite often have to compete with other locally established NGOs and private companies to access these funds. Local governments are reluctant to subsidise these functions from property rate income.

State Governments have created regional service delivery organisations, covering a grouping of LGAs, in specific *functional* areas such as regional water supply, health and hospital services, public vocational education, urban planning and development[2], local land services and natural resource management,

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[2] For example, the Hunter Development Corporation and The Hunter Infrastructure Investment Fund

and rural lands protection. These bodies are regularly restructured, realigned, abolished, and replaced. There is little consistency in the scope of regional coverage.

Many Commonwealth and State Government agencies have regional organisation structures, with regional mangers located in cities that are considered to provide a regional administrative and service base. Regional coverage may be defined by LGA, or postcode. These organisations employ local staff and develop plans and budgets in areas such as income security and community services, school education, primary industries, police and emergency services, administration of justice, transport, planning, postal services, maritime services, fisheries, industry and economic development, and enterprise development services.

Many of these government organisations have been pulling back on their regional commitment, with significant impacts on regional economies. For example, there is growing concern as the national postal service, once organised on a State and regional basis, cuts back on regional mail delivery and the aggregation of sorting and distribution centres (HOWARD, 2015a).

With the absence of concordance in the definition of regions within and between governments and public organisations, any semblance of regional governance is largely absent. Only the Australian Capital Territory can claim to have an integrated regional governance framework – although it has strong economic and social connections with what has been termed the 'capital region' in the State of NSW.

This regional discordance helps keep political power in State capitals and with State Ministers. Metropolitan and regional governance has never been favoured by State Governments in Australia. Every now and again, there are calls from business and public commentators for introduction of a system of regional governance and abolition of the States. This is unlikely as the existence of State Governments is enshrined in the Australian Constitution, which would be impossible to change.

▪ Business approaches to regional delivery

In the private sector, national business organisations may also have organisation structures with a regional administration and service delivery focus. In particular, corporations providing infrastructure, financial, and professional services like to have a regional presence, although the extent of devolved decision making authority varies. They tend to go through phases of centralisation and regional devolution – keen to capture economies of scale but retain connections with local businesses. The extent of devolution has implications for private sector commitment in the development of regional plans.

At the other end of the spectrum, Chambers of Commerce, often established on a local and even suburban basis, are now looking to increase their influence in National and State government policy through amalgamation into regional chambers. Nonetheless, there is a high degree of 'layering' of business representation within regions that works against effective messaging of regional development issues. It follows that there is a high level of 'noise' in the system, and business often finds it difficult to speak with one voice from a regional perspective.

▪ Universities and regions

Australia has 39 public universities and with the exception of the Australian National University, are established by State/Territory legislation. They all operate with a high level of autonomy, and government nominees rarely have a majority on governing Councils. Universities have the power to make regulations (statutes) that have the force of law, that can only be overturned by a motion of disallowance by a State/Territory Parliament. Governments and Ministers have little power to direct a university, except through conditions attached to grants of financial assistance.

Twelve universities are based in regional locations. These universities have tended to increase their alignment and connections with the regional areas in which they are located. However, they still maintain a strong global focus in research and like their metropolitan counterparts, look to maximise their international rankings. At the same time, many of the metropolitan universities have established regional presence as a way of increasing enrolments in an increasingly competitive funding environment.

Technical, vocational education and training is delivered by both public and private sector institutions. State Governments have developed regional structures for their Institutes of technical and further

education (TAFE). TAFE institutes, which are strongly 'industry facing', tend to develop close linkages in their regions.

This multiplicity of regional institutions and organisational structures creates major challenges for regional planning, economic development, and securing an efficient and effective allocation of resources to achieve innovation, industry development and employment outcomes. It also creates challenges for governance in regional innovation systems. As indicated earlier in the Paper, the RIS3 approach may be able to assist in this area.

The Hunter economic and social profile

The Hunter region covers 11 LGAs amounting to of 29,000 sq. km and a population of over 650,000. The regional centre, Newcastle, is 160 kms from Sydney with a travel time of two hours by road, and three and a half hours by train. A high speed rail service has been on the political agenda for many years. There is a regional airport that links Sydney, Melbourne, Brisbane, and regional centres.

The Hunter has a traditional industrial base that is constituted primarily by mining (22.3% of the Gross Regional Product of $A38.46 billion), manufacturing (11.7%), health care and social assistance (7.7%), finance and insurance services (6.5%) and construction (6.0%). It is one of Australia's largest regional economies. It is also well known for the production and processing of fine wines which are exported globally.

Currently, most of the employment in the Hunter is in health care (13.7% of employment), retail trade (11.5%), manufacturing (10.4%), education and training (8.1%), and accommodation and food services (7.6%). Up until 1999, Newcastle had been known as an industrial steel making city.

With the closure of the BHP steel works in 1999, the pattern of investment and job creation has been shifting to a broader industrial base. This change will continue as national and international economic forces disrupt patterns of production, trade, and commerce. However, manufacturing employment is still currently above the Australian average.

The closure of the steel works coincided with the emergence of a boom in coal mining stemming from demand in China, Japan and other Asian nations. However, while mining currently generates almost a quarter of regional production, it generates only five per cent of Hunter jobs. The demand for coal is receding as countries look for renewable energy sources. However, a strong capability in mining and energy technology and services has been developed, and there is a growing commitment to research and development in this area.

The Hunter is also a defence-oriented region with the location of the Williamtown Airforce base, the Air Combat Group, the Surveillance and Response Group (SRG), an Army School of Infantry (SOI), and the Special Forces Training Centre (SFTC). From 2018 Williamtown will be the home for the newly acquired Joint Strike Fighter, a $A17.8 billion acquisition.

The 2015 *Hunter Investment Prospectus,* prepared by RDA Hunter, identified new and emerging industrial strengths in aerospace, agribusiness, biotechnology, information and communication technologies, equine, film and television, tourism, and wine (RDA HUNTER, 2015a).

Research, education and training infrastructure

Research, education and training makes a major contribution to the Hunter industrial base. This industry has an international focus and export orientation. Education and research is an enabler for development and growth in a range of other industries. The University of Newcastle, the principal university in the region, is also one of the Hunter's largest businesses. It has a student population of 35,500, including 6,000 international students from over 100 countries.

In 2014 the University employed over 3,000 staff and an annual operating budget of $A626m. Expenditure on employee benefits and on-costs amount to $A364m, an increase of 50.7 per cent since 2008 when the student 'demand driven' funding system was introduced. This expenditure tends to flow directly into the economy. During 2014 the University spent $A93m on property, plant and equipment assets, which has provided a major stimulus for the building and construction industry. The University's asset base stood at $A1.2 billion in 2014, an increase of 60 per cent since 2008.

