SESSION C

GLOBALIZATION, INNOVATION, AND ENTREPRENEURSHIP

This session explored the role of entrepreneurship in the development and promotion of national innovation competencies. It looked at whether entrepreneurial firms have emerged to play a more prominent role in international business given the global economic interconnections.

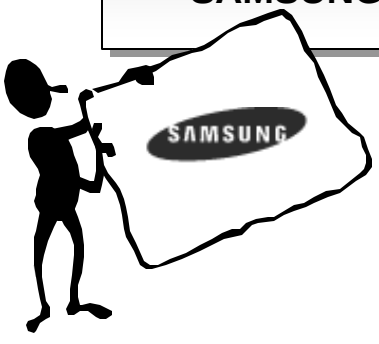
Knowledge Management as a Means of Innovation:
The Case of Samsung Advanced Institute of Technology

May 2004

J. H. Derick Sohn
University of Seoul

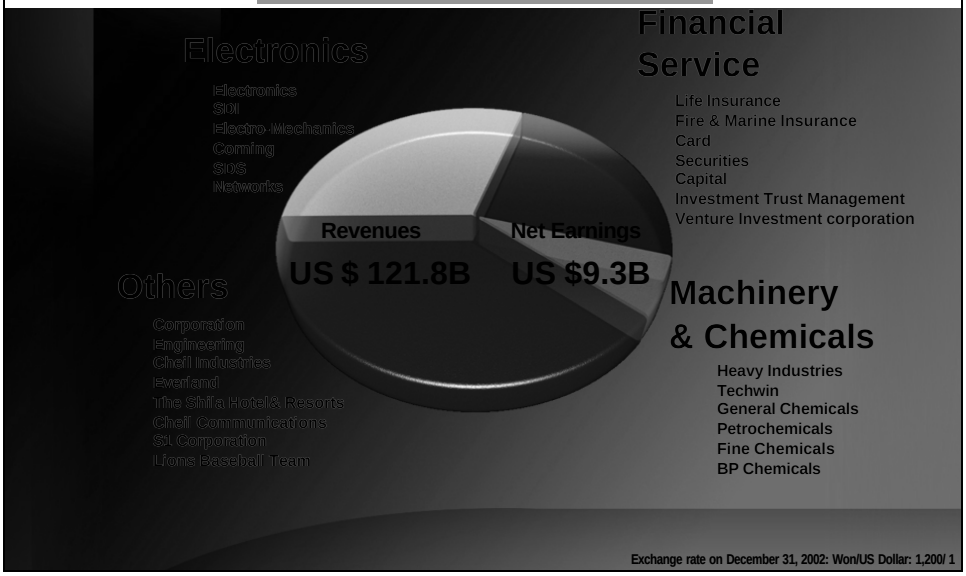
SAMSUNG: OVERVIEW

SAMSUNG: OVERVIEW



SAMSUNG: OVERVIEW

SAMSUNG GROUP OF COMPANIES

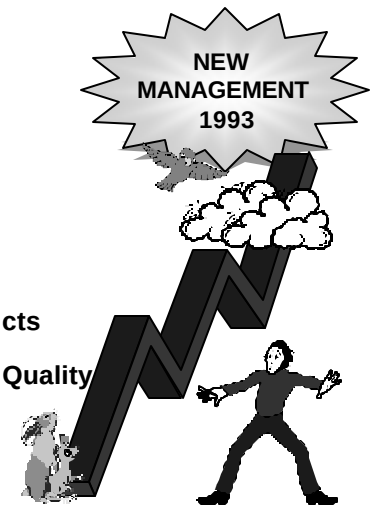


Exchange rate on December 31, 2002: Won/US Dollar: 1,200/ 1

SAMSUNG: OVERVIEW

SHIFT IN MANAGEMENT PARADIGM

From ***To***



Follower

Reasonable Products

At Reasonable Quality

Leader

World Best Products

Dominant Design

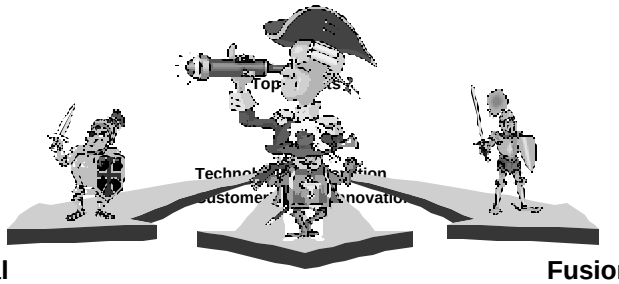
SAMSUNG: OVERVIEW

PARADIGM PROGRESSES IN SAMSUNG

SAMSUNG: OVERVIEW

WORLD BEST: STRATEGIC DIRECTIONS

New Vision: World Best



Digital

- IT Revolution

Knowledge

- Knowledge Generation
- Knowledge Integration

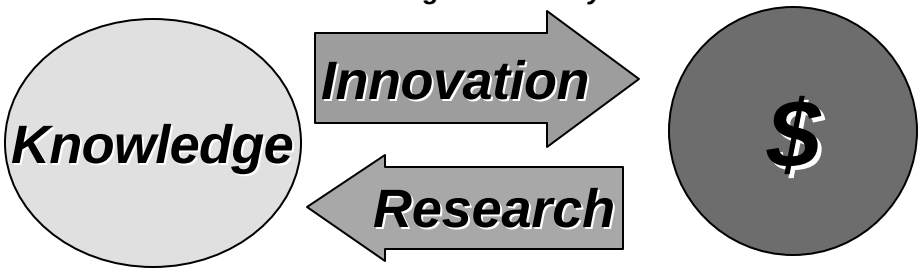
Fusion

- Convergence
- New "Something" beyond Traditional Imagination

SAMSUNG: OVERVIEW

INNOVATION AND R&D

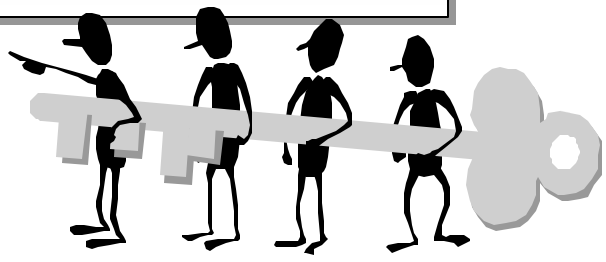
"Innovation is the transformation of knowledge into money."



"Research is the transformation of money into knowledge."

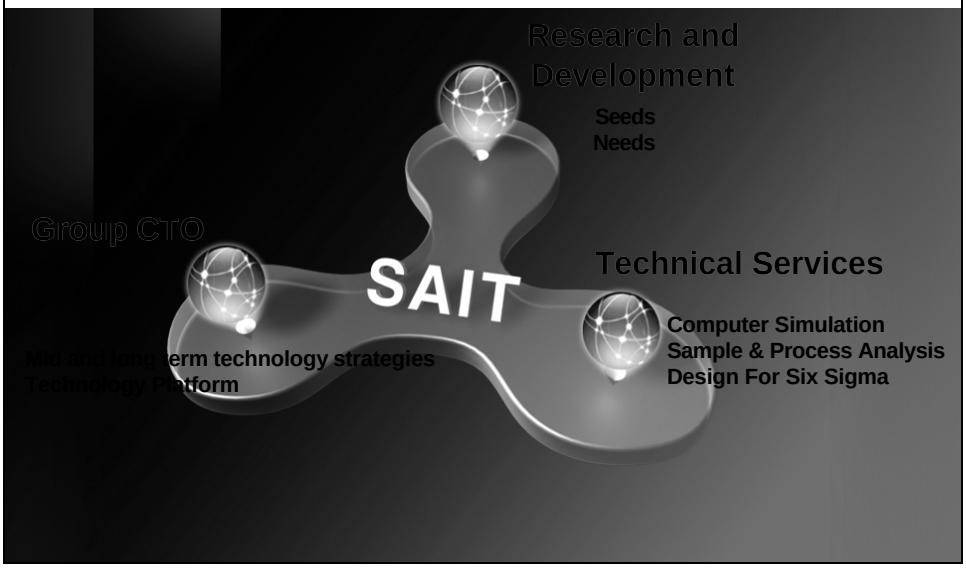
INNOVATION AND KNOWLEDGE MANAGEMENT

INNOVATION AND KNOWLEDGE MANAGEMENT



INNOVATION AND KNOWLEDGE MANAGEMENT

SAMSUNG ADVANCED INSTITUTE OF TECHNOLOGY



INNOVATION AND KNOWLEDGE MANAGEMENT

SAMSUNG ADVANCED INSTITUTE OF TECHNOLOGY

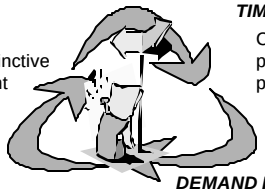
Look 5-10 years into the Future
Strive for BREAKTHROUGH

- SAIT is the Corporate Research Center of SAMSUNG Group of Companies.
- SAIT's main responsibilities include to ensure SAMSUNG's technological leadership.

It was becoming clear that the age of uncertainty was finally here...

