Regional innovation systems are a response to the emerging view in the 1990s that national innovation systems were not necessarily successful in addressing the challenge of competitiveness in period of globalisation. Indeed, with the emergence of clusters as a local innovation system much of the emphasis on competitive advantage in innovation was predicated on the existence of regional and local innovation systems. Hence, the relationship saw local innovation systems being the basis for national competitive advantage, a significant shift in emphasis.

In the 21st century governments in most advanced economies were promoting regional innovation and cluster-building policies as ways of boosting national competitiveness.

Enterprises to stay competitive have to restructure their business organisation, including their innovation activities and consumer and supplier relationships. Companies organise their production and innovation processes on a global scale, taking advantage of the specific resources of different territories.

Regions, especially when they have developed clusters and appropriate administrative machinery for supporting innovative enterprise, represent more meaningful communities of economic interest. Regions define genuine flows of economic activities and can take advantage of true linkages and synergies among economic actors. Regions have to seek competitive advantage from mobilising all their assets including institutional and government ones where these exist, or press for them where they do not.

**Concept of a Region**

Four criteria are commonly used:

a. It must not have a determinate size;
b. It is homogeneous in terms of specific criteria;
c. It can be distinguished from bordering areas of a particular kind of association of related features;
d. It possesses some kind of internal cohesion.

The boundaries of regions are not fixed once for all; regions can change, new regions can emerge and old ones can perish. Therefore to analyse a region, criteria must be found that define a functioning unit within a specific time.

_Innovation is Ubiquitous_

Innovations are not exceptional phenomena; on the contrary, they take place at any time in all areas of the economy.

Using a broad definition, it is useful to focus on the process of learning through which knowledge and new technologies are created, distributed and used in specific areas. Learning as defined as a collective process shaped by the existing structure of production, by organisations and by institutions. It is assumed that the characteristics of such a learning system are central to questions of growth, employment and competition. In this context it is useful to distinguish between different processes of learning. First is learning in a narrow sense, by doing and by using. Learning in this sense takes place within the production process; therefore it might be called learning by producing, indicating that basic concepts may be thought of as learning by doing, by using and by interacting in relation to normal production activities.

_The Concept of System_

An innovation system is a social system, which means that innovations are the result of social interaction between economic actors. And it is an open system, which interacts with its environment.

_Regional Science_

Regional science is strongly linked to the notion of ‘new economic geography’. Increasingly the discipline is focused on socio, economic and environmental aspects of competitiveness in regions, particularly the awareness that economic growth and competitiveness of regions depend largely on the capacity of indigenous firms to innovate.

In a regional innovation system there is considerable research interest in the role of support institutions in _knowledge production_ and _innovation_, focusing on a regional
level. These institutions are shown to be crucial in assisting firms to meet knowledge, skills, financial and other needs that markets fail to provide.

One of the features of Regional Innovations Systems (RIS) that can be enhanced by an institutional approach is collective entrepreneurship. Regional governance approaches – implying an institutional approach – can promote cooperative practices amongst actors that may give regions distinctive trajectories in regional economic development.

One of the assumptions of the RIS approach is that many innovative firms operate in regional networks, cooperating and interacting not only with other firms such as suppliers, clients and competitors, but also with research and technology resource organisations, innovation support agencies, venture capital funds, and local and regional government bodies. Innovation is a process that frequently benefits from the proximity of organisations that can trigger this process. Furthermore, regional authorities have an important role to play to support innovation processes by offering services and other mechanisms that augment the interlinkages between all these actors.

Some components of RIS include: collective entrepreneurship, exploitation of social capital advantages where these exist and building networks where they do not, specialist, small-scale enterprise and innovation support systems, regional financing and investment vehicles and labour market adjustment services.

Purpose and Function

In doing so RIS has a capacity to: mount a swift regional response to global competitiveness threats in times of market instability by developing, supporting and promoting regional and local coherence, integration and associativeness among stakeholders, actors and institutions.

RIS promotes the key role of ideas and knowledge as public goods.

INTRODUCTION TO RIS

RIS is seen as a response to three challenges for regional communities:

1. Increased intensity of international competitiveness in a globalising economy;

2. Apparent short-comings of traditional regional development models and policies;
3. The emergence of successful clusters of firms and industries in many regions around the world.

The key argument supporting the emergence of RIS is that: firm-specific competencies and learning processes can lead to regional competitive advantages if they are based on localised capabilities such as specialised resources, skills, institutions and share of common social and cultural values.