The University of Newcastle is also one of Australia's leading research universities. The University has a very strong STEM and Medical profile, and in 2012 it was recognised by *Research Excellence Australia* as having internationally recognised strengths (category 5) in the following research fields:

- Statistics
- Condensed matter physics
- Macromolecular, materials, and physical chemistry
- Physical geography and environmental geoscience
- Biochemistry, cell and plant biology, genetics
- Civil, electrical, electronic and resources engineering, extractive metallurgy
- Cardiovascular medicine and haematology, human movement and sports science, immunology, neurosciences, nursing, nutrition and dietetics, oncology, carcinogenesis, paediatrics, reproductive medicine, pharmacology, pharmaceutical sciences, public health and health services
- Cognitive sciences

The University has taken lead role in the industrial transformation of the region from one founded on coal, steel and heavy manufacturing, to a regional and global knowledge hub, a driver of world class innovation and a collaborative partner of change (MCMILLAN, 2014). In September 2015 the University hosted leaders from higher education, industry and government to discuss opportunities and strategies for regional transformation and positioning as a 'university city'. Speakers from Australia and across the world explored global precedents for regional transition and the catalyst role of universities. The university is tapping into knowledge and experience about regional technology clusters emerging from 'rustbelt cities' (AGTMAEL and BAKKER, 2016; DEITRICK and SOSKA, 2005).

The University is in the process of constructing *NeW Space*, a $A95m landmark education precinct in the heart of Newcastle's CBD. It is a significant revitalisation project and will be a resource for the entire University community across different disciplinary and knowledge fields. The concept is designed to be a place that invites the city and the community into the building, the University and onto the city campus through social spaces, connecting pathways and active student learning spaces that are right on the street front[3].

Australia's nationally focussed research organisation, CSIRO, has an energy centre located in Newcastle that hosts its solar field and energy research hub. The University of Newcastle hosts the National Institute for Energy and Resources (NIER) and the Hunter Medical Research Institute (HMRI). Both institutes have a national as well as a regional focus.

The Hunter Research Foundation (HRF) works on the growth and success of the Hunter in partnership with individual research clients. HRF undertakes an economic and social regional research programme and has operated in the Hunter Region for almost 60 years. The HRF supports a range of innovation events and awards.

The Hunter Technical and Further Education (TAFE) Institute is the largest vocational and education provider in NSW, enrolling 60,000 students. It has excellent connections with business, and is highly regarded in the vocational and education training sector. It also collaborates with the University in the delivery of education programs.

With this technology focus it is important that the university, the TAFE institute, and the broader education system are all focussing on the supply of knowledge and technical skills for new growth enterprises, be they start-ups, businesses with high growth potential, or business that could be attracted from other regions or overseas due to lower costs of operation and more affordable housing. This requires a range of policy levers, across Commonwealth and State agencies, to be working in concert. Regional Smart Specialisation Strategies can provide a framework for the activation of those levers.

Business development and innovation

Government support and assistance for business development and innovation in the Hunter is extensive. A search of the Australian Government's business portal (www.gov.au) finds over 130 programs of support and assistance for entrepreneurial business. Programs tend to be categorical, competitive, and submission based. A significant industry has emerged to help businesses write applications for grants under these programs.

There are several business associations and networking organisations in the Hunter pursuing economic development and innovation opportunities for their members. For example, the Hunter Region Office of the Australian Industry Group hosts a *Manufacturing Cluster*, Hunter Business Chamber hosts a

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[3] https://www.newcastle.edu.au/about-uon/our-environments/new-space

Founders Forum, and the Hunter *Business Centre* is not-for-profit Business Enterprise hub supporting micro, small and medium businesses. The Centre delivers a number of Commonwealth and State Government enterprise and business development programs. *HunterNet* is an engineering and manufacturing peak body of over 200 members with a focus on collaboration, innovation, and training services

A *Hunter Defence* network works alongside industry and government to build defence related capacity in the Hunter region. Global prime contractors, including BAE Systems, Thales, Boeing, Lockheed Martin, Northrop Grumman, Raytheon, Forgacs, and Varley are located in the Hunter. There are also many defence capable SMEs, technically capable people and supporting organisations. These businesses create strong demand for STEM qualified employees. Hunter RDA manages a programme to lift STEM participation in schools.

There are also several business newsletters and journals including a weekly *Hunter Headline* and a monthly *Hunter Business Review*.

Each year a committee coordinates a *Hunter Innovation Forum* that aims to inspire innovation in the Hunter. AiGroup facilitates an innovation Network. The Committee for Economic Development Australia (CEDA) Hunter hosts an annual *Newcastle and Hunter Economic Development Forum*.

Newcastle Innovation, the technology transfer arm of the University, was established to connect researchers, industry and investors to facilitate the creation of new products and services. A commitment has been made for the establishment of four *Global Impact Clusters* (GICs) in the areas of energy, resources, food and water (2016), better health, healthcare and treatment (2016), future industries (2017), and strong cities, communities and regions (2017). The University also supports an early stage venture investment fund.

Slingshot is a corporate accelerator programme located in Newcastle that brings start-ups and corporates together to build and grow companies. It supports *Jumpstart*, a mentor-driven programme designed to assist entrepreneurs in the tech space who want to develop a start-up or scale-up with the assistance of an innovative partner and, most important, a big customer base. The programme offers potential to access to $A30,000 in seed funding, a structured 12-week programme, mentors, and workspace at hubs.

In July 2016 the University announced that it had received $A1m from the NSW Government to support the development of an *Integrated Innovation Network* across the Hunter region. The funding is 'to help the University create an enabling environment where researchers, start-ups and SMEs can undertake multi-disciplinary collaboration and produce the next generation of entrepreneurs' (UNIVERSITY OF NEWCASTLE, 2016a).

The new funding will be directed towards the development of four innovation hubs and finance *innovation vouchers* to leverage *Newcastle Innovation* in developing relationships with the local start-up and seed investor community to 'create partner-led projects to complement the innovation spaces'. It provides yet another example of government funding for regional innovation in Australia being channelled through a local university.