CONVERGENCE

Integration of traditionally distinctive and independent technologies



TIME TO MARKET

Continuous introductions of new products, substantially shortening product life cycle.

DEMAND FLUCTUATION

Increasing market uncertainty, emphasizing the importance of technology leadership

INNOVATION AND KNOWLEDGE MANAGEMENT

FUSION & SYNERGY

- To sustain SAMSUNG's technology leadership in the age of convergence, SAIT adopted ***FUSION & SYNERGY*** as its new strategic direction.
- ***FUSION & SYNERGY*** enabled entirely new products be developed, integrating different technologies that had remained distinctive and independent from one another.
- The increasing competitive pressure dictated also that such innovations be achieved with maximum effectiveness and efficiency, both in time and in resources (***time to market***).
- Market uncertainties required further that each innovation be sufficiently dominating, to ensure profitability even in market downturns.

The new direction required new and better ways of managing KNOWLEDGE.

Strategic Direction

- Fusion & Synergy
- Dominant Design
- R&D Effectivness & Efficiency

KM Requirements

- Knowledge Creation & Integration
- Knowledge Collaboration
- Knowledge Reusability
- Knowledge Sharing

INNOVATION AND KNOWLEDGE MANAGEMENT

5S OF KNOWLEDGE TRANSFORMATION

Original 5S

- ❑ **Seiri (Arrange)**
- ❑ **Seiton (Put In Order)**
- ❑ **Seisoh(Clean)**
- ❑ **Seiketsu(Keep Neat)**
- ❑ **Shitsuke(Accustom)**

5 STEPS of KNOWLEDGE TRANSFORMATION

- ❑ **Store**
- ❑ **Share**
- ❑ **Study**
- ❑ **Synthesize**
- ❑ **Solve**

INNOVATION AND KNOWLEDGE MANAGEMENT

SST: SAIT STANDARD PROCESS

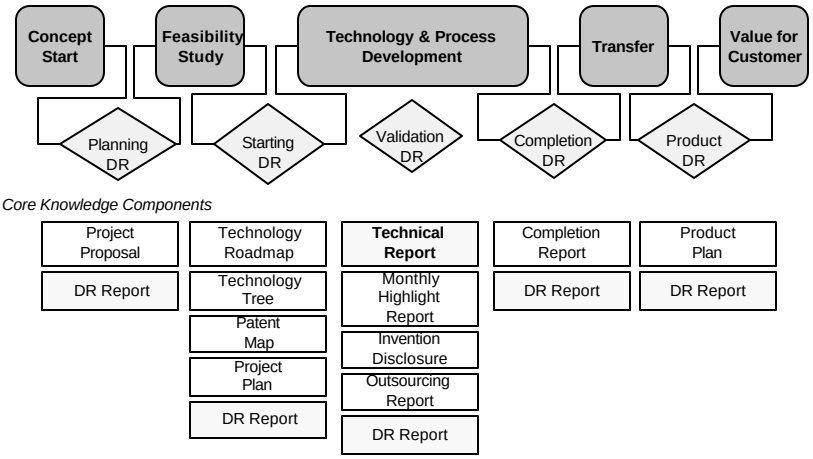
Six Sigma Based Process

- SAIT established SSP, or SAIT Standard Process, internalizing Six Sigma concept and methodology.
- SSP defines precise steps an R&D project is to follow. This process is consistent with global process standards.
- SSP divides an R&D project into distinctive phases, and dictates further that review sessions (DR: Design Review) must be held, by review committee, especially for potential problem analyses.
- The review committee must include the researchers from various technology groups at SAIT, but also business managers from SAIT and related SAMSUNG operating companies.
- SSP, as a result, facilitates effective cross-technological domains knowledge collaboration and sharing.

INNOVATION AND KNOWLEDGE MANAGEMENT

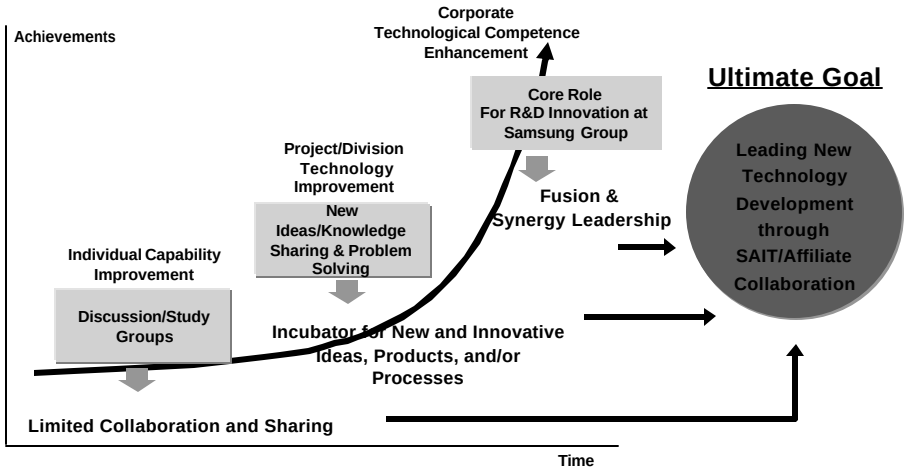
CORE KNOWLEDGE IN SSP

To facilitate sharing of critical knowledge products and to ensure technology repeatability, SAIT identified CORE KNOWLEDGE COMPONENTS in each phase of R&D process.



INNOVATION AND KNOWLEDGE MANAGEMENT

CoP: ULTIMATE GOAL

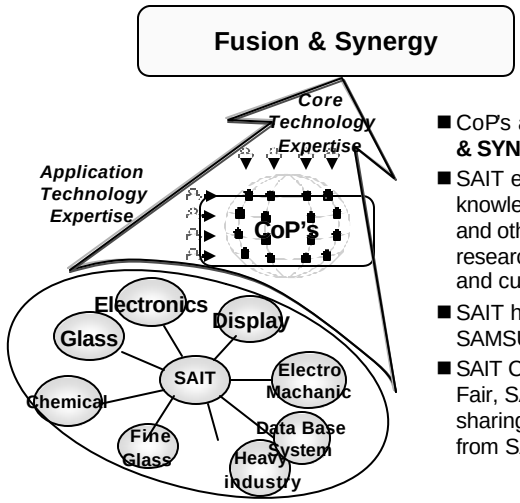


INNOVATION AND KNOWLEDGE MANAGEMENT

LEARNING ORGANIZATION: CoP

Learning Organization

Knowledge Generation
Knowledge Capture



- CoP's are important means with which **FUSION & SYNERGY** would be attained.
- SAIT employs CoP's for idea generation, knowledge collaboration, knowledge transfer, and other KM activities for both among SAIT researchers and between SAIT researchers and customers.
- SAIT hosts and organizes CoP's for the entire SAMSUNG Group.
- SAIT CoP's have now evolved to SAMSUNG Fair, SAMSUNG fair is an annual knowledge sharing event for both SAIT and customers from SAMSUNG Group of Companies.

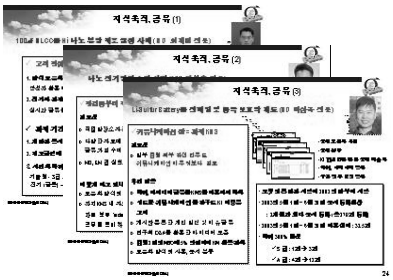
INNOVATION AND KNOWLEDGE MANAGEMENT

SPARK: SHARING BEST/WORST PRACTICES

SAIT **K**nowledge Management

Professionally **R**esearcher of

Active



- SPARK is how SAIT recognizes best (and worst) practices and those who worked to make them happen from all SAIT projects.
- A wide variety of themes are covered, from knowledge accumulation and sharing to process know-how or even worst mistakes.
- SPARK BP's (Best Practices) are respected widely by SAIT researchers, effectively motivating them to follow the practices.

INNOVATION AND KNOWLEDGE MANAGEMENT

PATENT EXPO: STIMULATING IDEA GENERATION

"None of us is as smart as all of us"

- ✓ **Voluntary Participation**
- ✓ **Patent expos are informal and open system, where researchers of any background are invited to share new ideas and potential problems**

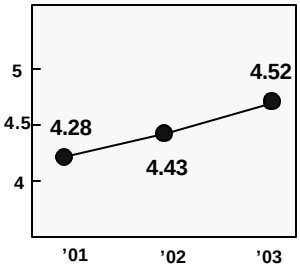
INNOVATION AND KNOWLEDGE MANAGEMENT

RESEARCH CAPABILITY INDEX

- To facilitate research competence enhancement, SAIT adopted RCI (Research Capability Index) to regularly measure individual researchers' competence "levels" or "dimensions".

Title	Level	8 Levels of "Knowing"
Master	6-8	Innovate/Integrate
Shape	5	I can evaluate and analyze this.
		I can teach others about this in a systematic manner.
Guide	4	I can teach others to do this.
		I can order others to do this.
Do	3	I generally behave what I say.
		I can do what I say.
Learn	2	I can precisely regurgitate the core of what I heard.
		I can generally describe what I heard.
	1	I've heard this before many times.
		I've heard this before.

