

The Prosperity Pathway

The Role of Innovation Clusters



Innovation clusters: Their purpose, process, and product

Executive Summary

Innovation clusters are groupings of key stakeholders in targeted economic sectors who work together using innovative and practical approaches to increase productivity, enhance competitiveness, and work to achieve prosperity. Innovation clusters are delivery mechanisms through which ideas are fused with initiative, commitment, and strategy to create locally-viable and sustainable economic development results. They include a broad range of stakeholders within targeted sectors, namely a) public and private sector representatives, b) NGOs, c) academia, and d) international organizations, among others. Working in concert through an agreed-upon action plan, the stakeholders can embrace innovative but practical approaches to generate momentum towards prosperity.

The clusters are delivery mechanisms for an economic development methodology called the Prosperity Pathway, which focuses on increasing productivity, competitiveness, and prosperity by infusing innovation at every level of society. Salient to the innovation cluster approach is its focus on targeted economic sectors that are selected based on research and strategic planning. Within these sectors, key verticals (industries) are identified that are designed to provide the cluster with niche opportunities in target markets. In developing an action plan for the growth of targeted sectors, the clusters focus on six developmental pillars in which to group actions in support of economic growth. These pillars consist of a) business development, b) research and development, c) access to finance, d) enabling environment, e) research and development, and f) workforce/skills development. By linking actions within each pillar to the overall innovation-based strategy to promote prosperity, and by working with a broad base of interested and committed stakeholders, the clusters can create significant short to medium-term impact that lays the foundation for growth.

This briefing paper discusses the design, implementation, and potential impact of innovation clusters as mechanisms for the generation of prosperity on multiple levels of society. The clusters are not designed to operate independent of a strategic framework, but instead are part of an overall methodology that has been shown in a plethora of countries to lead to significant and sustained socio-economic growth. Of the numerous challenges the clusters seek to address, the most important is the change in mindset and infusion of creativity that comes from dialogue and cooperation. Synergetic and results-based action has been shown time and again in emerging markets to be the impetus for economic growth. The innovation clusters are designed to provide a platform on which synergy can be created and results achieved.

What are innovation clusters?

Since the early 20th century, clusters defined by industry, sector, and spatial location have increased business productivity. Specialists such as Peter Drucker and later Dr. Michael Porter, brought cluster mentality to the forefront of economic development, focusing on the development of competitiveness within industries located in close spatial proximity. The cluster model, highlighted by the “Porter Diamond” became the foundation for global economic development initiatives. Many of these initiatives achieved various levels of success, while others failed to gain traction due to a variety of reasons.

Over the last ten years, innovation clusters have emerged, taking the theory and practical application to a new level. Porter and other specialists have facilitated this transition, calling for increasing infusion of innovation into traditional cluster models. The emerging innovation clusters adopted a broader focus than their traditional counterparts by facilitating connections among firms, research centers, investors, public officials, academicians, and enabling organizations, which work together to create new technologies, products, and enterprises. Rather than replacing industrial clusters, innovation clusters have augmented their ability to capture opportunities by increasing knowledge, creativity, and collaboration. In addition, because of the structural design of innovation clusters as connecting points versus implementing bodies, they have provided a lower cost, non-hierarchical alternative to standard clusters.

At the core of innovation clusters is the Prosperity Pathway methodology, which allows the participants in innovation clusters to focus on the creation of prosperity, of which competitiveness is a natural progress, but not the end result. Countries can be competitive in one or more industries, but still not be prosperous as a whole. However, prosperous countries are almost always competitive.