The Hunter regional planning and strategic development framework

Responsibility and accountability for regional economic development in the Hunter, like other parts of Australia, is crowded, and petrhaps to the point of being 'overloaded' with multiple state government agencies and authorities having plans, strategies and resource commitments. These include:

- The *Economic Profile*, prepared for the Economic Development Strategy for Regional NSW (NSW TRADE AND INVESTMENT, 2015).
- The *Draft Hunter Regional Plan*, prepared by the Department of Planning and Environment, that provides the land use framework for economic development, (NSW PLANNING AND ENVIRONMENT, 2015a) and the *Draft Plan for Growing Hunter City* (NSW PLANNING AND ENVIRONMENT, 2015b)
- The *Hunter Economic Infrastructure Plan*, prepared by Infrastructure-NSW and RDA Hunter to remove mining-input pinch points, streamline the export supply chain and address issues in mining-impacted communities. (I-NSW, RDA HUNTER, 2013)
- The *Hunter Strategic Infrastructure Plan*, prepared by the Hunter Development Corporation, that aims to provide the strategic infrastructure framework to inform future urban growth of the Hunter Metropolitan Area (HUNTER DEVELOPMENT CORPORATION, 2013)

- *Hunter Regional Growth Plan 2016-2019: Economic Development Strategy for the Hunter*, the latest whole-of-region plan produced by RDA Hunter (RDA HUNTER, 2016)
- The *Local Land Services Strategic Plan*, 2016-21, prepared by NSW Land Services, that focuses on assisting primary producers to improve practices for social, economic and environmental outcomes (NSW LOCAL LAND SERVICES, 2016)
- The *Hunter Regional Transport Plan*, prepared by Transport NSW, which covers road, rail and public transport investments (TRANSPORT FOR NSW, 2014)
- The *Hunter New England Local Health District Strategic Plan* (NSW HEALTH, 2014).
- The *Port of Newcastle,* a privately owned corporation, aims to 'promote and support the prosperity of the Hunter Region and New South Wales in a sustainable manner'. The Port is currently developing a 90-hectare site for port related activities for a range of cargo handling infrastructure and for the promotion of trade.
- *Newcastle Airport*, a corporation owned by two of the LGAs, has developed a Master Plan that includes commitments to 'economic prosperity and job creation' and 'ecologically sustainable development'.
- The Department of Primary Industries publishes an *Upper Hunter Agricultural profile* that identifies important agricultural resources, critical features of region's leading agricultural industries, their potential development and related land use planning issues (NSW DEPARTMENT OF PRIMARY INDUSTRIES, 2013)

The University of Newcastle has prepared the *NeW Futures Strategic Plan 2016-2025,* which aims to deliver economic impact through commercialisation of new knowledge and job creation as a result of contributions to business improvement, entrepreneurship, the creation of start-ups and new businesses, and the supply of industry ready graduates (UNIVERSITY OF NEWCASTLE, 2016b).

University of Newcastle NeW Futures Strategic Plan - Driving Global and Regional Impact

We work with partners across the world to build equitable prosperity, social cohesion and healthy communities. We engage with business, industry and government to deliver innovation and impact. We exploit new knowledge to create start-ups, new businesses and new jobs across our regions.

Goals

1. We will be recognised as a lead university for research engagement and for staff mobility between UON and business, industry, government and community organisations.

2. UON will deliver economic impact through commercialisation of new knowledge and job creation as a result of contributions to business improvement, entrepreneurship, the creation of start-ups and new businesses, and the supply of industry ready graduates.

Lead strategies

1. *Delivering impact*: We will establish at least five UON Global Impact Clusters to address global challenges built on the base of our research concentrations and working across discipline and national boundaries. These GICs will ensure excellence and discovery, drive innovation, business development, commercialisation and impact.

2. *The UON Innovation Hub*: UON staff and students will engage in creative, social and technological innovation and entrepreneurship and be supported to work with partners to create start-ups and new businesses across our regions.

3. *UON Business and Industry Connect*: We will work with industry and business partners to support Associate, Fellow and Professorial appointments who will provide expertise from business and industry and we will support our academics to gain experience working in industry and business. Our Business and Industry Connect strategy will be supported by physical and digital strategies including the integration and collocation of industry and business with academic partners.

4. *The UON Engaged PhD*: Our doctoral training programme will include supervisors from academia, business and industry and will broaden graduate knowledge, skills and attributes; improve the employability of doctoral graduates and facilitate the translation and commercialisation of research outcomes. We will establish a number of Industry Doctoral Training Centres with partner organisations to build capacity in areas of national and global relevance and impact.

Key measures of success 2020

UON will have a measurable increased economic, cultural and social impact in our region built on new jobs created as a result of new knowledge, innovation and commercial outcomes leading to business improvement, the creation of start-ups and attraction of new businesses to our regions.

We will be in the top 5 universities in Australia for engagement with, and support from, industry, business, international partners and the community

UNIVERSITY OF NEWCASTLE (2016) NeW Futures Strategic Plan 2016-2025. University of Newcastle, Newcastle.
https://www.newcastle.edu.au/__data/assets/pdf_file/0005/225680/2015-1050-NeW-Futures-A4Program_06_Print_WEB.pdf

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The Hunter TAFE also has a *Strategic Plan* (HUNTER TAFE, 2014). This will be superseded with the reorganisation of TAFE NSW currently underway.

Within the Region, most of the LGAs have their own economic development strategies. For example, Newcastle City Council has an *Economic Development Strategy* (NEWCASTLE CITY COUNCIL, 2016), Port Stephens Council has an *Economic Development Plan*, prepared in 2007, but still seems to be current (PORT STEPHENS COUNCIL, 2007), Lake Macquarie Council has a *Lifestyle 2030 Strategy* (LAKE MACQUARIE COUNCIL, 2013), Cessnock City Council has an *Economic Development*

Strategy (CESSNOCK CITY COUNCIL, 2014) as does Singleton Council (SINGLETON COUNCIL and STRATEGIC ECONOMIC SOLUTIONS, 2015).

These plans tend to be quite lengthy documents and bear little relationship to each other, although they do play up subregional distinctiveness and priorities. Several Councils have independently developed digital or smart city strategies. But to the outside observer, the regional planning and resource allocation framework appears chaotic. *There is lot of paper, highly saturated colour photographs, hi-key images, websites, organisational structures - but not much coherence.*

There is a formal grouping of the 11 LGAs into an association of regional councils, *Hunter Councils.* The Group collaborates in the areas of biodiversity conservation, climate change, environmental compliance (under the Hunter and Central Coast Regional Environmental Management Strategy), training, procurement, records storage, consultancy and legal services.

The NSW Government is proposing to introduce another administrative layer with its formation of pilot Joint Organisations of Councils, with responsibility for regional strategic planning and priority setting, intergovernmental collaboration, and regional leadership and advocacy. (NSW OFFICE OF LOCAL GOVERNMENT, 2016).

The NSW Proposed Joint Organisation (JO) model: Principles

JOs should:

- have legal status
- be enabled through the Local Government Act and recognised in other relevant law s
- be ow ned by, and accountable to, member councils rather than be a 'fourth tier' of government
- not impose significant red tape, cost or risks and ensure benefits outw eigh costs and risks
- embed collaborative relationships betw een local government and the State Government, as w ell as a w ide range of other stakeholders and partners
- have a consistent core model w ith flexible elements
- protect entitlements for council staff through the Local Government (State) Aw ard
- enable significant projects and initiatives, and associated funding and assets, to be managed regionally
- ensure good governance
- serve the best interests of the region and its communities.