Level Averages at SAIT



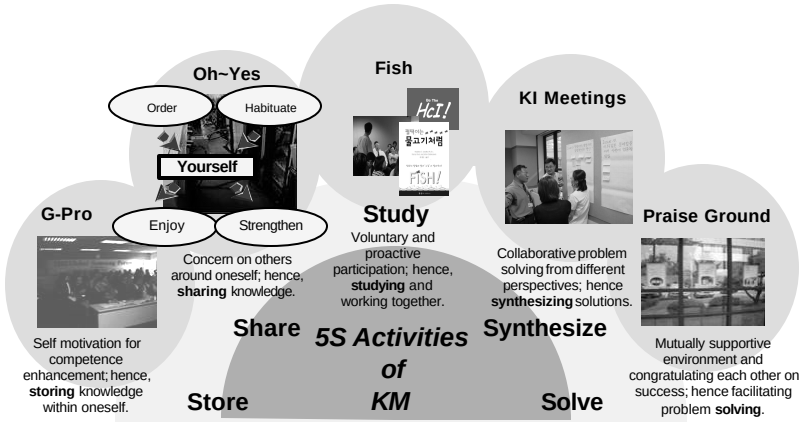
RCI represents individual competence metrics. But, taken together, it represents the composite competence level at SAIT as a whole.

Note: For confidentiality reasons, the above numbers may have been modified. The trend, however, remains accurate.

INNOVATION AND KNOWLEDGE MANAGEMENT

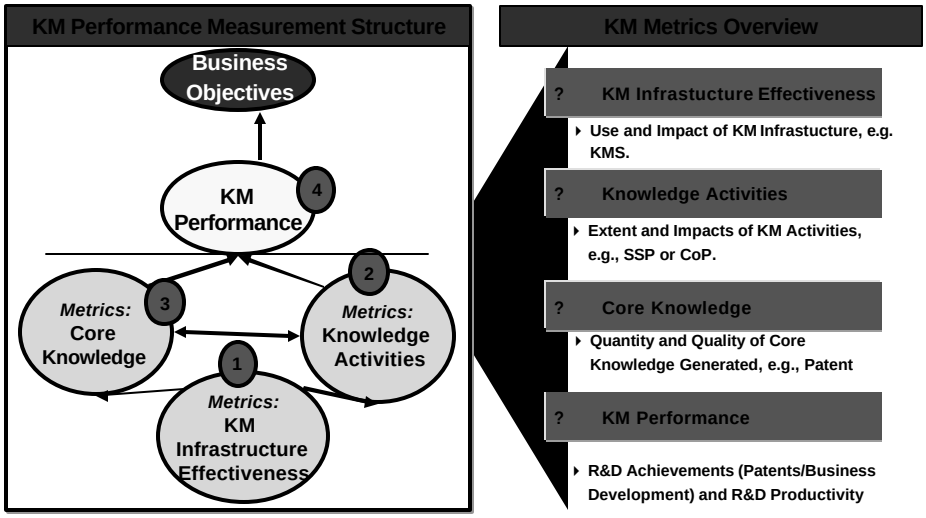
CULTURE AND CHANGE MANAGEMENT

- For effective KM implementation, cultural change must closely follow KM initiatives.
- SAIT Knowledge culture center around 5S activities: Store, Share, Study, Synthesize, and Solve. For each of the 5S activities, a cultural event or movement is implemented.



INNOVATION AND KNOWLEDGE MANAGEMENT

KM PERFORMANCE MEASUREMENT FRAMEWORK



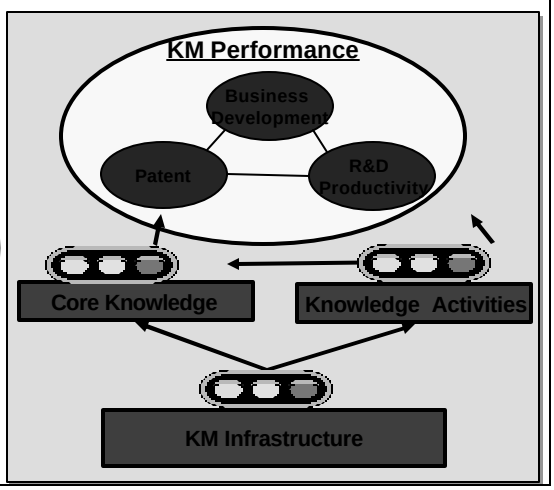
INNOVATION AND KNOWLEDGE MANAGEMENT

PERFORMANCE MEASUREMENT

KM Performance Measurement Structure

KM Performance Objectives

- **Patent**
  - *Quality Enhancement*
  - *Quantity Increase*
- **Business Development**
  - *Optimal Goal Setting*
  - *Technological Applicability*
- **R&D Productivity**
  - *Value Add Maximization*
  - *R&D Lead Time Reduction*



INNOVATION AND KNOWLEDGE MANAGEMENT

RESULTS

No. of Patent (Overseas)

62 ’98 — 1000% — 600 ’03

No. of Patent

175 ’99 — 520% — ’03

Research Capability

3.28 ’01 — 7% — 3.52 ’03

Speed of R&D

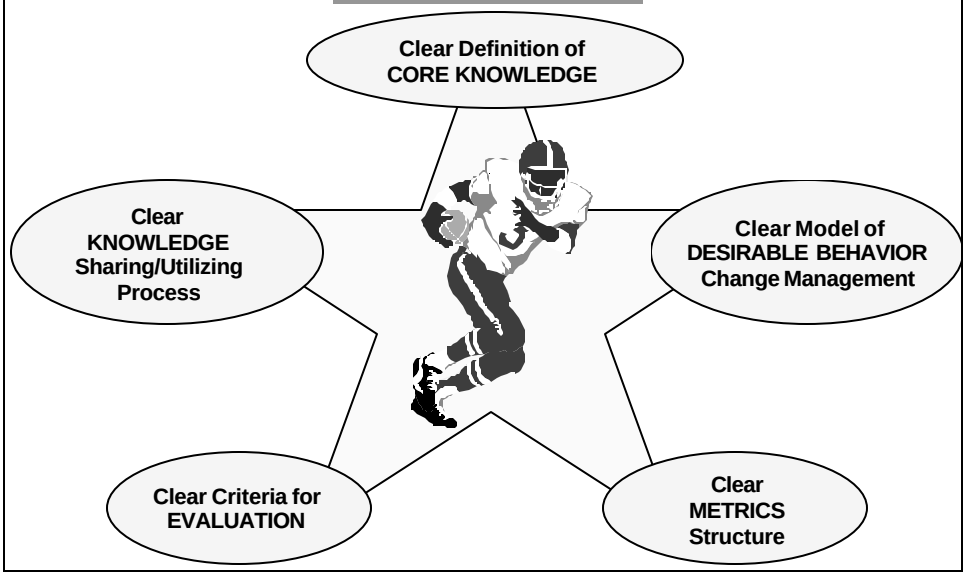
32.6 ’97 (month) — 28%? — 23.6 ’03

Technology Transfer & Adaptation

19 ’01 — 500% — 94 ’03

INNOVATION AND KNOWLEDGE MANAGEMENT

LESSONS LEARNED



Surviving Innovation or Innovation to Survive

Miguel Carrillo

Surviving Innovation

Philosophical Approach:

- Fate or control over destiny
- Evolution and development….positive and negative
- Uncertainty
- Knowledge.- Evolution of beliefs with the perseverance of values (Anaxagoras)
- Change and innovation requires stability and chaos

Surviving Innovation

Academic realities in developing countries:

1.- Scarce research

2.- Focus on technology transfer/adaptation/adoption

3.- Regional systems of innovation

Surviving Innovation

<u>What are we surviving?</u>

-Successful development and commercialization of new products or services

-Radical innovation of processes

-Crossing of market need trajectories and technology trajectories

-Made in … vs Created in ….

Surviving Innovation

What are we surviving?

-**Core competence: collective body of knowledge**
- **-Markets**
- **-Products**
- **-Processes (Behavioral)**

-**Ultimate competitive advantage**

Surviving Innovation

What are we surviving?

- **Next tech waves ***
- **-UTILITY COMPUTING**
- **-SENSOR REVOLUTION (RFID)**
- **-PLASTIC ELECTRONICS**
- **-BIOELECTRONICS**

* Source: Business Week

Innovation to survive

What are we doing?

-Architectural innovation

-Incremental → Processes

-Transfer, Adoption, and Adaptation

-Technology pushed

-Outsourcing

-Diversification

Innovation to survive

How are we doing it?

-Illegitimacy
-Champions of innovation
-Lack of slack
-Limited learning processes
  -Pitfalls management
  -Documentation
  -Culture

Innovation to survive

What should we do?