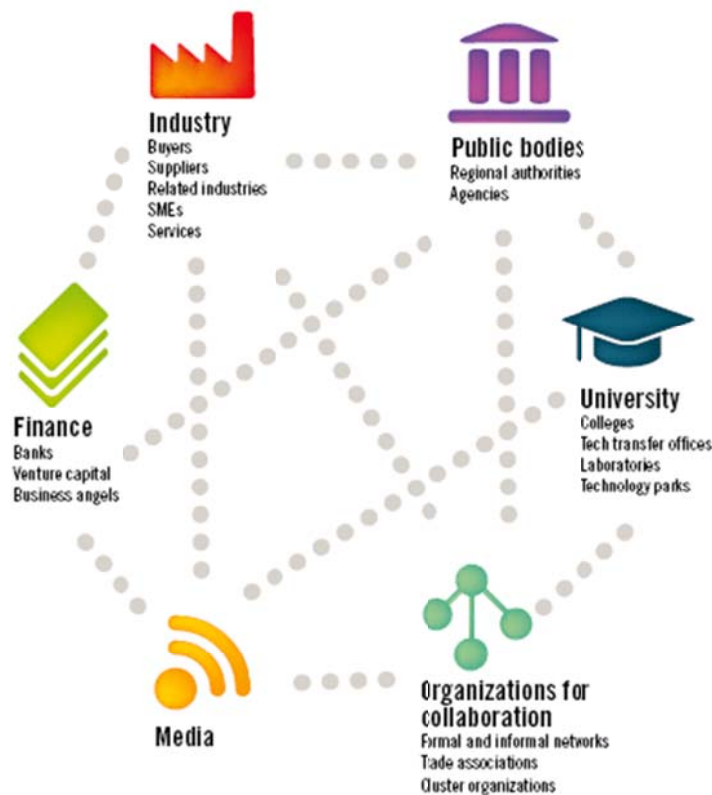
Innovation cluster methodology

Successful implementation of the Prosperity Pathway methodology requires a delivery mechanism that is designed to create synergy among stakeholders and create prosperity. This mechanism is the creation of innovation clusters that are created according to the following design, which is consistent with international leading practices and has demonstrated its applicability in emerging markets around the world:

- **Gather the stakeholders: Innovation clusters are typically not artificially created. They operate like eco-systems where all the elements are in place to “sustain life” relative to innovation and competitiveness.** This being the case, innovation clusters typically grow organically out of a convergence of public and private sector representation, as well as participants from academia, media, and enabling organizations (e.g. NGOs). Innovation clusters are typically free-flowing entities that are facilitated by a cluster professional, but do not focus on hierarchical structure.
- **Hire/Train a cluster facilitator:** This individual should be a trained economic development professional that is a specialist in the ways to make connections, motivate volunteers, and develop/implement/evaluate strategy to achieve specific results
- **Train cluster participants:** Cluster participants should be trained on cluster methodology, structure, decision-making, and other aspects of good governance. It is important to note that because innovation clusters are not “organizations” in the truest sense, but rather innovation-infused connecting points for many stakeholders within targeted sectors, there are not members, only participants.
- **Develop a strategy:** The development of an innovation strategy should include influential members of the public, private, and academic sectors, as well as civil society. Until a cohesive strategy is developed, other elements of the methodology cannot be implemented. The strategy should include a focus on target sectors where innovation can make the country competitive, and ultimately prosperous. The strategy should be continuously refined so that it is fresh and innovative.

- **Develop an action plan:** The action plan should consist of specific interventions that focus on targeted areas within the strategy. A monitoring and evaluation plan should be linked to the action plan.
- **Implement activities:** Activities contained in the work plan should be initiated within an established timeframe.
- **Develop a brand:** Through internal and external marketing initiatives, the cluster should build its brand both internally and externally. It should become the most visible mechanism for the achievement of prosperity in each of the target sectors.
- **Evaluate results:** Compare the cluster's achievements to its planned impact targets to determine a) the strategy's validity, b) any gaps that were not identified during the strategy's formation, c) how much innovation has been integrated into the cluster, and d) what modifications in the strategy need to be made in order to capture momentum and utilize innovative approaches.

At their core, innovation clusters are mechanisms for implementation of innovation-related actions that can buoy competitiveness and generate movement toward prosperity. The clusters are not implementation mechanisms on their own, but rather connecting points for individuals, organizations, donor agencies, public sector institutions, and civil society to develop a cohesive strategy and to enhance synergy in its implementation. The following graphic highlights the points of connection that are included in many innovation clusters: ¹



Innovation clusters provide a forum, which in emerging markets are especially necessary, for stakeholders in targeted sectors to come together to exchange ideas, develop a strategy, and utilize existing or created resources (in terms of talent, money, and organizations) to achieve specific goals.