Core functions

- Regional strategic planning and priority setting
- Intergovernmental collaboration
- Regional leadership and advocacy.

Optional functions

- Optional functions w ill be enabled, but not defined, by the legislation. These may include regional service delivery or capacity building activities. JOs should determine the best vehicle to undertake optional functions.

A new entity

- JOs w ill be bodies corporate established by proclamation under the Local Government Act. The proclamations w ill designate JO regions. All general purpose councils w ithin each designated region must be a member of the JO.

It is understood that Joint Organisations will come into being in two years. There is potential for them to be a vehicle for collaboration and coordination of State Government activity at the regional level. However, there is no provision for involvement of Commonwealth Government activity at the regional level. Although the Joint Organisations have a regional strategic planning and priority setting remit, there is no specific responsibility for regional innovation and smart specialisation strategies (RIS3) or initiatives at the regional ecosystem level.

This patchwork of planning and resource allocation to infrastructure in the Hunter Region, for a population of 650,000, together with the associated cost, and the potential for sub-optimisation of outcomes, signals a need for a more integrated approach to regional strategic planning and resource allocation for economic and social development. In particular, State and national organisations with regional development roles might want to be assured that regional investments will deliver maximum value *for a region* rather than supporting the budgets and plans of more targeted local entities.

The Regional Development Australia initiative may provide a starting point for progress in this direction through a role in the development of regional innovation smart specialisation strategies. That role might involve the development of closer collaborations with tertiary education institutions, business groups and government agencies. However, responsibility and accountability for implementation and delivery of strategies raises another set of issues. These are addressed in the remainder of the Paper.

The Regional Development Australia (RDA) initiative

There has been a view that Australia is over-governed, with three tiers of government and a high level of duplication and overlap in roles, responsibilities and service delivery (AUSTRALIA. NATIONAL COMMISSION OF AUDIT, 2013). This problem has played out in urban and regional development policy for the last 45 years. In 1972 the then Commonwealth Government (Liberal-National Party) established the National Urban and Regional Development Authority (NURDA) to address urban and regional development policy. In introducing the legislation for the Authority, the Prime Minister, Rt Hon William McMahon, commented:

> The Government believes that unless we embark on a vigorous, imaginative and responsible programme of urban and regional development, in partnership with the States, our efforts to secure a better quality of life for the Australian community through a wide variety of existing programmes will be compromised (PRIME MINISTER, 1972).

The Authority became the Cities Commission on the change of Government in late 1972, and was subsequently absorbed into the newly established Department of Urban and Regional Development (DURD). DURD led the formation of five regional growth centres under legislation, and with significant resourcing. In 1975, following a change of government, DURD became the Department of Environment, Housing and Community Development and largely reversed the initiatives started in 1972. Regional development was considered by the new Government as being a matter for the States.

With the re-election of the Labor Government in 1983, the subsequent formation of the Liberal-National Government (1996-2007), and another Labor Government (2007-2013) there has been an ongoing start-stop approach to regional policy (KELLY et al., 2009). Over the period the problems of regional coordination within and between governments became increasingly apparent. Different departments and agencies defined regions differently and had differing approaches to regional funding and resource allocation.

In an endeavour to achieve greater regional coordination and collaboration, in 2008 the Commonwealth and State Governments defined 55 regional aggregations under the Regional Development Australia (RDA) initiative. In NSW the initiative combined State Regional Development Boards and Commonwealth Area Consultative Committees established in 2005. The formation of the RDA system could be seen as a way of cutting through the complexity in regional governance.

Each RDA Committee has a membership nominated by Commonwealth and State Governments to act as 'the regional development voice of their communities'. In particular, Committees are expected to:

- consult and engage with communities
- promote and participate in regional programs and initiatives
- provide information and advice on their region to all levels of government
- support informed regional planning.

RDA Committees can include people with knowledge, skills and experience in local government, tertiary education, business, professional services, and NGOs. Committees are not, however, representative organisations. Their charters reflect, in large measure, the network governance model envisaged in the RIS3 Guide, outlined on page 5.

Each RDA Committee is expected to develop a Regional Plan which outlines priorities for the region and guides them in strengthening their communities. The level of commitment to each RDA varies across regions, as does the commitment to innovation and broad economic outcomes. But with multiple stakeholders, the networked governance framework creates a major challenge for effective planning and resource allocation.

The Hunter RDA has taken the RDA initiative a step further with commitment to the RIS3 approach in August 2015.

The Hunter RDA approach to smart specialisation

RDA Hunter has identified innovation, investment and infrastructure as essential strategic areas for the economic development of the region. The RDA has a track record of commitment to innovation through initiatives including the Hunter Innovation Scorecard, Hunter Innovation Festivals, the ME Program and the Business Innovation Hub

RDA Hunter has been focussed on identifying new sources of growth and productivity in a post-mining boom economy. It argues that this is not necessarily a matter of finding alternatives, but building on the

strong mining, energy, and agriculture base and its achievements in medical research. It is also cognisant that advances in digital and other enabling technologies in mining, energy and agriculture are becoming increasingly 'high tech' and service oriented including general purpose technologies (GPTs) and information and communication technologies (ICTs).

RDA Hunter also recognises that it must be able to respond to and capture the opportunities of changing patterns of international trade, the closer economic ties with China, India and the Middle East, as well as the challenges from climate change, urbanisation, and securing a sustainable energy future.

It is within this context that RDA Hunter is applying the RIS3 framework as a catalyst for new activities to strengthen the economic development of the region. The framework is seen to help define competitive advantages and establish priorities for investment and research that maximise distinctiveness through *innovation and collaboration*. RDA Hunter is the first region in Australia to apply the RIS3 framework.

RIS3 for the Hunter has the principal aim to boost regional competitiveness for economic growth and job creation. It set out to:

- Inform policy to ensure effective and efficient spending of research and innovation funds.
- Identify regional priorities based on current strengths and comparative advantages that support high value-add activities and offer the best chances for strengthening competitiveness.
- Recommend potential areas for future comparative and competitive advantages, entrepreneurship and growth.
- Encourage partnerships (locally and beyond the Hunter) in governance, project delivery, monitoring and evaluation.
- Support productive research and innovation activities for smart, sustainable and inclusive growth of the Region.