-Organize industries
-Government support
-Shift of sources of innovation
-Organizing for innovation
- Change in the core values of the firms
-Collaboration
-Facilitate learning
-Valuable skills go beyond technological capacities
-Create value and wealth with values

Innovation to survive

Evolution of behaviors > evolution of technologies

Canada's Innovation System or Systems – Developing Strategic Industry Clusters

Presentation to the APEC Workshop:
National Innovation Competencies and Interests
in a Globalized World
Denver, Colorado
May 25-27, 2004

By:
André Manseau
Université du Québec en Outaouais
Canada

Université du Québec en Outaouais

Key Industrial R&D Sectors

Industry	1999	2000	2001	2002	2003
Paper	113	137	254	252	256
Pharmaceutical	576	765	881	971	1051
Machinery	325	362	355	362	378
Com equip	2278	3160	3188	2035	2035
Instruments	309	424	443	430	388
Electronics	581	817	878	753	791
Motor vehicle	303	359	306	305	286
Aerospace	1129	887	933	875	872
Info & Culture	310	352	643	629	628
Engineering	412	406	495	537	508
Computer services	563	731	936	926	946
R&D services	264	390	592	615	639
Health services	319	306	317	346	351

Developing Strategic Clusters

- National Technology Roadmapping

Context of globalization and limited resources implies:

- Developing complementary niches
- Based on local strengths
- But for a global reach
- As well as take advantage of international partnering

Developing Strategic Clusters

- National Technology Roadmapping

Process:

- Industry led
- Engage all stakeholders in dialogue
- Assess sector competitivity, challenges, issues as well as international market trends and competition (SWOT analysis of the industry)
- Identify gaps that require a special governmental support, in collaboration with other partners

http://strategis.ic.gc.ca/epic/internet/intrm-crt.nsf/en/h_rm00051e.html

Developing Strategic Clusters

- National Technology Roadmapping

Some examples - Aerospace

- TRM (1997) identifies gaps in integrated manufacturing technologies for parts suppliers
- 2000: Creation of a new Aerospace Manufacturing Technology Centre in Montreal (the most important aerospace cluster in Canada)

Canada's aerospace industry comprises 400+ firms in every region of the country; collectively they employ 80,000 Canadians.

Since 1990, Canadian aerospace industry sales have more than doubled, reaching $22 billion in 2002.

Aerospace is Canada's leading advanced technology exporter, exporting nearly 80 per cent of its output.

Canadian firms are global market leaders in regional aircraft, business jets, commercial helicopters, small gas turbine engines, flight simulation, landing gear, and space applications.

Developing Strategic Clusters

- National Technology Roadmapping

Some examples - Aluminium

- TRM (2000) identifies gaps in developing second and third transformation, and opportunities in integrating primary-secondary transformation
- 2001: Creation of a new Aluminium Technology Centre, with a strong partnership with Alcan in Saguenay

Canada represents 10.5% of the world Aluminium production (4th world producer) and the second largest exporter of Aluminium. However, more than 80% of the Aluminium exported is in the form of ingots.

Developing Strategic Clusters

- National Technology Roadmapping

Some examples - Language Industry (translation, information content management, consumer interactions)

- TRM (2002) identifies the needs for improving productivity and multilingual applications (in a global information and interactive world)
- 2003: Creation of an R&D collaboration between Government translation services, Institute for information technology and university research, as well as creation of a new industry association
- 2004: Creation of a new Language Technology Research Centre, in Gatineau (Ottawa Region)

Canada's Language Industry sales reach about 1 B$ annually. The world market is growing fast – 5-10% per year and up to 10% in language technologies

All cases: strong partnership between large and SMEs, as well as between university and government research labs.

Under review by *Cuadernos de Economía y Dirección de la Empresa*.

ENTREPRENEURSHIP IN GEOGRAPHICAL SPACE - CONCEPTUAL FOUNDATIONS AND IMPLICATIONS FOR NEW CLUSTER FORMATION

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Abstract: This paper conceptualizes the micro-processes of entrepreneurship, examines how they are affected by the introduction of geographical space, and outlines the implications for new cluster formation, particularly from a policy perspective. It is suggested that new cluster formation at the national level is enhanced by the international mobility of individuals and prospective entrepreneurs, specifically their ability to assimilate new ideas in foreign locations and build social networks that transcend geographical distances. Unlike established theory which has primarily dealt with the nature and dynamics of already established clusters, the entrepreneurship perspective offers an apposite and relatively unexplored approach to shifting established national paths of technological and economic development.

INTRODUCTION

A substantial and still growing body of literature has addressed the nature of regional agglomerations and clusters, more recently with a focus on the factors underlying the upgrading of competitive advantage of member firms. In spite of significant conceptual and empirical achievements concerning the nature and dynamics of established clusters, knowledge about their origins, early growth, and further evolution is still very fragmentary. The absence of systematic information on the early growth phases is particularly troublesome for policy makers, who have become increasingly aware of the requirements and benefits of dynamic clusters, but have little to draw upon when it comes to new cluster formation and how to change established national paths of technological and economic development.

This paper sets out to address this gap in the literature, departing from a recently proposed conceptualization of the micro-foundations of cluster stickiness (Zander, 2004). Drawing upon an entrepreneurship perspective on the discovery and implementation of new business ideas, it is proposed that the typical geographical movements of individuals and prospective entrepreneurs work against substantialand rapid changes to established national paths of technological and economical development. Yet, a detailed understanding the micro-processes of entrepreneurship and how it relates to geographical space can also provide the starting point for new and relatively unexplored policy approaches. Specifically, proposed policy measures involve various ways of promoting the international mobility of individuals and prospective entrepreneurs, enhancing their exposure to new business opportunities emerging in foreign locations and also giving access to resources in social networks that span across national and geographical boundaries. By allowing individuals to explore and respond to an enlarged and more differentiated opportunity set, these policy measures in the long-term increase the likelihood that new cluster formation falls outside established national paths of technological and economic development.

The paper is structured in four main sections. The first section reviews recent developments in the literature on regional agglomerations and clusters, with a particular focus on what is known about cluster origins, growth processes and the factors underlying cluster stickiness. The second section gives a detailed account of the entrepreneurial processes of discovering and implementing of new business ideas, and relates these processes to the geographical mobility of individuals and prospective

entrepreneurs. The third section, after providing a short review of existing policy instruments, illustrates how an understanding of entrepreneurial processes and geographical mobility provides ground for a new and perhaps under-emphasized approach to new cluster formation at the national level. The concluding section summarizes the main arguments, identifies some important caveats and areas for further research, and proposes the usefulness of the entrepreneurship perspective in exploring new ways of promoting new cluster formation at the national level.

THE FUNDAMENTALS OF CLUSTERS AND CLUSTER EVOLUTION

There is a substantial and growing literature on the nature of clusters[1], more recently with an emphasis on cluster dynamics and the drivers of competitive advantages of member firms. Several studies have provided rich illustrations of the clustering of innovation and economic activity, including descriptions of Route 128 in Boston, Massachusetts (Dorfman, 1983), ceramic-tile production in Italy (Russo, 1985), iron and steel manufacturing in Sweden (Höglund & Persson, 1987), production networks in Silicon Valley (Saxenian, 1991, 1994), the Southern California medical-device industry (DeVet & Scott, 1992), or the Swedish Internet economy (Glimstedt & Zander, 2003). A larger number of cluster descriptions based on the "diamond" model of national competitive advantage are found in Porter (1990).

Additional studies have documented the considerable stability of clusters and national profiles of technological and economic activity. For example, it has been found that the concentration of footwear production in the United States underwent very limited change between 1940 and 1989 (Sorenson & Audia, 2000). At a higher level of aggregation and often on the basis of patenting data, it has been shown that countries tend to display unique and stable profiles of technological and business activity (Chakrabarti *et al.*, 1982; Pavitt, 1988; Cantwell, 1991; Archibugi & Pianta, 1992). These idiosyncratic profiles are typically seen as the outcome of cumulative rather than random processes, a phenomenon referred to as locational path dependency or evolutionary trajectories (Scott, 1995; Storper, 2000). Data involving

[1] Clusters have been defined as networks of strongly interdependent firms, knowledge-producing institutions (universities, research institutes, technology-providing firms, knowledge-intensive business services), bridging institutions (brokers, providers of technical and consultancy services), and customers, linked in a production chain that creates added value (OECD, 1999). This is also the definition adopted in the present paper.

interregional and international comparisons suggest that substantial shifts in the focus of technological and business activity occur only over the course of several decades (see e.g. Pavitt, 1988; Cantwell, 1989; Cantwell & Iammarino, 2001).

Path dependency and evolutionary trajectories imply that cluster growth, which sometimes involves the creation of new industries or industry segments, draws upon the existence of locally distinct resources and skill bases. Some empirical work suggests that new industries and industry segments grow out of already existing structures of the local environment, as firms draw upon the resources of established research institutes, adopt technological skills that cut across a number of industries, or link up with particularly visible and internationally competitive customers (Sölvell *et al.*, 1991). Overall, however, the literature has paid limited attention to the origins and early growth of new industries and clusters (Feldman, 2001), and knowledge about why large numbers of similar and related firms are established in particular times and places is still very fragmentary (Schoonhoven & Romanelli, 2001). In the words of Dicken (1998:11): "The reasons for the origins of specific geographical clusters are highly contingent and often shrouded in the mists of history."

Whichever the cluster origins, path dependency and evolutionary trajectories implicitly suggest that technological and economic activity only with difficulty transcends national and geographical boundaries. This "stickiness" will have been experienced by many policy makers attempting to copy successful, growing, and most often high-technology industries emerging in other geographical locations. Some explanations to the stickiness of clusters have emphasized the general difficulties involved in accessing and working with local agglomerations from afar. It has thus been argued that relevant flows of information and tacit knowledge may be denied to outsiders or newcomers, and that geographic distances increase the costs of knowledge exchange and prevent effective communication in innovation and problem-solving activities (Malmberg *et al.*, 1996; Sölvell & Zander, 1998).