The cause and effect relationship between RIS and regional development is one where regional development ensues as competitiveness occurs in places where localised capabilities such as institutional endowment, built structures, knowledge and skills exist. This is in marked contrast to top-down command approaches; ‘picking winners’ or; smoke-stack development or; ‘build it and they will come, approaches’. RIS is essentially endogenous (local) in its focus.

**Definition**

The concept is ubiquitous but usually is understood as a set of interacting private and public interests, formal institutions and other organisations that function according to organisational and institutional arrangements and relationships conducive to the generation, use and dissemination of knowledge.

**Outcome**

This set of actors produce pervasive and systemic effects that encourage firms within the region to develop specific forms of capital that is derived from social relations, norms, values and interaction within the community in order to reinforce regional innovative capability and competitiveness.

The concept of RIS lies in two main bodies of theory and research: innovation and regional science.

**Innovation**

Built on evolutionary theories of economic and technological change, the systems of innovation literature conceptualises innovation as an evolutionary and social process.

Innovation is stimulated and influenced by many actors and factors, both internal and external to the firm.
The social aspect of innovation refers to the potential for collective learning within a firm, even if it may be divided into sectors (R&D, production, marketing, commercialisation) as well as the external collaborations with other firms, knowledge providers, finances and training.

Regional Science

Regional science explains the socio-institutional environment where innovation emerges. From a regional point of view, innovation is localised and a locally embedded, not placeless, process.

The literature on regional science deals both with the role of proximity – the benefits deriving from localisation advantages and spatial concentration, and territorially prevailing sets of rules, conventions and norms through which the process of knowledge creation and dissemination.

RIS is characterised by co-operation in innovation activity between firms and knowledge creating and diffusing organisations, such as universities, training organisations, R&D institutes, technology transfer agencies, and so forth, and the innovation-supportive culture that enables both firms and systems to evolve over time.

RIS has the capacity to promote interactions between different innovative actors that (should) have good reasons to interact, such as interactions between firms and universities or research institutes, or between small start-up firms and larger (customer) firms.

The Region as a locus of Innovation

There is growing empirical evidence that, in many cases, parts of learning process and knowledge are highly localised.

A number of theoretical considerations highlight the linkages between regional development theory and innovation.

Firstly, innovation occurs in an institutional, political and social context. This extends the linear notion of innovation as a technical process. Innovation in this literature is seen as being fundamentally a geographical process where innovation capabilities are being sustained through regional communities that share common knowledge bases.
Innovative activity of firms is based on localised resources such as a specialised labour market and labour force, subcontractor and supplier systems, local learning processes and spillover effects, local traditions for co-operations and entrepreneurial attitude, supporting agencies and organisations and the presence of customers and users.

Secondly, innovation can be thought of as embedded in social relationships. These social relationships develop over time in and along culturally determined lines. The regional context establishes the set of rules, conventions and norms that prescribe behavioural roles and shape expectations. These rules are derived from economic and socio-cultural factors such as routines, shared values, norms and trust that facilitate localised interactions and mutual understanding in the process of transmitting information and exchanging knowledge.

The strength of the local learning system depends greatly on an array of intangible assets. These include the internal dynamic of the regional, socio-cultural and political assets; the flow of knowledge between different parties generating the bulk of territorialisated externalities; and the opportunities for the region to build and keep its distinctive competence.

How a region develops, promotes and establishes a collaborative framework to enhance scale and capacity is a critical issue for regions confronting challenges to their well-being?

The existence of social capital - that is derived from a set of social relations, norms, values and interaction in the region - helps to overcome market failures or reduce market costs for firms in densely related networks, by supporting stable and reciprocal exchange relationships between them.

Thirdly, innovation occurs more readily when geographic concentration and proximity are present, and therefore regional clusters takes a crucial dimension in such processes.

A regional cluster is defined as ‘a group of firms in the same industry, or in closely related industries that are in close geographical proximity to each other is meant to include geographically concentrated industries including so-called ‘industrial districts’' (Enright, 1998: 337). Clusters also include public institutions, including government education institutions, and support services, with cluster boundaries
defined by linkages and complementary ties across institutions and industries (Porter, 1998).

The general argument in relation to clusters is that a local industrial structure with many firms competing in the same industry or collaborating across related industries tends to trigger processes which create not only dynamism and flexibility in general, but also learning and innovation.

One emerging caveat in relation to RIS and clusters in particular is that most of the literature in relation to these emerging regional development policy platforms are derived from studies and research undertaken in successful regions – for example the ITC cluster in the Silicon Valley, California.