The Strategy was developed by following the EU six-step guidance for the design, drafting, and implementation of a smart specialisation strategy. This involved:

1. Analysis of the regional context and potential for innovation through: a stock take of *regional assets*, including public and private research and development capability, education and training institutions; *regional strengths*, competitive position, and distinctive capabilities (in relation to other regions in NSW and Australia); and the *entrepreneurial environment* – the firms, individuals and organisations with entrepreneurial capability, and which have the greatest potential for future development and that are likely to be ready for expansion and growth
2. Consideration of options for a governance framework that would ensure that all stakeholders own and share the strategy will be explored. The relative strengths of networks, associations, alliances, and corporate models will be investigated. This aspect of the approach is problematic, for reasons outlined above, and forms the essential subject matter of the remainder of this Paper.
3. Preparation of a shared vision about the future of the Hunter region, drawing together analytical material (see Step I above) to depict a comprehensive scenario, or set of scenarios, of the regional economy and business environment comprehended by all stakeholders. Development of the vision was undertaken through a series of consultations and a forum attended by regional leaders on 16 December 2015
4. Selection of priorities for regional development combined a top-down process of identification of broad objectives aligned with State and national science, industry, and innovation policies, and bottom-up process of emerging regional capabilities for smart specialisation, potential areas for experimentation, and future development. These priorities were identified as areas where the Hunter can realistically expect to excel
5. Establishment of suitable policy mixes through a detailed action plan, with provision for inclusion of specific pilot projects.
6. Integration of monitoring and evaluation mechanisms covering a comprehensive set of output and results indicators and establish baselines for the result indicators and target values for all of them. This work is still in progress, and it relates to progress in Step 2 above.

The Strategy was launched by the Prime Minister of Australia on 16 March 2016 at an event in Parliament House attended by the Minister for Regional Development, local Members of Parliament, Regional leaders and Ambassadors from the EU and Germany.

The appeal of the RIS3 approach is that it recognises an absence of perfect information, different stages of advancement of a given activity, and the relative risks for policy. It also takes an exploratory approach

in which public decision makers participate through networks and collaboration. But there is a question whether this will be enough to secure implementation and delivery of the Strategy.

Included below is a 'map' that identifies priority growth areas and summary of strategic actions. A complete list of 13 strategic actions is included in the Attachment.

FIGURE 1: HUNTER RIS3 - PRIORITY GROWTH AREAS AND SUMMARY OF STRATEGIC ACTIONS

Strategic Actions	Priority Growth Areas						
	Advanced Manufact-uring	Creative Industries	Defence	Food and Agribusiness	Mining Equipment, Technology and Services	Medical Technologies and Pharma-ceuticals	Oil, Gas and Energy Resources
Inclusive Leadership	High importance	Moderate Importance	High importance	High importance	High importance	High importance	High importance
Encourage Entrepreneurship	High importance	High importance	Moderate Importance	High importance	Important	Important	Moderate Importance
Develop Skills for Innovation	High importance	High importance	Important	High importance	High importance	Important	High importance
Coordinate Polices and Regional Programs	High importance	High importance	Important	High importance	Moderate Importance	High importance	High importance
Establish a Hunter Regional Initiatives Fund	High importance	High importance	Moderate Importance	High importance	Moderate Importance	Important	Important
Communicate the Strategy	High importance	High importance	Important	High importance	High importance	High importance	High importance

The first strategic action, under Inclusive Leadership, is the formation of a *Hunter Regional Innovation Network* as the vehicle for linking businesses and entrepreneurs to services, facilities, and stakeholders to accelerate their innovation and growth, thereby maximising wealth creation in the Hunter Region. The initiative envisaged that:

- Hunter RDA would invite education institutions, industry associations, businesses, and individuals in the Hunter to nominate members to the Board of the Network
- Hunter RDA would seek $A1m in annual funding from the Commonwealth and State Governments to facilitate the operation of the Network (RDA HUNTER, 2015b)

The full suite of the strategic action initiatives contained in the strategy is attached.

Since the launch of the Hunter Smart Specialisation Strategy the University of Newcastle launched, on 15 July 2016, an *Integrated Innovation Network* across the Hunter region with $AA1m in funding over two years from the State Government (see above), and the Newcastle City Council and the Lake Macquarie City Council have separately launched *Smart City* Strategies.

Progress in achieving Smart Specialisation objectives

In the six months since the Strategy was completed, it is opportune to look at progress to achieving objectives, the successes and early impacts, the challenges for ongoing implementation, and how those challenges might be addressed.

▪ Objective 1: Concentrating public resources

As outlined earlier in the Paper, there are numerous public sector agencies in the Hunter that prepare and implement budgets and plans largely independently of each other. There appears to be very little coordination within and between Governments and public organisations, particularly in regard to innovation outcomes.

There would be much advantage in a regionally coordinated budget and plan, but there may be insurmountable institutional barriers to achieving this. This would have the advantage of an integrated perspective of public sector demand in the economy with flow-through effects to the supply side in areas such as skills. Progress in this area will require a stronger and more committed governance structure, that fully engages the numerous public organisations in the region. This issue forms the basis of discussion in the next section of the Paper.

Hunter RDA has developed a strategy of securing *additional* public resources from Commonwealth and State agencies and actively lobbying for new investment decisions to be made in the Hunter region. This is very much part of its Charter.

▪ Objective 2: Stimulating private investment

The Hunter RIS3 has engaged many private sector members, and has worked closely with the business innovation networks in the region.

There is still work to be done in inward investment attraction. This would include a more coordinated approach across the many agencies and institutions within the Region.

▪ Objective 3: Builds on regional capabilities, competencies, comparative advantages

On the basis of research, analysis and consultation, the Hunter RIS3 identified the seven sectors referred to above that will be important for the Hunter's future. These build on strong regional capabilities, extending back over many years. These areas of focus were discussed and confirmed as priorities at a RIS3 planning workshop on 16 December 2016.

▪ Objective 4: Foster stakeholder engagement and encourage governance innovation and experimentation

This has been the most challenging aspect of strategy development, due in large part to the complex regional governance arrangements referred to above. But it is perhaps the most important objective as governance sets the framework through which objectives are not only established but also delivered. The S3 initiative could fail unless there is strong stakeholder engagement and effective governance.

- **Objective 5: Is evidence-based and include sound monitoring and evaluation systems**

The Hunter RIS3 was developed on the basis of evidence and monitoring arrangements are being put in place.

The challenge of RIS3 governance innovation in Australia

An objective of engagement suggests that a collaborative form of governance is required. There is an emerging literature on *collaborative* governance and *network* governance as a form of governance innovation. Some of this is reflected in the EU RIS3 Guide referred to earlier in the Paper. See page 3 above.

As indicated earlier (page 11), the Hunter Region, like most regions in Australia, does not have a formal *government* structure. There is a large number of separate and largely autonomous public agencies with responsibilities for various functional aspects of regional planning and resource allocation. There is currently little evidence of real cooperation and collaboration in the preparation and implementation of plans and strategies across agencies. There is actually some evidence of competition between organisations for resources and control over economic development agendas.