Other work has focused on the immobility of certain factors of production or institutions (Almeida & Kogut, 1999), specifically the historically determined and often tacit linkages and means of coordination between these factors (Kogut, 1991; Maskell & Malmberg, 1999; Maskell, 2001). According to Malmberg *et al.* (1996: 92):

> "Whereas some knowledge embedded in physical and human capital to an increasing extent travels the world through trade, investment, traveling, and migration, knowledge embedded in social capital does not, as it involves a large number of actors within a local milieu and is historically bound to local circumstances, involving unique bonds and accumulated routines."

In a comment on national innovation systems, Lundvall & Maskell (2000: 364) conclude: "National Innovation Systems are, by definition, localized and immobile and thus able to provide firms with valuable capabilities and framework conditions *not available* to competitors located abroad, even under the most open market conditions imaginable."

More recently, it has been argued that the simple cost-benefit principles of established theories represent an abstract and only partial account of the drivers of cluster stickiness. By focusing explicitly on the mind and activities of the individual entrepreneur, specifically in the context of new firm formation, Zander (2004) proposes a more micro-oriented perspective on cluster stickiness and dynamics. Based on the detailed understanding of how the entrepreneur identifies and acts upon new business opportunities, and how the entrepreneurial process is affected by the introduction of geography and geographic distance, it is suggested that strong forces work against the entrepreneur's active response to new business opportunities that present themselves in geographically distant locations.

While introducing a new explanation for path-dependency and cluster stickiness, the entrepreneurship perspective seemingly opens up for new policy approaches aimed at supporting and promoting new cluster formation at the national level. Following a summary of how the micro-processes of entrepreneurship and new firm formation relate to the geographical mobility of individuals and prospective entrepreneurs, the remaining sections of the paper will be devoted to a more extensive discussion of these policy implications. Although it will be maintained that shifting established national paths of technological and economic activity is a difficult and long-term endeavor, it is proposed that measures to enhance the exposure of individuals to developments and resources in foreign locations offer a new and

perhaps unexplored way of promoting industrial renewal and new cluster formation at the national level.

THE MICRO-PROCESSES OF ENTREPRENEURSHIP IN GEOGRAPHICAL SPACE

The introduction of new technologies, products, and services, whether based on novel insights or imitation of already ongoing developments, requires initiative and action by individuals and new firm formation[2]. Yet, existing literature has only recently come to more closely investigate the connection between the entrepreneurial process, new firm formation, and new cluster formation at the regional or national level (Feldman, 2001; Schoonhoven & Romanelli, 2001; Zander, 2004).

To understand the process of new cluster formation and assess the policy implications, it is necessary to first consider both the general nature of the entrepreneurial process and how it depends on the geographical mobility of the individual and prospective entrepreneur. As will be argued below, the discovery and implementation of new business opportunities depend on the individual's observations of external conditions and events and his or her connections to resources in social networks, both of which are intimately linked to geographical movements and whereabouts. In simple terms, it will be proposed that individuals whose movements are geographically confined will tend to discover and act upon new business ideas that reflect local practices and resources, whereas the geographically mobile individual can respond to business ideas that reflect a larger and more differentiated opportunity set and diverge from local paths of technological and business activity.

The Nature of Entrepreneurial Activity

The act of entrepreneurship is based on two fundamental premises: (1) opportunity recognition, and (2) the formation of intentions to respond actively to the

[2] The following discussion focuses on the exploitation of new technologies and business ideas through the creation of new firms, and does not address the issue of innovation and new business venturing within established corporations. Whereas new firm formation and corporate venturing have many characteristics in common and both processes are susceptible to the geographical mobility of individuals, the pre-conditions are sufficiently different to require separate treatment.

opportunities discovered (Gaglio, 1997; Shane & Venkataraman, 2000) [3]. Conceptually, opportunity recognition coincides with or precedes the formation of intentions to set up a new business, specifically because opportunity recognition in most instances involves an instantaneous affective response, but intentions may also be formed after a period of deliberate and focused search (Figure 1). Opportunity recognition, in simplified terms, may be seen as an event with a binary outcome (an opportunity is either recognized or it is not). Depending upon a set of conditions that relate to the individual and his or her social network, discovery may then lead to intentions to further pursue the opportunity. As will be discussed in more detail below, an active response to the opportunities discovered or the *de facto* establishment of a business firm may be broken up into distinct components related to the perceived desirability and perceived feasibility of a new entrepreneurial undertaking.

Opportunity recognition: In a strict interpretation, anyone engaging in activities with an uncertain future outcome may be regarded as an entrepreneur, but entrepreneurship is more commonly associated with individuals who recognize and act upon a business opportunity. This opportunity may be a hitherto latent combination of resources and customer demand[4], but opportunities may also present themselves as ideas that have already been made more or less explicit by other entrepreneurs, thus opening the way for processes of imitation. The "seeing" entrepreneur thereby establishes a means-ends framework to profit from a subjectively perceived chain of relatively uncertain future events (Kirzner, 1985). The end result may be the establishment of a business firm, which has become the most commonly used definition of entrepreneurship (Gartner, 1988).

The entrepreneur sets up new business activities by means of conceiving new ways of connecting resources and customers or imitating and typically improving upon already established business ideas. To do this, the entrepreneur must be connected to external conditions and events, or develop a 'field' that contains information about available resources, customers, or already tested ideas that may be

[3] Much of the conceptual discussion and presentation of data in this section follows Zander (2004).

[4] Theoretically, the global opportunity set can be defined as all possible combinations of resources and customer needs. The global opportunity set thereby includes a subset of opportunities that only draw upon specific parts of these combinations. Strictly speaking, opportunities become real in the creative mind of the entrepreneur, as he or she uses observations and impressions from the external environment to activate unobserved or latent combinations of resources and customer demand.

transformed into new entrepreneurial undertakings (Shackle, 1979). Interaction with the external environment may generate the impulse or vision that triggers further exploration of a particular idea, sometimes through direct customer requests or propositions from other actors, but in a probably more limited number of cases the impulse may also be associated with deduction and personal reflection.

As recognized by Kirzner, entrepreneurial behavior requires acting upon the recognition of an opportunity. The decision to act exposes the entrepreneur to the uncertainty that necessarily surrounds the entrepreneurial idea, involving both the technical and market aspects of the new idea as well as the unanticipated plans formulated and implemented by other market participants (Hayek, 1948). One important aspect of entrepreneurship is that the entrepreneur perceives the opportunity to act as temporally constrained. The passing of time involves changing perceptions of profit potential and in the eyes of the entrepreneur permits pre-emptive action by other entrepreneurs. Right or wrong, an early start and relentless pursuit of the entrepreneurial idea is considered essential for maintaining most of its economic value (Golder & Tellis, 1993). Timmons (1994: 18) notes that: "Recognizing and seizing an opportunity is often a precarious race with an hourglass – when the disappearing sand is the cash running out."

Whenever the entrepreneur can more or less satisfactorily draw upon existing markets for resources, he or she will do so in order to speed up implementation of the entrepreneurial idea. Although the functioning of some markets will already meet the exact requirements of the entrepreneur, substantial efforts will be spent on redesigning and coordinating those aspects of the idea that prove particularly difficult to develop and implement. Typically, these aspects challenge conventional beliefs and ways of doing things and require substantial adjustments by other market participants such as suppliers and firms in related and supporting technologies (Zander, 2001). The implementation of the entrepreneurial idea involves continuous feedback and learning, a process in which "the vision both governs action and becomes elaborated through actions" (Johannisson, 1987: 51).

Acting upon Opportunities: Intentions-based models provide several variations on the way in which the recognition of opportunities is converted into actual implementation and new business formation (Bird, 1988; Krueger & Brazeal, 1994;

Krueger, 2000)[5]. Most models converge on the critical role of perceived desirability and perceived feasibility in the forming of intentions (and ultimately actual behavior). In the intentions model proposed by Krueger (2000), as in parts of the the oretical antecedents, the central concepts of perceived desirability and perceived feasibility are divided further into perceived personal desirability, perceived social norms, perceived self-efficacy, and perceived collective efficacy (Figure 2). Certain exogenous variables such as individual traits and situational factors may influence intentions indirectly, while other exogenous variables intervene in the intention-behavior relationship and may "precipitate" the realization of intentions in behavior (Ajzen, 1985).

Perceived personal desirability depends on the expected consequences of a certain behavior, involving all negative and positive consequences and intrinsic as well as extrinsic rewards. It contains the affective component which has been associated with an attitude towards an object or behavior, and broadly translates into the degree to which a person has a favorable or unfavorable evaluation of the behavior in question (Fishbein & Ajzen, 1975). Among entrepreneurs, perceived personal desirability may depend upon the economic gains that are expected from a certain course of action, but as new ventures are often ambiguous and uncertain in terms of monetary returns, personal desirability depends on a broad range of both economic and psychological factors. Previous experiences may have a significant influence on the evaluation of the positive and negative aspects of a certain behavior and its anticipated consequences.