¹ Diagram from Sölvell, O. 2009. Clusters – Balancing Evolutionary and Constructive Forces. Stockholm: Ivory Tower Publishers.

The innovation cluster approach

Innovation clusters value knowledge as an impetus to action. Strategy is determined by thought leaders within targeted economic sectors, working in conjunction with public sector and civil society counterparts to focus on prosperity-generating approaches that include:

- **Business development:** The clusters identify and pursue business development opportunities through the establishment of support networks for companies. In doing so, the cluster works with public, private, and international stakeholders to lay the groundwork for business expansion and development.
- **Access to finance:** The clusters work with local, regional, and international financial organizations, capital networks, venture capital funds, and “angel” organizations to enhance the ability of companies to access funding for technology or processes that are designed to create jobs and enhance prosperity.
- **Research and development:** The clusters promote research and development through entities designed to increase levels of product/service development and commercialization. For instance in Jordan the Royal Scientific Society’s Research and Development Center works closely with the Clean Technology Innovation Cluster to promote research and development linkages between indigenous and international companies, assists entrepreneurs in developing and commercializing technology, and provides a support network for discussion and business linkages.
- **Enabling environment:** The clusters promote the development of an overall enabling environment that can help lay the groundwork for prosperity, as well as specific laws and regulations that aim to promote economic activity within the targeted sectors.
- **Investment:** The clusters promote foreign direct investment in partnership with national investment promotion agencies by highlighting value propositions in targeted sectors. Working in support of the efforts of governmental institutions and key investment promotion organizations, The clusters reach out to companies that are interested in starting or expanding operations in targeted markets (which may vary depending on the sector) using the country as an investment platform.
- **Workforce/Skills Development:** Salient to any economic development strategy is the ability to train a high-quality workforce. The clusters use innovative approaches and synergy between stakeholders to link sector/industry requirements with needed job skills to help to make reasonably certain/determine if the workforce is prepared for the jobs that will be generated in the future. This could include upgrading university curriculum, designing/delivering industry-specific training, and/or creating new delivery models for demand-driven skills development.

Initiating and facilitating innovation clusters

One of the biggest mistakes that countries make when launching an innovation cluster initiative is overcomplicating the situation. In other words, a common pitfall is the attempt to create a formal structure with multiple layers of oversight and responsibility instead of simply facilitating the organic growth of clusters in sectors where industry groupings already exist. The Brookings Institution published a paper that analyzed the success of global innovation clusters, in which it outlined the following factors that are salient to success.²

- **Don't try to create clusters.** Clusters can't be created out of nothing and cluster initiatives should only be attempted where clusters already exist. The preexistence of a cluster means that an industry hotspot has passed the market test. By contrast, efforts at wholesale invention will likely be fraught with selection issues, inefficiency, and probable failure and waste
- **Use data and analysis to target interventions, drive design, and track performance.** Cluster strategies or policy interventions — when attempted — should be grounded in rigorous empirical information and analysis so that decision makers can make objective assessments about the nature, competitive prospects, and specific needs of different regional industry concentrations. Cluster strategies also need to be held accountable so performance measurement is critical.
- **Focus cluster initiatives on clusters where there is objectively measured evidence of under-capacity.** Work to upgrade an identified cluster should be tightly focused on attacking specific, documented constraints, institutional deficiencies, or resource shortcomings.
- **Increase impact by leveraging cluster-relevant preexisting approaches, programs and initiatives.** Specific, targeted cluster-oriented initiatives are clearly justifiable, but equal value and added impact may well come from drawing other, more generally relevant programs into the cluster orbit. For example, at the federal level programs like the Research & Development tax credit as well as Small Business Initiative (SBI) and Small Business Technology Transfer (STTR) grants, workforce training programs, and small business finance may all be rightly viewed as “cluster” programs, just as banking regulations, tax credits for venture capital, and education policy may be at the state level. In this way, clusters and cluster strategies are less a specific program, but rather a framework through which organizations can shape and coordinate disparate policies
- **Align efforts “vertically” as well as horizontally.** The cluster paradigm can — and should — be used to organize the disconnected policy offerings of any one level of government in service of clusters' needs in a region, but it also provides a framework for coordinating them up and down the tiers of federalism to avoid policy conflict, redundancy, or missed opportunities for synergy.
- **Let the private sector lead.** Clustering is a dynamic of the private economy in the presence of public goods. Cluster strategy should be pursued in such a way as to support, connect, fill gaps, and remove obstacles to private enterprise while making sure certain public and quasi-public goods are available.