The RIS3 Strategy sits across these agency roles with a specific focus on innovation and collaboration in priority areas. But it has limited capacity to coordinate budgets and plans, redirect resources to achieve RIS3 objectives and take a role on implementation and delivery. It has a potential role to be involved in the allocation of *additional* resources from the Commonwealth or State government to achieve innovation and collaboration outcomes. The legitimacy and practicality of this approach may be constrained in a networked governance structure.

A networked governance structure would rely on a great deal of goodwill for each agency to sign onto the RIS3 plan. This has not yet occurred in the Hunter Region. There is little incentive for agencies to collaborate and agree on strategic outcomes. A major incentive for collaboration tends to be the availability of additional resources. This was the case, for example, with the Australian Cooperative Research Centres Programme, where additional Commonwealth resources were regarded as the 'glue' that kept collaborating universities, research organisations, and businesses together (HOWARD PARTNERS, 2003).

There is also the related issue that a collaboration should deliver additional value rather than functioning as a 'honeypot' to capture and deliver resources to the ongoing activities of participating organisations.

These considerations suggest that the RIS3 governance organisation should have an active role not only in developing RIS3, but also in ensuring that implementation and delivery is consistent with the strategy objectives and priorities. The EU approach is that regional organisations must prepare a RIS3 strategy as a basis for EU Cohesion funding.

It follows that if Australian and State Governments wish to build capability for investment in regional innovation systems, and ensure responsibility and accountability for outcomes, participating organisations should have a strong and committed stake in a governance arrangement for both the planning and delivery perspectives. This may require moving beyond network governance to more formal arrangements, involving a some 'business model' innovation.

At this stage of its evolution Hunter RDA is not in a position to take a greater role in regional innovation system governance, although it has had experience and some success with a network approach. It has taken an approach that is inclusive and remains attuned to the different roles, responsibilities and accountabilities of the multiple institutions and organisations that operate in the region. But it does not have the corporate, management and organisational infrastructure, to take on a significant investment management role.

Hunter RDA has delivered a RIS3 that has been endorsed by the Prime Minister and the State Industry Minister, but responsibility and accountability for implementation, resourcing and reporting on performance has not been determined. Several governance options emerge:

- Transforming Hunter RDA into a regional development organisation, supported by the Commonwealth Government
- Assigning responsibility to a newly established Joint Organisation of Councils proposed by the State Government
- Assigning responsibility to an organisation that has a strategic direction that closely parallels the strategic direction of the RIS3.

The governance capability is important for a more active Australian Government role in supporting and investing in regional innovation systems, as foreshadowed in the National Innovation and Science Agenda (AUSTRALIAN GOVERNMENT, 2015) . That is, as levels of resource commitment increase, Ministers, programme funders, and accountability and scrutiny agencies require stronger governance frameworks as a basis for entering into funding agreements and to address responsibility and accountability in resource allocation, and ability to report on performance.

The alternative is to continue with the current patchwork of short term project funding arrangements, for relatively small amounts, from a broad range of Commonwealth and State funding programmes, delivered to multiple recipients with each having their own priorities, plans, and strategies. It supports a culture of grantsmanship mentioned above and sub optimises regional development outcomes. It is possible that one organisation may step forward to take the lead, but that role also has to be supported across the institutional landscape.

The potential for evolution of regional governance in the planning, implementation and delivery of RIS3 is set out in a framework for regional collaboration governance below. This may have application in other regions working with the RIS3 methodology.

A model for regional collaboration governance

Effective collaboration is much more than communicating and sharing knowledge and information as part of an ongoing conversation. Whilst this is an important aspect of collaboration, genuine *effective* collaboration is generally understood to involve a commitment to work together to achieve an agreed purpose or end result.

It follows that collaboration needs a 'structure' just as any biological organism beyond the amoeba needs structure (DRUCKER, 1999). It also follows that in order to achieve tangible results in collaboration some form of organisation and project management structure is required. This raises the important issue about how far the Australian and State Governments might want to go with an integrated approach to investing in regional innovation and economic development.

Formally constituted Regional Development Authorities have 'become ubiquitous as a key institution for delivering regional economic development across Europe, with the notable exception of the position in England' and 'implementation strategies have similarly led to a degree of uniformity across the EU in the landscape of governance, infrastructure and innovation systems' (DANSON and TODEVA, 2016). Funding through the European Development Fund and the European Social Fund have required robust governance institutions.

As indicated above, and to the extent that Regional Innovation Smart Specialisation Strategies form the basis for attracting and project managing external funding, then some form of governance arrangement would be required. It is possible to think of an evolution of structure, having regard to an increasing expectation among participants and resource providers of roles, responsibilities, accountabilities and performance. This evolution starts from networks, through more formalised associations, negotiated strategic alliances, and legally incorporated joint ventures.

This gives rise to a framework of four collaboration governance models, represented in Figure 2 below. The comments in each of the cells are necessarily of a summary nature, but they are intended to convey a broad context.

FIGURE 2: FRAMEWORK FOR COLLABORATION GOVERNANCE

Attribute	Governance structure			
	Network	Association	Strategic Alliance	Incorporated Venture
Basis of governance	Shared interest, informal connections	Collective action, membership	Joint action in deed of agreement	Provisions of the Corporations law
Level of participant commitment	Loose, causal, voluntary	Weak	Strong, committed	Enforceable
Mission	General statements of purpose	Specific statements of purpose	Clear Statement of purpose	Clear statement of objectives, results
Breadth of agenda	Narrow	Specific interests	Focussed	Encompassing strategy
Governing board involvement	Casual	Limited	Strong	Diligent
Decision making processes	Consensual	Representative	Contractual	Corporate, judgemental, expert
Role of Chief Officer/Secretary	Administrator, facilitator	Administrator, adviser, broker	Executive, manager, broker	Executive (decision maker) manager
Role of Finance Officer	Absent, limited funding	Important	Significant	Strong
Focus of operations	Communication, knowledge sharing	Cooperation, consensus	Coordination, alignment	Corporate, integrated
Cost of formation	Minimal Exchange of letters, emails	Low Registration as Not for Profit Association	Moderate May involve contract lawyers and counsel	High Expensive lawyers and accountants
Operating instruments	Informal, consensus	Memoranda of Understanding	Formal agreements and obligations	Incorporation, legislation, deed
Basis of operation	General agreement, good will	Statements of Intent Membership fees	Agreed Business Plan and budget	Legal Entity
Cost of operation	Minimal	Low	Moderate	High
Capacity to deliver large programs/projects	Limited – small specific projects	Moderate – project specific	High – project specific	High – project and programme specific
Accountability to stakeholders	Informal reporting Project acquittal	Formal reporting in financial statements	Formal reporting in financial statements	Formal reporting covered by law
Risk for stakeholders	Minimal	Low	Moderate	High

Source: Developed by John H Howard from Howard Partners' work relating to collaborations.