Perceived social norms refer to the perceived social pressures to engage in or refrain from specific behavior. It involves the normative beliefs of significant others, such as family and friends, who in the organizational context also include professional referent groups such as close colleagues and peer managers (Johannisson, 1987)[6]. Although a certain behavior may be perceived as highly desirable from a personal point of view, the influence on intentions and actual behavior may be moderated by conflicting social norms. For example, a person may feel inclined to take off a pair of

[5] The relationships between attitudes, intentions, and actual behavior have been explored and empirically verified in the social-psychology literature, see e.g. Fishbein & Ajzen (1975), Ajzen & Fishbein (1980), and Kim & Hunter (1993).

[6] Normative beliefs are concerned with the likelihood that important referent individuals or groups would approve or disapprove of certain behavior, and the strength of each normative belief is weighted by the person's motivation to comply with the referent in question (Ajzen, 1987).

uncomfortable shoes during a formal reception or dinner, but refrain from doing so because it would conflict with social convention. Similar processes are at work in the entrepreneurship domain, as collectively held values and beliefs as well as the existence of role models influence perceptions of the kinds of occupation that are respectable or particularly prestigious (Porter, 1990).

The more competent a person, the more likely he or she is to see a course of behavior as feasible. Ajzen (1985) and Ajzen & Madden (1986), among others, have suggested that taking action not only involves desirability or attitude, but also requires a sense of volitional control, feasibility, or self-efficacy. Perceived self-efficacy is thus defined as an individual's perception of his or her ability to execute some target behavior, a view reflecting both past experiences and anticipated impediments or obstacles (Bandura, 1986). Internal factors that affect the degree of perceived self-efficacy involve personal skills, abilities, and knowledge which are often acquired over longer periods of time. They contribute to a sense of control over the course of future events, and they reduce the perceived risks associated with certain behaviors.

Just as perceived personal desirability has an external counterpart in social norms, perceived self-efficacy is complemented by the perception of the extent to which surrounding resources can be expected or made to cooperate and support an intended behavior. Thus, even if perceived self-efficacy is high, the launching of a new business may still be inhibited by the perception that the necessary external support and resources are lacking. Although the effective use of external or social networks in the entrepreneurial process to some extent appears to be industry-dependent (Butler & Hansen, 1991), it has been shown that the entrepreneur typically draws upon access to specialized labor, equipment, and facilities, as well as financing from private lenders, banks, or venture-capital firms (Shapero, 1975; Aldrich, 1999).

Entrepreneurial Processes in Geographical Space

For the typical individual and prospective entrepreneur, the 'field' that is the basis for the discovery of new business opportunities is created and maintained through direct observation and experience, and hence intimately linked to his or her geographical whereabouts. Specifically, the individual's geographical movements determine the level of exposure to available resources, customers, and new entrepreneurial ideas

which at a certain point in time emerge or have already been implemented in more distant locations (Vernon, 1966) [7].

Geographical movements and the time spent in other locations also determine the scope and content of the individual's social network (Au & Fukuda, 2002), which can be the source of new ideas but also harbors the resources that may be drawn upon and recombined in the creation of new businesses (Aldrich, 1999). Because nations and regions differ in their technological and economic specialization, the individual who moves in geographically confined areas will typically establish social networks that reflect narrow and idiosyncratic skills and resources. Although some generic skills and resources in the social network may be applicable to a wide range of business opportunities, the more specialized and nationally tainted ones can only be used in certain combinations and for certain purposes. In the typical case, the entrepreneur's personal connections do not permit a successful response to the full range of business opportunities of the global opportunity set.

The geographical mobility of individuals and prospective entrepreneurs thus provides a baseline indicator of their ability to identify and respond to latent or emerging business ideas in other locations, and implicitly the chances of breaking away from local business traditions and areas of specialization. Theoretically, the connection between the individual's activities and whereabouts and economic outcomes at the aggregate level has been emphasized in time geography, a special branch of the economic geography literature. Time geography suggests that individuals have a "nest," or base to which they return after shorter or longer excursions into surrounding areas, and that this limits the extent and duration of various individual and business projects (Hägerstrand, 1985, 1991). Hägerstrand (1991: 147) notes that:

> "Thus, in his daily life everybody has to exist spatially on an island. Of course, the actual size of the island depends on the available means of transportation, but this does not alter the principle… On most days, the effective size of an individual's island is much smaller than the potential size, which is delineated by his ability to move."

[7] Vernon (1966) specifically suggested that the entrepreneur's consciousness of opportunity is a function of the ease of communication, which in turn is a function of geographical proximity.

While time geography has produced limited empirical evidence on the international movements of individuals (exceptions include Lenntorp, 1976; Ellegård & Nordell, 1997), various empirical studies indeed suggest that most individuals tend to move about within a very limited geographical area[8]. Studies on the use of time suggest that employed people spend a substantial part of the day either at home or at their workplace (e.g. Robinson *et al.*, 1972)[9]. Using a sample of white-collar employees in four industrial corporations, Törnqvist (1970) found that 11-16 per cent of all face-to-face contact time was accounted for by foreign travel (travel time not included). SOU (1974) summarized a study of a sample of individuals aged 13-74 in the Stockholm area, which revealed that on a yearly basis only 1.8 per cent of all visits took place outside the Greater Stockholm area. While excluding travels to foreign countries, Krantz (1999) shows that in Sweden the average length of travel per person and day increased substantially from 1900 and onward, but leveled off at about 40 kilometers between 1978 and 1996. A large part of this increase is attributed to increasing car ownership and usage.

More recent data have shown that still only a very small proportion of the population in an internationally oriented economy such as Sweden's spends more than 5 per cent of the time in foreign environments (Frändberg & Vilhelmson, 2002). Studying foreign travel by Swedish citizens 1994-2000, the authors find rapid growth in the number of trips abroad (which in 2000 represented 14 per cent of all long-distance travel), but also that a dominant proportion (74 percent) of foreign travel was leisure-related. "Hypermobility", or more than five trips abroad per year, existed in a very small proportion (3 percent) of the population and was primarily due to business-related travel. This pattern of movement suggests gradually enhanced but still comparatively limited exposure to business developments outside the individual's area of residence, and hence limited opportunities to develop social networks that cut across geographic distances.

[8] Conceptually, what in human geography is identified as distance decay refers to the significant decline of an activity or function with increasing distance from its point of origin (for some empirical illustrations, see e.g. Fell man *et al.*, 1992).

[9] Based on an extensive twelve-country study on the use of time, the authors showed that travel unrelated to work accounted on average for less than 3 per cent of the time spent per day. However, the data does not provide information on the relative proportions of local and long-distance travels.

This is not to suggest that all individuals and prospective entrepreneurs experience the same level of exposure to distant or foreign locations. Some nations and cultures are more internationally oriented and outward-looking than others in terms of travel, trade, and business. Moreover, individuals of working age are the most mobile geographically, and mobility is further dependent on factors such as type of work and organizational level (Törnqvist, 1970). There is also evidence that so called skilled transients, although their absolute number is still limited, are becoming increasingly common in the international context (Findlay, 1995; OECD, 2002) [10]. Yet, the order of magnitude indicated by existing empirical studies suggests that local movements are the norm and that exposure to distant locations and business environments, particularly in the general population, remains highly restricted.

Implications for New Cluster Formation

The previous paragraphs have suggested that from both a theoretical and empirical perspective the geographical movements of individuals and prospective entrepreneurs are likely to bias opportunity recognition towards developments in the local environment (Figure 3a). But limited geographical movements, typically implying limitations on the time spent in other locations, also prevent an active response to the comparatively small number of latent and emerging opportunities identified in geographically distant locations. The problem is particularly acute when latent or emerging opportunities are found in areas that have few connections to traditional fields of activity in the entrepreneur's home environment. In some respects, limited geographical movements and time spent in other locations bear directly on the perceived desirability and feasibility of responding to geographically distant opportunities. In others, the effect is mediated by the predominantly local social network that the entrepreneur develops and sustains over time (Figure 3b)[11].

Given what is known about the micro-processes of entrepreneurship and new business formation, it should thus be expected that new cluster formation and development are predominantly local processes. Yet, seemingly limited geographical

[10] According to Findlay (1995), short-term professional assignments in foreign locations usually entail intra-company transfers for periods of one to several years, depending on the nationality of the parent organization and destination.

[11] For a more detailed discussion, see Zander (2004).

movements of individuals and prospective entrepreneurs also suggest an untapped potential for assimilating and leveraging developments and resources in foreign environments. If the geographical mobility of individuals and prospective entrepreneurs can be influenced through various policy measures, this would also improve the chances of discovering and implementing technologies, products and services that in the long-term can shift established national paths of technological and economic activity. Part of this shift may be associated with the discovery and implementation of new business ideas that are only just emerging at the global level, whereas it may also come about through novel recombinations of internationally dispersed resources. There are also more modest effects through the infusion of new resources and technology into existing fields of national economic specialization, but these effects will not be explored or assessed in depth.

