

Leveraging Knowledge Clusters for Innovative Advantage

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Knowledge clusters play a critical role in turning knowledge into action that produces in the marketplace innovation-based advantage.

Knowledge entrepreneurs, embedded in knowledge clusters, create commercially viable and growing knowledge-intensive businesses, unbounded by geography and culture (“knowledge entrepreneurs without borders”).

Knowledge innovation zones, the most advanced spatial configuration of knowledge clusters, are a viable environment for nurturing, attracting and retaining knowledge entrepreneurs.

Dubai Knowledge Village is presented as an emerging experience of knowledge innovation zone.

Keywords: Knowledge clusters, laws of knowledge dynamics, knowledge innovation zones, knowledge entrepreneurs, knowledge markets.

1. Knowledge clusters

The goal of knowledge clustering is to build relationships among people who want to change knowledge into innovation and derive business value from it.

A desire to gain access to expertise, shared ideas and learning from one another pushes each individual in the direction of a group of peers or affinity group, or community of knowledge practice. The latter constitutes the basic form of knowledge clusters (KCs). More complex configurations encompass different communities of practice clustering round a knowledge pool as well as separate knowledge pools coming together.

The search for networking and socialization inclines KCs to be focused on how people manage themselves and their relationships with others. Therefore, KCs cultivate what Rob Yeung, a business psychologist, has called “soft skills”, such as skills in awareness, regulation, motivation, empathy and relationship management.

Interpersonal relations characterize KCs. These include:

- Knowledge entrepreneurs and aspiring entrepreneurs

- Researchers
- Investors
- Professional service providers and
- Local development officials.

Knowledge entrepreneurs are the KCs' core audience.

In KCs, knowledge sharing that occurs horizontally through the molding of communities of practice helps cultivate an entrepreneurial culture in the research environment, unleash business opportunities from new ideas, and enhance productivity of researchers.

KCs serve the broader purpose of cultivating growth-oriented new ventures. Nascent knowledge entrepreneurs focusing more on growth and less on self-sufficiency can tap into the wealth of “animal spirits” and their experience inside knowledge clusters. Creativity in business is stimulated by investment decisions whereby the received wisdom of corporate principles of rational calculation is counterbalanced by the capability of the “animal spirits” to seize mere ideas. There is a simple reason why this can happen. The opinions of the individuals who, on their own capacity, participate in knowledge pools and communities of practice carry on more weight than the views of the organizations to which they belong.

KCs show a three-fold entrepreneurial trait: their organization is entrepreneurial, their members seize entrepreneurial opportunities and entrepreneurial patterns mould their reciprocal relations.

2. Laws of knowledge dynamics

The working of three laws of knowledge dynamics is the underlying logic that presides over KCs governance.

The **First Law** states that knowledge multiplies when shared. The resulting knowledge energy (or ken-ergy¹) is manifested through a broad range of mechanisms that includes Innovation Management, Leadership for Value Creation, Knowledge Pattern Recognition, Knowledge Mapping, Knowledge Networks, Social Cybernetics, Mental Models, Situation-Handling, and Capital Systems. Since knowledge is inherently a human process, knowledge entrepreneurs (see section 3) take care to optimize its creation and flow in ways that minimize loss in the transmission process.

The **Second Law** states that value is created when knowledge moves from its point of origin to the point of need or opportunity. This affirms that the real benefit of knowledge lies in action; and that innovation is the process whereby knowledge is put into motion or used. This process of innovating knowledge requires high-powered knowledge energy flows (see First Law) supported by wide bandwidth connectivity and rich interrelated actions. The Second Law emphasizes effectiveness whereby actions aiming at 'doing the right thing' (effectiveness) prevail over those addressed at 'doing things right' (efficiency).

The **Third Law** states that mutual leverage provides the optimal utilization of resources – both tangible and intangible. It asserts that collaboration and the value of leveraging the knowledge of one another create a greater wealth and sustainability for us all. Unlike vested interests playing against competition, collaborative efforts made by those agents

who put knowledge into action are incentives not to collude but to combine co-operation and competition so as to enhance pre-competitive forces working for the general interest of the knowledge society. There are multiplier implications that operate within and across network boundaries. Synergy and symbiosis are natural outcomes of the human interaction in ways that provide profound network effects (**Amidon, Formica and Mercier-Laurent, forthcoming**).

3. Knowledge entrepreneurs

As more commercial activities shift toward knowledge and information, the economy seems ripe for an increase in the volume of globally trade bits. Ever more demanding individuals and companies will be willing not just to test the waters of knowledge markets but to take the plunge.

Yet, we are still in a transition from the decline of a mass-production economy and the rise of value from knowledge. Value from efficiency and scale is no more a competitive differentiator. The major significance of the new age is value from innovation that comes from the life-blood of knowledge in action. Shared knowledge and collective intelligence has replaced the three traditional pillars of value creation: that is, land, labor, capital – with knowledge essentially of the type incorporated in machines and other tangible assets.

We define knowledge entrepreneurs (KEs) as those who create value in the boundary-less knowledge markets through the infinite resource of knowledge that they put into action with the purpose of making advancements in the society, the economy and the environment (**Box 1 and Box 2; Formica, 2004b**).

Box 1 – Knowledge entrepreneurs: Main characteristics

- Knowledge creators and knowledge processors.
- Trust builders.
- Founders of companies intensely based on knowledge and embedded in borderless knowledge markets.