The collaboration governance models identified in Figure 1 are not indented to be exhaustive or mutually exclusive. The intention is to draw attention to the different ways people and organisations work together. The characteristics of each governance arrangement are relevant to RDA Hunter in the role it has accepted for developing the Strategy and in the evolution of governance arrangements for implementation, execution, and accountability for performance.

▪ **Network**

Networks are informal forms of collaboration that involve the exchange of information of mutual interest, such as through conferences and meetings, formation of 'communities of practice' and knowledge networks. They are generally accommodated within existing organisational responsibilities and accountabilities of participant organisations.

Network members may commit to a strategic initiative, or set of initiatives – but without necessarily pledging resources or supporting a management infrastructure. A 'coordinator', 'facilitator', or project officer, without delegated decision making and resource allocation responsibilities, may be assigned to take a leadership role.

The governance and management model is typically informally constituted in the form of committees and advisory councils. The decision making approach is consensual rather than directive. This is reflected in the Hunter RIS3 framework.

The success of networked collaborations is often measured in terms of participants being able to exchange and test ideas, resolve a problem, and being informed about what others are doing. In extended networks, reference is often made to the *wisdom of crowds*, particularly those enabled by social media (DEEMERTZIS, 2009; SUROWIECKI, 2004). This is largely consistent with the entrepreneurial discovery process in the RIS3 approach.

Significant problems arise when networks are used to manage and implement strategic projects that involve the commitment of significant resources and have clearly defined outcomes and results. Without a commitment to an end result (purpose), an allocation of tasks and responsibilities, and a commitment of resources, network models of collaboration are unlikely to achieve significant results.

Hunter RDA is currently operating as a networked organisation, and there is scope for further development and evolution in developing RIS3. It already delivers a number of projects with very narrow administrative margins, but is constrained in its capacity to deliver larger more resource intensive projects.

- **Association**

An association has an aim to build continuing relationships for interaction around common themes and fields of interest. People and organisations pool their interests, and sometimes resources, to work towards an end result that has only been loosely defined or articulated. The focus may be on working together and directing activities *to achieve a common or collective purpose.*

Commitment to coordination is often reflected in non-binding *Memoranda of Understanding*, or multilateral *Statement of Intent*. It expresses a convergence of will between the parties, indicating envisioned common lines of action. They may sometimes have a very strong 'feel good' quality and are essentially *consensus* documents.

A MoU is often used in cases where parties either do not want to make a legally enforceable commitment or agreement. It is a more formal alternative to a 'gentlemen's agreement', and has less commitment than a strategic alliance or joint venture. It can also be a platform for the articulation of focussed and strategically oriented *projects* that will be expected to deliver tangible outcomes and results. Projects require, at the very least, a commitment to organisation, project management, and an obligation to invest in resources.

MOUs can be vitally important for building relationships, understandings, *and trust* between participants. But the MoU framework cannot be expected, of itself, to deliver project outcomes. Rules of operation need to be generated, and commitments of time, effort and resources by participants is also required.

Achievement in an association model can sometimes be traced to the work of a strong and energetic secretariat and an active and influential chief officer – and a willingness on the part of participants to cede influence to a centralised management unit. This can work where there are high levels of trust and continuity. However, where there is a clear job to be done, or agenda to be pursued, and where 'unity is strength', associations tend to morph into joint ventures that operate on a corporate basis.

The *Hunter Councils* project, referred to on page 13 is an example of an Association Structure in the Hunter Region, as are the proposed Joint Organisations (NSW OFFICE OF LOCAL GOVERNMENT, 2016). But these are aggregations of Local Councils and do not engage with other institutions that are key to implementation and delivery.

- **Strategic alliance**

A strategic alliance is an agreement between two or more parties to pursue a set of agreed upon objectives, while remaining independent organisations. The essential characteristics of a strategic alliance can be summarised as follows:

1. Two or more organisations come together to pursue an agreed upon set of goals, but remaining independent subsequent to the formation of the alliance
2. The collaborating organisations share the benefits of the alliance and control over the performance of assigned tasks – a characteristic that tends to make alliances difficult to manage
3. The collaborating organisations contribute on a continuing basis on one or more key strategic areas: for example, technology, products, and people. (YOSHINO and RANGAN, 1995)

It is the strength of alliance strategies as well as internal processes and collaborator interactions that establish the decisive role in shaping eventual outcomes. At the most straightforward level, a strategic alliance may be formed through agreement and commitment to a *business plan* together with a *budget* that sets out financial obligations.

A strategic alliance may be formalised through a formal contract or deed of agreement that sets out obligations and commitments, including financial contributions. In the research community strategic

alliances are most often reflected in formal research agreements, contained in contracts, particularly where there is significant allocation of funding involved.

A binding agreement relies on the presence of well-defined law of contract elements covering offer and acceptance, consideration, and the intention to be legally bound. In the research environment, creating new deeds of agreement for alliances can be time consuming and expensive. There is often a preference to use standardised procurement contracts.

External funding organisations supporting collaborations generally require a formal agreement. Government funding of research centres of excellence, which operate as strategic alliances, often require nomination of a 'lead' organisation.

Hunter RDA has the potential to *broker* strategic alliance arrangements between businesses in and outside the Hunter Region, and between business and universities. But these organisations may inquire as to the value add of this brokerage arrangement, particularly if there is an overhead involved.

- ▪ **Incorporated venture/government authority**

Collaboration, under this definition, would be covered under formally established corporate arrangements that cover governance, management, and accountability protocols. They may require formation of a corporate entity. They give effect to strategic partnerships between parties where there are significance resource commitments involved, and delivery of outcomes is required.

Separate entities also tend to be established where there is a requirement for independence and autonomy in planning, operations and delivery.

Formally established business-university Cooperative Research Centres (CRCs) are, in effect, strategic partnerships, reflected in the creation of a new corporate identity and supporting agreements. When CRCs were established as non-incorporated joint venture arrangements they ran into problems associated with governance, management, and accountability.

An incorporated model could be developed for RIS3 implementation, but there would be costs involved in establishment and maintenance. It might also simply add to the complexity of regional governance arrangements, unless it had a broader regional development mandate.

Regional Development Authorities were established under legislation in the UK in 1998, and received funding from a number of UK Government Departments. They also had responsibility for administering EU development funds. They were abolished in 2012 and replaced by Local Enterprise Partnerships. Regional Development Authorities are the vehicle for EU regional funding in Europe.