POLICIES FOR NEW CLUSTER FORMATION

Governments have traditionally applied a mix of direct and indirect policies aimed at reducing national path-dependency of technological and economic development (Dicken, 1998). Some of the more commonly employed measures include targeting of what are perceived as particularly important and promising industries, and various forms of direct or indirect government support to new and established firms in these industries. A range of industry-, innovation-, and labor market policies have also been applied to stimulate industrial activity in more or less narrow sectors of the economy, and to encourage industrial restructuring. Also, policies concerning inward direct investments often aim to attract certain types of investment while discouraging others, perhaps particularly so among developing nations. Following a general trend towards the liberalization of inward direct investment policies, recent academic work has emphasized the beneficial effects of attracting investments by foreign corporations, specifically in terms of spillover effects and enhanced dynamism of local agglomerations (Dunning, 1993; Birkinshaw, 2000).

In a recent international study, Sölvell *et al.* (2003) explore the nature and evolution of a larger number of cluster initiatives. It is found that most cluster initiatives focus on existing clusters of national or regional importance, and also that those initiatives that serve already strong clusters tend to be the most successful. As noted by the authors: "The CI [Cluster Initiative] can be initiated in the early phases

of the cluster lifecycle, but more often is added as a "turbo charger" in later stages." (p. 12) This suggests that cluster initiatives only occasionally, and perhaps for good reasons, reflect efforts to create new clusters that break with established national paths of technological and business development. Consequently, there is limited information available on the nature and success rate of initiatives specifically aimed at new cluster formation.

Indeed, while policy makers have had access to an increasingly varied and sophisticated toolbox for stimulating and upgrading existing clusters, knowledge about the origins and early development of new clusters is much more limited. In particular, many of the factors or determinants that have been associated with dynamic and successful clusters cannot be expected to be present in the early phases of new cluster formation, particularly when new ideas deviate significantly from established national paths or trajectories of technological and economic activity. Feldman (2001: 862) concludes:

> "Conditions that we observe in defined clusters tell us how these systems function and the policy prescriptions that follow from studying these environments may not be appropriate for regions that are trying to development an entrepreneurial environment."

It appears that policies for new cluster formation may need to proceed along other and more indirect ways, one of which will be outlined and elaborated upon in the following.

An Entrepreneurship Perspective on Policies for New Cluster Formation

In contrast to the more or less top-down approaches of traditional policies, the entrepreneurship perspective provides a less directive, bottom-up, and long-term approach to new cluster formation. It emphasizes the need for individuals and prospective entrepreneurs to become exposed to foreign ideas and influences in the opportunity recognition process, and also to develop more differentiated social networks that can be activated in the pursuit of business ideas that break with established local practices. To explore the policy implications of the entrepreneurship perceptive in more detail, the following discussion will focus on new cluster

formation that is driven by individuals and prospective entrepreneurs residing within a particular nation, but who in various ways and to varying degrees may be exposed to developments and resources in geographically distant locations. It thereby excludes an assessment of how new cluster formation might be influenced by the long-term migration of populations, or by attracting individuals or multinational firms from other geographical locations. Particularly the latter issue has been a widely discussed topic in the international business literature (for a recent account, see Álvarez & Molero, 2003).

Assimilating new influences from foreign locations and converting them into viable business ideas is known to have taken several forms. Some breakthrough innovations have spread very rapidly across national borders, often carried along by internationally mobile individuals. Gustavson (1986) provides several examples of Swedish firms which around the beginning of the past century achieved their first major successes in inventions "borrowed" from abroad. This type of international dissemination and copying of business ideas has continued into modern days, exemplified by the introduction of a variety of internet-related ventures in the Swedish context (Glimstedt & Zander, 2003). These examples further suggest the existence of a type of entrepreneurial idea that is comparably transparent or flexible in its use of underlying resources, and for which the required combinations of skills and resources at least in the initial stages are generally available.

Recent explorations of the dynamics of latecomer firms have also uncovered imitation "the hard way", and how sheer determination and highly focused and compressed learning processes can lead to successful entry into new and rapidly developing high-technology industries. For example, Mathews & Cho (1999) and Mathews (2002a) illustrate how Korean firms have taken on and successfully executed the seemingly impossible task of entering the global semiconductor industry. Yet, one problem or limitation of this form of imitation and industrial renewal is its dependence on supportive institutional conditions, and not all firms and nations will be able to stage the collective efforts required to break into promising and rapidly developing high-technology industries.

Other studies have shown how "astronauts" in closely-knit and homogenous social communities may successfully transfer and leverage knowledge and resources across geographical distances. In a detailed account of the interconnections between the Silicon Valley and Hsinchu-Taipei IT clusters, Saxenian & Hsu (2001) illustrate

how a community of U.S.-educated Chinese Taipei engineers has promoted industrial upgrading in their home country by transferring capital, skills and knowledge. The authors conclude: "As engineers travel between the two regions they carry technical knowledge as well as contacts, capital and information about new opportunities and new markets. Moreover, this information moves almost as quickly between these distant regions as it does within Hsinchu and Silicon Valley because of the density of the social networks and the shared identities and trust within the community." (p. 910) Again, while highly effective in this particular industry and cultural setting, these internationally educated communities of engineers may not be available to all countries, and the effect on industrial renewal of the domestic economy may also vary across social communities (Saxenian, 2001).

The entrepreneurship perspective that has been outlined in this paper opens up for a different and perhaps more general approach to new cluster formation and industrial renewal at the national level. The approach highlights the beneficial effects of policies that promote the geographical mobility of individuals and prospective entrepreneurs, specifically in terms of widening the scope and extending the duration of their visits to foreign locations. Enhanced geographical mobility will have a positive effect on the individual's ability to discover businesses ideas that break with established practices and resources in the home environment, and create international social networks that can support entrepreneurial ideas that draw upon a wider set of skills and resources than are available at home.

By widening the scope of their geographical movements, individuals and prospective entrepreneurs will be exposed to an enlarged set of business opportunities. Enhanced exposure to developments in foreign locations may lead to the discovery of new technologies, products, and services that are only just emerging at the global level, and which are comparatively flexible in terms of their initial requirements for specific skills and resources. To the extent that assimilated ideas spread across a larger number of firms in the entrepreneur's domestic environment, early pursuit of the associated business opportunities may yield first-mover advantages, including early achievement of critical mass and the establishment of a collective international reputation for technological superiority and progressiveness.

Enhanced exposure to foreign locations can also lead to the identification of specific skills, resources, and technologies that can be recombined into novel or significantly improved products and services. Current developments in the world

economy provide access to a growing number of varied resources which, once identified, are available through international trade and arm's length contracting. Indeed, as illustrated by the growth and international expansion of global latecomers (Mathews, 2002b), discovering and leveraging the opportunities offered by increasingly developed markets for materials, products, and intellectual property has generated new business models which in some instances have been used for circumventing and ultimately attacking entrenched industry incumbents.

The novel entrepreneurial ideas and business models that spring out of the recombination of internationally dispersed resources initially often reflect complex arbitrage across national borders, in which profits are only partly dependent on firm-specific capabilities and routines that coordinate the firm's external activities. Yet, complex arbitrage across national borders may subsequently lead to the formation of more distinct capabilities and cooperative routines, specifically through internal and external learning processes aimed at continuously upgrading assimilated materials, products, and technologies. Considering the complications involved in innovating and exchanging knowledge across geographical distances (Malmberg *et al.*, 1996; Sölvell & Zander, 1998), it is likely that entrepreneurs at this stage will attempt to promote the introduction of complementary skills and resources closer to their home base. This implies spill-over effects into the domestic environment, by which the emergence of new suppliers and firms in related technologies contributes to the growth of a local cluster.

Both early involvement in business opportunities that are only just emerging at the global level and novel combinations of internationally dispersed skills, resources and technologies typically require support from the entrepreneur's social network. Moreover, they may necessitate a broader and more diverse set of connections than are provided by the entrepreneur's established connections in the home environment. Requisite social networks that cut across geographical distances will need to be created and sustained through regular and face-to-face interaction. Face-to-face social interaction with geographically distant actors builds trust and emotional bonds between the interacting parties, creates a specialized language and code of communication, and ultimately allows for rapid and effective communication in the development and improvement of new products (Uzzi, 1997; Yli-Renko *et al.*, 2001). All of these aspects are critical for enhancing the perceived feasibility of

entrepreneurial ventures that require more than arm's-length recombination and integration of internationally dispersed resources.

At the same time, it is unlikely that prospective entrepreneurs will respond to geographically distant business opportunities which are highly idiosyncratic and require the support from a broad set of skills and resources which is only accessible through extensive connections in local social networks. As available information on the international mobility of individuals and prospective entrepreneurs suggests, very few individuals will have the opportunity to develop extensive and dense social networks in geographically distant locations. Possibly, entrepreneurs based in larger home markets may not be overly concerned with the absence of specialized skills and resources in their home environment, because an unexploited local market signals time to learn and improve and sufficient profit potential even in the face of increasing foreign competition. Overall, however, the entrepreneur's ability and willingness to act upon all types of opportunities in foreign locations is likely to remain restricted.