KEs:

- See creativity of staff and the capacity of innovation as the primary production factors.
- Treat customers as partners and knowledge workers as revenue creators.
- Manage the environment in which knowledge is created.
- Create informal networks of alliances: “Knowledge entrepreneurs rarely act alone. Entrepreneurs are traditionally seen as individualists. Knowledge entrepreneurs usually emerge from a network of complementary ideas and people (**Leadbeater, 2000**).
- Forge and handle relationships that are sideways (i.e. where there is no authority and no orders).
- Tear down the man-made barriers (cultural, institutional and geographical) that prevent knowledge sharing.
- Build bridges to different communities and countries.

Source: adapted from Sveiby, 2000.

Box 2 – Knowledge markets

Knowledge markets are now poised to expand their role as a motor for economic development. They are likely cast in the role product markets played all through the industrial era.

Knowledge markets are a conceptual market space in which bits are traded across the continents in a broad range of content that would include:

- Knowledge and information systems.
- Customer knowledge and support.
- Knowledge arbitrage and exchange.
- Expert exchange.
- E-learning exchange.
- Intellectual property.
- Economic and business intelligence.

The Internet, the submarine fiber-optic cable and the communications satellite are the infrastructures that make possible the access to knowledge markets.

A great variety of offers (*richness*) and the amplitude of connectivity (*reach*) give the participants an unlimited capacity to weave relationships and profit from their advancements.

Source: **Formica, 2004a: Chapter 2**

The cross-border strategy pursued by KE makes them agents of cultural integration. The fact that one of the scarcest resources in a knowledge-based economy is the organization's ability to create new knowledge makes KE adept at tapping into the global talent pool of the creative classⁱⁱ. So, KE contribute to raising both the index of cultural integration and the level of creative employmentⁱⁱⁱ (**Formica, 2004a**).

4. Knowledge innovation zones

Actions pursued by KE are influenced by the context in which they are embedded. In fact, the deeper and broader the social interactions among KE, the more value for innovative advantage can be put together. This implies that “context gravitation” – that is, the force manifested by acceleration toward each other of KE (“gravitation”) in a setting of interrelated conditions (“context”) – is at the core of any process of sustainability triggered by KE.

A highly charged “context gravitation” is linked to knowledge innovation zones (**KIZs**). A KIZ is a gravitation-sensitive context that takes the form of a geographic and conceptual space made up of complementary elements (geographical: region, city, village; economic: sectors, clusters; social: communities of practice) (**Figure 1**). A KIZ optimizes KE connections by getting knowledge to flow from the point of origin to the point of need or opportunity (**Amidon and Bryan, 2004**). In this respect, KIZ are the epicenter of three forces that empower the innovation process – i.e. creativity, science and advanced infostructures and infrastructures.

Figure 1 – Knowledge innovation zones

Linked communities of innovation practice in which ideas flow from the point of origin to the point of need or opportunity.

- *Creative city*
- *Science city*
- *Digital city*
- *Knowledge city*
- *Knowledge village*

**Knowledge sensitive zones
crossing geographical and
industrial boundaries**

Examples of KIZs are the knowledge-based urban developments such as that of the Dubai Knowledge Village in the United Arab Emirates (**Box 3**).

Box 3 – Dubai Knowledge Village: A knowledge cluster-based urban development

Dubai Knowledge Village (KV) is emerging as a global learning destination housing a wide diversity of international and regional higher education and training institutions. Since opening in October 2003, learning organizations with a stake in the region have steadily gravitated to KV, leading to its development into a vibrant 200-strong community that includes 15 renowned international universities.

The new development in KV has seen its student community rising to 6,000. The proportion of foreign students in the community has also risen from 15 % to 25 %. The presence of a growing multi-cultural student community has led to KV becoming a social microcosm in which diverse nationalities interact and build cultural bridges.

KV aims to build an international learning community that can promote innovation and entrepreneurship, supporting the development of ideas and talent.

Source: <http://www.kv.ae/> – <http://www.kv.ae/news/2003/21-07-2003.htm>

4. Conclusions

Today's economy, so intensely based on knowledge, puts knowledge clusters at the very centre of a society interested in new ideas, findings, or opportunities. Knowledge entrepreneurs, embedded in knowledge clusters, create commercially viable and growing knowledge-intensive businesses, unbounded by geography and culture.

The emerging knowledge innovation zones entice knowledge entrepreneurs, who become their elected citizens. Altogether, knowledge clusters and their most advanced spatial

representation as knowledge innovation zones populated by knowledge entrepreneurs show a uniquely human twenty-first century urban ecology driven by innovative advantages.

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Notes

ⁱ KEN (verb): to have understanding. KEN (noun): a range of vision (**Amidon, 1997**).

ⁱⁱ Talent, high skills and education, creativity, capacity of innovation and entrepreneurial spirit are the features of the creative class.

ⁱⁱⁱ The composite index of cultural integration is the sum of the rankings of three individual integration measures: Kluver and Fu’s index of cultural trade and Kearney/Foreign Policy’s indexes of technological connectivity and international travel (**Kluver and Fu, 2004**).

The measure of creative occupations includes professionals, artists, musicians, scientists, economists, architects, engineers, managers and other workers whose jobs deal with creative, conceptual tasks (**Florida and Tinagli, 2004**).