RIS approaches are popular because they provide a narrative on the intangible dimension of local economic development and the processes of knowledge circulation and learning at the seemingly more manageable regional scale. A simple rationale for the widespread adoption of this approach is that, from a policy perspective, it is much easier to manage economic policy at a regional level rather than a global scale.

Comparative studies and individual ‘snap-shots’ of regions are the main methodological approach derived from RIS. Comparative studies enhance the view of RIS in different contexts and the differing approaches adopted. The study of individual RIS illustrates the unique characteristics of the institutional context and policy initiatives, and thus the context specificity of each case to lead us to conclude there is no single model to generalise the dynamics of successful regional innovations systems. The critically significant observation again is that RIS, just like regional development approaches, must be endogenous to be effective and useful.

RIS platforms (to be discussed later) is the first attempt to overcome the problem of identifying what an RIS would look like in reality.

*How does one know an RIS if one sees one?*

Again this problem/issue is now being approached through the emphasis on establishing RIS ‘platforms’ but it is significant that the research in this emerging area is being driven by research undertaken that links RIS to ‘production structures’ and its relationship (embedded in) to an ‘institutional structure’. The ‘platform’ for RIS emerges from these two features together with the region, the actors, and the interactions and inter-relations that bind them together.
Institutions and RIS

Context specificity, path dependency, cumulative causation and lock-in are all potentially present in an RIS. Often they can enhance or undermine the RIS. The determination of this outcome can be influenced extensively by the contribution, type and function of regional institutions.

Institutions bring three additional elements to the mix that can be present in an RIS.

First, long term institutional change is path dependent and derived from the regional economy’s specific path toward certain institutions. Second, institutional evolution is shaped by the feedback process by which human beings perceive and react to changes in their environment, through what is referred to as ‘shared mental modes’ (North, 1993). Third, institutional evolution is the product of the symbiotic relationship between institutions and organisations, in a process best described as a continuum and denoted as ‘cause-effect-cause’.

Institutions are a ‘mixed blessing’ in relation to RIS. Institutions are at once persistent, resistant to change, but capable of changing in evolutionary time, and transmitted through various means to consecutive generations to provide a certain degree of continuity, stability, predictability, and security. They can both facilitate and curtail change.

Institutions can be grouped into five types. First, institutions can be ‘associative’ in that they comprise socio-political structures characterised by exclusion, socialisation, controlling conditions of incumbency, and hero worship to express certain values or interests. Associative institutions are reproduced by succeeding generations of power holders to exercise a degree of selectivity. Second, institutions may be ‘behavioural’ in that they are transmitted by various carriers, including symbolic and relational systems, routines and artefacts. They can also be ‘cognitive’ – based on values; ‘regulative’ providing meaning and stability and; ‘constitutive’ – social structures that are resilient with multiple scales of jurisdiction.

RIS AND REGIONAL DEVELOPMENT PLATFORM METHOD (RDPM)

Regional Innovations Systems (RIS) development, promote and support regional knowledge capabilities. Regional knowledge capabilities become structurally embedded by specific institutions that facilitate network interrelationships, supported – in some cases – by complex and sophisticated processes (digital) data
exchanges or rely on tacit knowledge exchange within community, social and enterprise networks.

RIS emerge in response to a critical regional development issue/research question: how to configure a viable environment for stimulating individuals, organisations or regional economies to adopt new practices and continuously innovate?

The answer is to move away from natural or comparative advantage (climate, location, resources) and to *construct* advantage.

The relationship between RIS and constructing advantage for a regional economy is a complex one.

*Constructed Advantage*

Constructed advantage becomes the foundation for the ‘new competitive advantage’ in regions.

Competitive advantage highlights regional development economics, the dynamic of which draws upon constructed advantage. This knowledge-based construction requires interfacing development in various directions:

- **Economy** – regionalisation of economic development; ‘open systems’ inter-firm interactions; integration of knowledge generation and commercialisation; smart infrastructures; strong local and global business networks.

- **Governance** – multi-level governance of associational and stakeholder interests; strong policy-support for innovators; enhanced budgets for research; vision-led policy leadership; global positioning of local assets.

- **Community and Culture** – cosmopolitanism; sustainability; talented human capital; creative cultural environments; social tolerance.

In an adjustment of Cooke’s (2007) foundation work, these three foundations for *constructed advantage* give rise to a *knowledge infrastructure*.