Towards a general collaboration model for RIS3 in RDAs

With a national government looking for increased regional innovation commitment, an effective regional delivery system is required. It would be unfortunate to create yet another layer of public administration to add to the already complex array of organisational forms. This paper has pointed to a large number of participants in regional economic development, but few have a clear mandate to address all aspects connected with innovation, growth and employment creation.

Across Australia, universities are becoming more engaged with their regions and emerging as key players in support of the development of regional innovation ecosystems in the cities and regions where they are located. This is an important element in strategies to recruit, educate, and train 'work ready' graduates, encourage student entrepreneurship, and develop sustainable research partnerships with business. Universities have also become significant developers through investment in buildings, facilities, and services (HOWARD, 2015b). The University of Newcastle provides an exemplar of progress in these areas.

Interactions and relationships are best built around alliances, partnerships and collaborations – where there is a common and shared interest for all parties. They are inevitably built on high levels of trust between parties, which can take many years to develop. The drivers in these relationships are often similar to business-to-business (B2B) alliances.

There are some very large university-business deals being negotiated, principally with international businesses. The pattern of relationships and interactions has moved well beyond a transactional approach of 'buying and selling' knowledge products based on intellectual property rights. Strong intellectual property will, however, be important for a 'seat at the table' in negotiations. But apart from

the CRC model, there are few examples of best practice in university-business collaboration governance.

The more successful universities and business are in building collaborations, partnerships, and alliances, particularly at the regional innovation ecosystem level, the greater will be the benefit to both sectors and the contribution to the national economy in terms of economic growth, exports, employment, and productivity performance. Universities are playing their part by active investment and involvement, and engagement in regional innovation systems.

Universities have also implemented initiatives in relation to seed funds and proof of concept funds, support for incubators and accelerators, and innovation contests. This helps fill a gap created by the absence of a specific government programme of "third stream" funding. There is also strong support for student entrepreneurship and students working with businesses through Work Integrated Learning (WIL) curricula, including internships, practicums, and industry placements, and Capstone initiatives. These measures also work towards giving universities a strong regional engagement focus.

Prior to the adoption of the Smart Specialisation Strategy, Hunter RDA's role was to identify priorities, prospects and projects for government to consider. The Hunter RDA RIS3 initiative takes a programme approach around priorities and actions on a knowledge and technology platform. The extent to which critical partners are ready for the formal collaboration built into the RIS3 approach, and will commit to collaboration in implementation is an important matter for consideration.

An alternative to formation of a new corporate entity for governance of RIS3 would be using an existing corporately structured entity such as a university or research organisation. This would be particularly appropriate where there is only one university in the region, the university has a clear commitment to innovation, and there is a strong culture of engagement and inclusion with other players in the innovation system.

An EU report on the role of universities and research organisations as drivers of smart specialisation (EUROPEAN COMMISSION, 2014) points out that policymakers at the regional level that seek to engage universities and research organisations in RIS3 processes should consider, amongst matters:

> Invest jointly with HEIs and ROs in programmes that support RIS3 strategies and bring wider benefits to regional businesses and community. Such measures may include: Translational research facilities aligned with the needs and opportunities of the region for example addressing the needs of the ageing population with the help of telemedicine and social innovations which can create new opportunities for enterprise; One-stop advisory services for SMEs that pool together the expertise of all HEIs and ROs in the region; Professional development programmes; People-based mobility between HE and industry that transfer knowledge and innovation to SMEs and other organisations (such as Knowledge Transfer Partnerships in England), and Graduate retention and talent attraction policies that are aligned with the regional priorities (EUROPEAN COMMISSION, 2014).

It is of interest that many of these initiatives are being implemented at the University of Newcastle.

A number of obstacles to close university involvement in regional partnerships have been identified. In particular, universities need the freedom to pursue regional goals taking into account the financial, managerial, and administrative capacity. Universities also need to be, at the same time, competitive at the global scale (as shown in the Shanghai and other international rankings) and engage in regional development. Coupling with global, regional and local dimensions simultaneously is still a challenge for many universities and academics (EUROPEAN UNIVERSITIES ASSOCIATION, 2014)

Given the parallel interests of the University of Newcastle and the Hunter RDA in smart specialisation, and the commitments that the University has in hand, there is potential for the University to take a role in implementation and delivery of RIS3 strategies. RDA Hunter would retain a strong role in the development of RIS3 through its broad connections with business, the broad range of government agencies, and Commonwealth and State agencies.

Attachment: Hunter RIS3 Strategic Actions

The Smart Specialisation Strategy identifies 13 strategic actions in seven categories.

Develop inclusive leadership
1. Hunter RDA to facilitate the formation of the *Hunter Innovation Network* as the vehicle for linking businesses and entrepreneurs to services, facilities, and stakeholders to accelerate their innovation and growth, thereby maximising wealth creation in the Hunter Region.
2. Hunter RDA to invite education institutions, industry associations, businesses, and individuals in the Hunter to nominate members to the Board of the Network
3. Hunter RDA to seek $A1m in annual funding from the Commonwealth and State Governments to facilitate the operation of the Network

Encourage entrepreneurship
4. Encourage schools, TAFE and Universities to offer education and training in entrepreneurship as part of their broader course offerings.
5. Establish a profile of courses and programs in entrepreneurship available to students and business leaders in the Hunter region

Develop the skills for innovation
6. Facilitate a partnership between Business and Business Organisations, the University, Hunter TAFE, private RTOs, Schools, and the Community, to develop an integrated skills development programme that meets the requirements of businesses.
7. Engage with education and training organisations outside the region who are in a position to bring high level skills development and training to the region

Support university-business research collaboration
8. Assist businesses identify research projects that might be suitable as a basis for collaboration with the University of Newcastle and other universities with connections to the Hunter
9. Work with the university and TAFE careers offices to identify a broad range of work based learning opportunities for undergraduate and post graduate students

Build the Hunter Innovation Initiatives Fund
10. Scope and develop the framework for a Hunter Regional Initiatives Investment Fund
11. Engage key stakeholders, including financial institutions, business organisations, and the State and Commonwealth Government in the development of the Fund

Further, the Hunter Innovation Network will work with Hunter RDA to:
- Coordinate Commonwealth, State and Local policies and regional programmes
- Communicate the Strategy

Strategic actions for the Hunter Innovation Network in these categories are:
12. Hunter RDA continue to advocate a collaborative approach to policy and programme development across Commonwealth, State and Local Governments with a view to achieving greater consistency, coherence, efficiency and effectiveness in government services delivery
13. Assist Hunter RDA to develop a comprehensive and integrated marketing and communication plan to promote awareness and engage commitment to the Smart Specialisation Strategy

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