The essential concept in understanding innovation clusters is the acknowledgement that **clusters are not associations, they do not have “membership”, and they do not last forever**. Clusters are eco-systems, meaning that they have a specific cycle for creation, growth, maturity, and eventually transformation. In this regard, they should not be considered “associations” in the technical sense and thus cluster participants should not be considered “members.” Instead innovation clusters bring together a broad base of like-minded individuals who will remain engaged within a sector and/or vertical as long as a) the market continues to exist, b) innovation remains achievable, and c) the clusters interventions remain viable. It may be necessary for the cluster at some point to focus on a different strategy that includes a different set of stakeholders, interventions, and results targets.

² Source: The Brookings Institution 2009

Characteristics of innovation clusters

When analyzing global innovation cluster initiatives, they can be loosely categorized in three primary types, namely sector-specific, spatial, and industry specific. Each type has various characteristics that make it different, but there are commonalities that apply across the board. The following table outlines the different characteristics of the three primary innovation cluster types:

Type of innovation cluster	Types of linkage	Cluster characteristics	Examples of industries/locations
Sector-specific clusters	Links all parts of the value chain within a sector. Focuses on knowledge-based innovation and connecting all stakeholders to programs/resources.	Involvement from small and large firms, public sector, NGOs, donor organizations. Flexible...easy to enter and exit. Little focus on "formal registration"	ICT, Clean Technology, Medical Services, Pharmaceuticals and Architecture Clusters: Jordan
Spatial clusters	Still sector specific, but include firms/ stakeholders from defined geographical areas	Mixture of large and small SMEs, public sector, NGOs, and donor organizations. Flexible...easy to enter and exit. Little focus on "formal registration"	Clean Technology Cluster: Lahti, Finland
Industry (vertical)-specific clusters	Focus on a specific industry (vertical) within an innovation cluster.	Mixture of large and small SMEs, public sector, NGOs, and donor organizations. Flexible...easy to enter and exit. Little focus on "formal registration"	Gaming Cluster: Jordan

This grouping of clusters into categories links to the Prosperity Pathway methodology as it provides an ideological foundation for stakeholders to a) determine the type of innovation cluster required, b) establish an action plan to achieve specific results, and c) infuse innovation. In reality, there may be elements of each category in an innovation cluster, depending on its location, focus, and scope of activities.

The future of innovation clusters

Innovation clusters are an emerging mechanism for the implementation of targeted economic development-oriented activities. However, the importance of a strategic framework for these activities cannot be understated. Innovation clusters are eco-systems³ through which ideas flow, strategy is created, activities are initiated and results are achieved, all through a web of connections that help to determine linkages to key stakeholders. The danger is that innovation clusters will be the newest "fad" in economic development, eventually becoming irrelevant because of lack of a sustainable plan for their continued development. To prevent this from happening, a number of issues should be addressed to make reasonably certain that innovation clusters remain a relevant mechanism for economic development. The following are the more salient of these issues:

- **There should be a clear methodology that underpins the cluster effort.** Since innovation clusters are mechanisms for the implementation of a prosperity-focused economic development strategy, it is imperative that they be underpinned by a methodology that achieves desired results. The Prosperity Pathway methodology, which focuses on innovation as a catalyst for productivity, competitiveness, and ultimately prosperity, has emerged as an important design for overall prosperity programs within emerging

³ An "eco-system" in this context refers to a living entity that exists for as long as necessary, infuses ideas/creativity as a 'life source', and links individuals together with a common purpose.

markets. As part of this design, innovation clusters thus become mechanisms through which strategic initiatives are launched, connections are created, and results can be achieved. Without a strong methodological foundation, innovation clusters can become just another short-term “fad” that will work in isolated cases, but will eventually be replaced by other mechanisms. The danger, of course, is that this will occur after massive resources in terms of time and money have been spent on non-sustainable actions that do not connect to an overall methodology.