The *knowledge infrastructure* consists of universities, public sector research, intermediary agencies, professional consultancies, all being actively involved as structural puzzle-saving capacities, with commercial and public interest links to the market place – regionally and globally.
Constructed advantage ‘develops’ in regional economies that tend to possess ‘related variety’ in their economic structures.

This knowledge infrastructure is both complex and pertinent to constructing regional advantage. For example it might activate Geographical Information System (GIS) based external knowledge to develop a model of ‘precision farming’ to determine seed and fertilizer requirements in accordance with micro-variations in natural soil humidity and fertility.

In this case, as with the broader application of knowledge infrastructure in constructing advantage, regional advantage accrues from the precision application of supportive inputs designed to optimize efficiency, while effective outcomes accrue from capabilities in rapid development of available technologies and capacity building in relation to knowledge development and diffusion.

Constructed advantage, according to Cooke (2007) is concerned ‘fundamentally with the relational embedding of institutions that assist regions to evolve spatial knowledge domains. These spatial knowledge domains tend to emerge from existing comparative advantage to form localised industrial clusters that specialise in one thing – mining, vegetable production, eco-tourism or aged care enterprise development.

The significance of RIS and its link to constructing advantage is that RIS becomes the ‘missing knowledge “switching” mechanism that enables tacit knowledge to be transformed systematically into codified and commercializable knowledge (Cooke, 2007).

To answer the question: How and Why does this (RIS and constructed advantage) work in regionally economies and their communities requires an examination of the values and ideas attached to the interface of business (markets), government and community with innovation in regional area?

How does constructed advantage work within RIS in regional and rural communities and economies?

The answer lies in the establishment of Regional Development Platform Methods (RDPM) as a tool for regional innovation policy.

RDPM translates the theoretical rhetoric of the benefits of a regional innovation system into a practical and pragmatic tool for delivering real outcomes for regions,
across social and human capital objectives, together with significant enhancement of enterprise opportunities.

REGIONAL DEVELOPMENT PLATFORM METHODS (RDPM)

Background

Cooke’s (2007) mantra in relation to RIS is a simple one: RIS is tricky so first design and build an appropriate policy platform, an RDPM.

Since RIS are defined as loose-actor networks composed on many different actors – firms, institutions, government agencies – particular attention must be given to the relationships in the networks.

How is it possible to create a trusting relationship/atmosphere in the network?

This requires the aspiration of building a common knowledge management system for the innovation network.

This requirement is central to the objective of RDPM: to develop and conceptualise an innovation policy tool for designing and running regional innovation systems in order to increase sustainable regional competitiveness.

The development of the RDPM requires a dynamic view of regional capacity building.

Regional Dynamic Capability

There are a number of factors that determine/shape regional dynamic capability. They include:

- Regions are strongly dependent on history: path dependency is a key factor influencing future trajectories;
- Regional assets and resource configurations need to be assessed;

Five dynamic capabilities are identified as being important in developing regional dynamic capability:

1. Innovative capability;
2. Learning capability;
3. Networking capability;
4. Leadership capability and
5. Visionary capability

Regional innovative capability means the joint innovation capability of the enterprises and other organisations in the region. The key link here is learning.

The ‘learning economy’ is an economy where the ability to learn is decisive for the economic success of individuals, firms, regions and nations. Learning extends beyond the acquisition of knowledge to the development of new areas of competence and new skills (Lundvall and Borras, 1999).

Regional learning capability can be defined as an RIS’s ability to create and manage knowledge in a collective, interactive and cumulative learning process leading to new settings of resources, competencies and skills.

Regional learning capability relies on network capability as a strategic tool. The network is a tool to distribute knowledge and continuous learning from the other actors of the network.

Regional networking capability can be defined as an RIS’s ability to build interactive networks including field-specific creative social capital leading to effective utilisation of the resource configurations in the networks.

Path dependencies can create damaging effects. Path dependency can lead to what are referred to as ‘lock-ins’. ‘Lock-ins’ can prevent the desired development processes. There are three recognised kinds of ‘lock-ins’ in a regional context: functional; cognitive and political (Grabher, 1993). The role of leadership is decisive when preventing ‘lock-ins’.

Leadership capability in a networked regional development environment can be defined as a regional innovation system’s ability to effectuate actions steering the processes and resources of the system in the desired direction and avoiding harmful ‘lock-ins’.

‘Lock-ins’ are a real challenge because the knowledge economy challenge regions – so heavily dependent on their past – to have to continuously make new decisions whilst insecure.