- **Clear delineation should be made between industrial and innovation clusters.** Cluster participants and stakeholders, as well as the cluster facilitator, should thoroughly understand the difference between industrial clusters and innovation clusters. These differences were previously outlined. Specific differences are: a) innovation clusters do not focus on production, they focus on knowledge. This knowledge is used to spur innovation and strategic action, b) innovation clusters are not meant to be highly regulated, structured mechanisms that are akin to organizations.
- **Innovation clusters should not become repositories for ideas, but mechanisms for action.** Implementation of strategic actions is critical for an innovation cluster. This being the case, ideas should promote innovation, creation of a strategy, and action based on that strategy if results are to be achieved. If a cluster becomes a mechanism for brainstorming ideas without connecting them to through a methodology to an overall strategy, they can quickly lose momentum. It should be noted, however, that ideas are only useful if action is the end state.
- **Cluster facilitation should become an accepted and sought-after profession.** Innovation cluster facilitation should become an accepted profession that promotes ongoing knowledge, professional certification, and networking. Governments and the private sector should actively work together to train, certify, and empower groups of facilitators that can design and lead the prosperity-based economic development process that use innovation clusters as mechanisms to achieve success.
- **Adequate time and effort should be provided to increase the likelihood of success.** Prosperity is not created overnight, and thus innovation clusters as mechanisms to achieve it cannot be expected to produce immediate results. It takes time to connect people, ideas, strategy, and implementation to create a prosperous society. Two or three years of focused implementation of the Prosperity Pathway through the innovation cluster mechanism, followed by a change in direction, can typically result in nascent achievements. Long-term commitment from all stakeholders is necessary in order to institutionalize the methodology and the innovation cluster mechanism. Countries that have made this commitment and been patient enough to see it through appear to be now reaping the rewards of increased prosperity for their citizens.
- **Innovation clusters should remain eco-systems rather than transforming into associations or quasi-governmental bodies.** As stated above, innovation clusters should include organizations, NGOs, public and private sector leaders, and other stakeholders, but should not seek to become another mechanism for implementation. Rather, they should create connections between the stakeholders that can support their efforts to implement elements of the cluster’s strategy. This approach can help promote sustainability through cooperation instead of creating competition that may erode the effort.
- **Key stakeholders should remain involved.** Cluster facilitators should use a variety of motivational techniques to keep key stakeholders, especially public and private sector leaders, involved in the effort. More than simply attending meetings, this assumes the establishment of a strong communications network to provide information, ask for input, and otherwise develop support for both the methodology and the innovation cluster mechanism.
- **Support for innovation should be established at the grassroots of society.** The overall sustainability of any economic development strategy, as well as the mechanisms through which it is implemented, is based on the creation of grassroots support. For example, Finland is viewed example of prosperity-

oriented innovation for a variety of reasons, but one of the most important is that Finns at all levels of society understand and support innovation as a natural ingredient for prosperity. This grassroots support promotes ongoing public sector involvement, buoys private sector investment, and coalesces societal stability.

Key in emerging markets is a strong commitment from the private sector to create real prosperity for the broadest possible base of their citizens. With this in mind, innovation clusters should be embraced as a mechanism to promote prosperity through economic development, educational reform, social stability, and enhanced quality of life. Clusters are not a “silver bullet” that can produce immediate results, but rather a mechanism that can work to lay the groundwork for sustained prosperity throughout the spectrum of society.

Conclusions

Innovation clusters are different than the more traditional industrial clusters both in their scope and approach. Innovation clusters serve as connecting points for people, organizations, and ideas in order to facilitate synergy, strategy, and practical implementation. Innovation clusters are not overwhelmed by structure and most do not have budgets. Rather, they are flexible, strategic organizations that link innovation with practical application, leveraging existing or created resources in terms of funding and talent.

Innovation clusters are managed by trained economic developers whose role is to facilitate connections between people, organizations, and ideas utilizing the five pillars within each cluster, namely business development, enabling environment, research and development, access to finance, and investment.

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