This insecurity can be reduced by using resource-based futures research and visionary capability. Visionary capability refers to an RIS’s ability to outline the
possible potential development trajectories based on the paths travelled and utilizing the opportunities emerging through the changing techno-economic paradigm.

In summary, the competitive advantage of a region greatly depends on its visionary, innovative, learning, networking and leadership processes, shaped by its specific asset position and the paths available to it.

The processes should lead to building regional capabilities, competences and core competences based on regional resources, in order to enhance a sustainable competitive advantage.

*Regional Development Platform Methods (RDPM)*

RDPM has it intellectual roots in Regional Innovation Systems (RIS) and evolutionary economics.

The concept is closely related to a cluster. However RDPM refer to *future clusters* rather than describing present or past clusters.

RDPM can be defined as regional resource configurations based on the past development trajectories but presenting the future potential to produce competitive advantage existing in the defined resource configurations.

The competitive advantage is based on the *business potential* of the actors working for the platform.

A RDPM is often based on an industry, area of expertise or future mega-trend or combination of those. As such, RDPM becomes an *institutional* innovation for an RIS.

An essential part of the method to establish an RDPM is the so-called core process thinking, which is designed to *form* the innovation networks, aiming at exploiting the business potentials existing in regional development platforms.

*Phases of the RDPM*

The RDPM consists of eight phases:

1. Analysis of the changing techno-economic paradigm and/or benchmarking of mega-trend opportunities against enterprise capacity – shared vision and goals – for example innovative business models for the vegetable industry in Tasmania or collaborative age business enterprise in Northern Tasmania;
2. Background study of the industries and areas of expertise in the region – where does the industry currently stand? Statistical data sets, comparative analysis, Situation Report;

3. Establishment of expert panels – tacit knowledge, broad overview of business, basis for interactive visionary scenarios;

4. Assessment of future scenarios – mega-trends, challenges into opportunities – demography, climate change;

5. Definition of potential development platforms – what could work – industry sector combinations; scarcity of regional resources needs to be ‘quantified’ and responded to;

6. Conceptualisation of the RIS – design a process – shared understanding – roles and functions of actors, institutions etc;

7. Search of the core processes of the RIS – consolidate networks and actors; promotion of collective learning around the enterprise opportunities;

8. Definition of knowledge creation and management system: How will the project develop and how will it be managed?

Designing and Using a RDPM: Age Business Enterprise in Northern Tasmania

The key processes (matching 1-8) above in a development and implementation plan would include:

1. Demographic mega-trend established and industrial profile of region identified: key focus on wellbeing market;

2. Expert panel selected: 3 groups

- **Social Actors**: Government agencies, citizens and citizen groups; public financing organisations; trade unions; carer and support organisations; media;

- **Users/Orderers and Payers**: care taking organisations, care service providers; patients, families; social welfare professionals; well-being administrators; insurance companies, citizens; regional administrative service providers;
• **Producers of Technology and Services:** infrastructure (institutional carers); equipment and systems producers; research institutes (well-being trends and needs); service providers (transport etc); system integrators; sub-contractors; designers; maintenance and user support; product and service distributors.

Question: what are the needs and opportunities?

3. Survey assets: map the organisations/enterprises working in the age business sector: map know-how and suggestions for networking collaboration. Question: can you see any business development opportunities for your enterprise by means of products and services produced for the ageing population? Test the opportunities and interest. Will the RDPM process assist? Suggestions and proposals?

4. Bring respondents together to endorse the RDPM process so that the core business process is established and endorsed. Assessment of the process and evaluation. What’s promising? What’s missing? This includes ownership and facilitation of the RDPM. For example, the University of Tasmania might own the process and NTD facilitate. A significant role for both institutions would be established.

5. Identify, establish and manage collaborative ‘teams’ for service or product development. For example, the plastics industry combined with design and environment expertise; furniture industry combined with design expertise and ageing of people; machine and metal products industry combined with mechatronics and quality expertise and development in nanotechnology. A social worker, technology expert and marketing expert are designing a new product suitable for elderly people.

**Constraints:**

- Requires medium-term funding: 2-3 years;
- Time consuming and demanding;
- Theoretical concept needs to be ‘hidden’ from view of participants – too complex;
- Trust aspect with multiple actors will be driven by pragmatic demonstration of outcomes.
Outcomes:

- Significant research funding;
- Demonstration effect of pragmatic RDPM for application across other sectors;
- Enterprise development and growth in region;
- New enterprise models: co-operatives and social/community firms;
- Well established collaborative linkages between University, enterprises and organisations within the region.