Trade-Offs and Secondary Benefits

The micro-processes of entrepreneurship suggest that both the discovery of new business opportunities and the establishment of social networks that cut across geographical distances require either repeated foreign travels or foreign visits of longer duration. Repeated or extended exposure are necessary for gaining an understanding of the logic and requirements of new entrepreneurial ideas that present themselves in distant locations, and through mediation by social networks for evaluating whether perceived opportunities are indeed attractive and interesting to pursue further.

It can be hypothesized that the individual's exposure to foreign locations ultimately comprises a trade-off between scope and depth of observation, where increased scope of observation comes at the expense of immersion in the 'field' and the potential for developing dense social networks. Where prospective entrepreneurs find themselves in this trade-off may have implications for the type of opportunities in distant locations that are likely to be discovered and further acted upon. Yet, this trade-off and the implications for entrepreneurial activity that cuts across geographical distances is largely unexplored territory, and from a policy perspective more research

will be needed to assess and document the potential impact on decision making and behavior at the individual level.

As an additional and concluding note, enhanced scope and duration of the individual's international movements will have additional and secondary benefits in that international contacts will speed up the international exploitation of any newly adopted business ideas. International exposure strengthens the international vision of prospective entrepreneurs, and underscores the need for achieving economies of scale through sales in international or global markets. Established international contacts can also provide initial points of entry into foreign markets (Ellis, 2000), which may subsequently expand into more sophisticated and fully-fledged operations. These effects do not necessarily influence the entrepreneurial processes underlying new firm formation and industrial renewal, but are important for supporting growth, strengthening the competitiveness, and enhancing the chances of survival of firms in fledgling new clusters.

Some Cautioning Remarks

Although the preceding discussion has suggested how enhanced geographical mobility of individuals and prospective entrepreneurs may contribute to cluster renewal at the national level, it should be emphasized that expectations concerning overall and short-term effects should perhaps be moderate. Given some variation across nations and cultures, there are limitations to the extent individuals can and may want to become more mobile in geographical space. In addition, there is very little, if any, empirical evidence on the optimal level of exposure to foreign environments or on the size of the effect on technological and economic renewal at the national level. Other questions that require more in-depth investigations include what types of entrepreneurial idea are sufficiently flexible in their use of underlying resources to allow for development in multiple geographical locations, how ideas assimilated in foreign environments subsequently spread among a larger number of local firms, and which categories of individuals are most likely to convert international exposure and experience into practical action and new business formation[12].

[12] For example, the effects of international student exchange may differ from other means of promoting the individual's geographical mobility. While business managers in established multinational firms are likely to travel extensively internationally and have been found to establish local social networks (Au

It is also notable that the enlarged scope of geographical movements and in particular extended duration of visits to foreign locations introduce the possibility that individual entrepreneurs decide to re-locate in order to respond to new business opportunities. In other words, given the discovery of new opportunities in foreign locations, the operations of newly created firms may not necessarily remain located in the entrepreneur's home country, at a distance from significant and perhaps idiosyncratic resources, customers, and supplying or related firms. When entrepreneurs decide to re-locate geographically, they do not necessarily contribute to new cluster formation in their country of origin, but rather contribute to the dynamism of foreign agglomerations and clusters (Zander, 2002).This potential loss of entrepreneurial talent is an obvious risk and from a policy perspective perhaps unwanted effect of promoting the geographical mobility of the individual.

Overall, however, the old maxim that one has to give what one takes probably applies also to the issues covered in the present paper, and it appears that the propensity to re-locate depends on other factors such as the general business climate and overall degree of economic progress in the entrepreneur's home country. In any event, it would most likely prove difficult to go against the current trend towards integration of the world economy and ongoing efforts to facilitate the international movement and exchange of human capital. Possibly, fears of losing entrepreneurial talent may also over-estimate the propensity of individuals to leave their home environments, and disregard the possibility that re-locating entrepreneurs may at some point return and put their newly acquired skills and social networks to work in their country of origin (Barkin, 1967). Given the right circumstances, the effects may include new business formation, the creation of new employment opportunities, and enhanced international reputation of firms in the emerging local cluster (Saxenian, 2001).

& Fukuda, 2002), they may not be the category most likely to set up new firms (Sexton & Bowman, 1985). Specifically, corporate managers have been found to be involved in a rather narrowly focused search for new opportunities (Kaish & Gilad, 1991; Stewart *et al.*, 1998), and in new firm formation may face particularly high opportunity costs because of their long-term investments in company-specific skills and careers.

SUMMARY AND CONCLUSIONS

The overall thesis of an entrepreneurship perspective on new cluster formation is that new business ideas transcend geographical distances only if they are identified and adopted by individuals. Hence, the study of new cluster formation needs to depart from a detailed and in-depth understanding of the entrepreneur and the processes underlying the discovery and exploitation of new business opportunities. The international scene involves a set of unique opportunities and constraints that influences the nature and unfolding of the entrepreneurial process. The aggregate of locally contained and "sticky" skills and resources provides a global opportunity set that can be of unique value to those individuals who can identity and act upon it. At the same time, human nature and geographical distances impose persistent but to a certain extent negotiable constraints on the discovery and exploitation of the opportunities incorporated in the global opportunity set.

These opportunities and constraints form the cornerstones for addressing and analyzing the effect of geographical mobility of individuals on the introduction of business ideas that break with established national paths of technological and economic development. It has been suggested that existing knowledge about the entrepreneurial process and the geographical mobility of individuals speaks against substantial and rapid changes to national trajectories of technological and economic activity. At the same time, and to the extent that path-dependent development is considered a problem, the entrepreneurship perspective offers a new and perhaps unexplored policy approach to support new cluster formation and industrial renewal at the national level. Specifically, it has been proposed that policies concerned with new cluster formation should focus on the international mobility of individuals and prospective entrepreneurs, specifically their ability to assimilate new ideas in foreign location and to build social networks that transcend geographical distances. The overall idea is certainly not new, as for a long time foresighted individuals have emphasized the importance of geographical mobility of individuals for knowledge exchange and strengthened ties across nations[13]. Yet, the conceptualization of the entrepreneurial process provides a theoretical point of departure that may serve as a

[13] Similarly, the innovative opportunities available to internationally dispersed multinational corporations have been emphasized by e.g. Hedlund (1986) and Bartlett & Ghoshal (1989).

focusing device for further discussions and the formulation of a variety of policy efforts.

In essence, and much in line with the comments by Hägerstrand (1991), closer scrutiny of the geographical movements of individuals provides important insights into their ability to recognize opportunities that are latent in the global opportunity set, with further implications for new cluster formation at the aggregate national level. However, it is necessary to re-emphasize that more research is needed to ascertain the connections between entrepreneurial processes, geographical mobility, and new cluster formation. Although theoretically plausible, it remains an unproven proposition that enhanced exposure to foreign locations, either in terms of enhanced scope or duration of foreign visits, promotes the introduction of business ideas that shift established national paths of technological and economic development. Herein lies a substantial and largely untapped potential for further theoretical and empirical work.

It should also be pointed out that entrepreneurial initiatives that respond to opportunities in the international environment may not necessarily lead to the successful establishment of new clusters. Although research on the growth of clusters and the processes that result in a critical mass of entrepreneurship in certain locations is still in its infancy (Feldman, 2001; Schoonhoven & Romanelli, 2001), existing evidence suggests the continued importance of complementary science and industrial policies that may include regulatory and legislative changes. Hence, it is likely that policies aimed at new cluster formation and industrial renewal will need to draw upon a mix of traditional and new approaches. As so often is the case, the exploration of new fields of inquiry generates a number of questions that need further and more in-depth investigation. Given this caveat, the entrepreneurship perspective that has been promoted in this paper may provide inspiration and a new starting point for policies on new cluster formation and long-term upgrading of the national economy.

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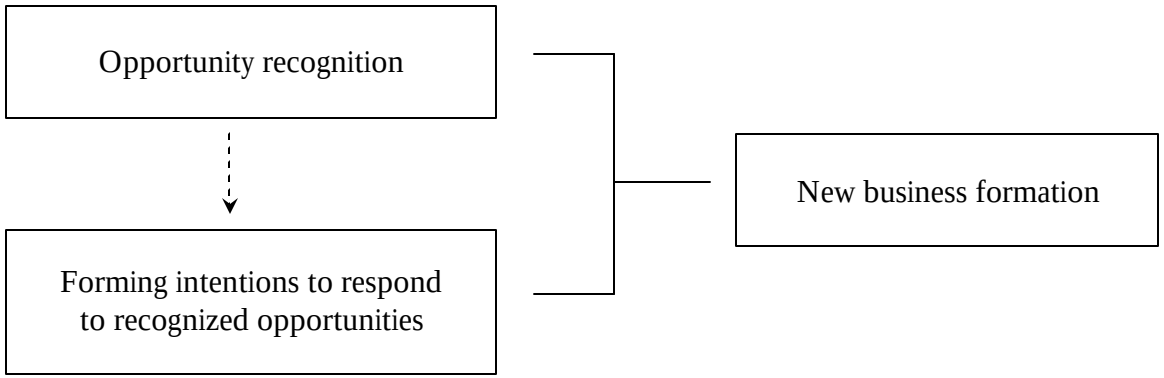


Figure 1: The micro processes of entrepreneurship and new business formation

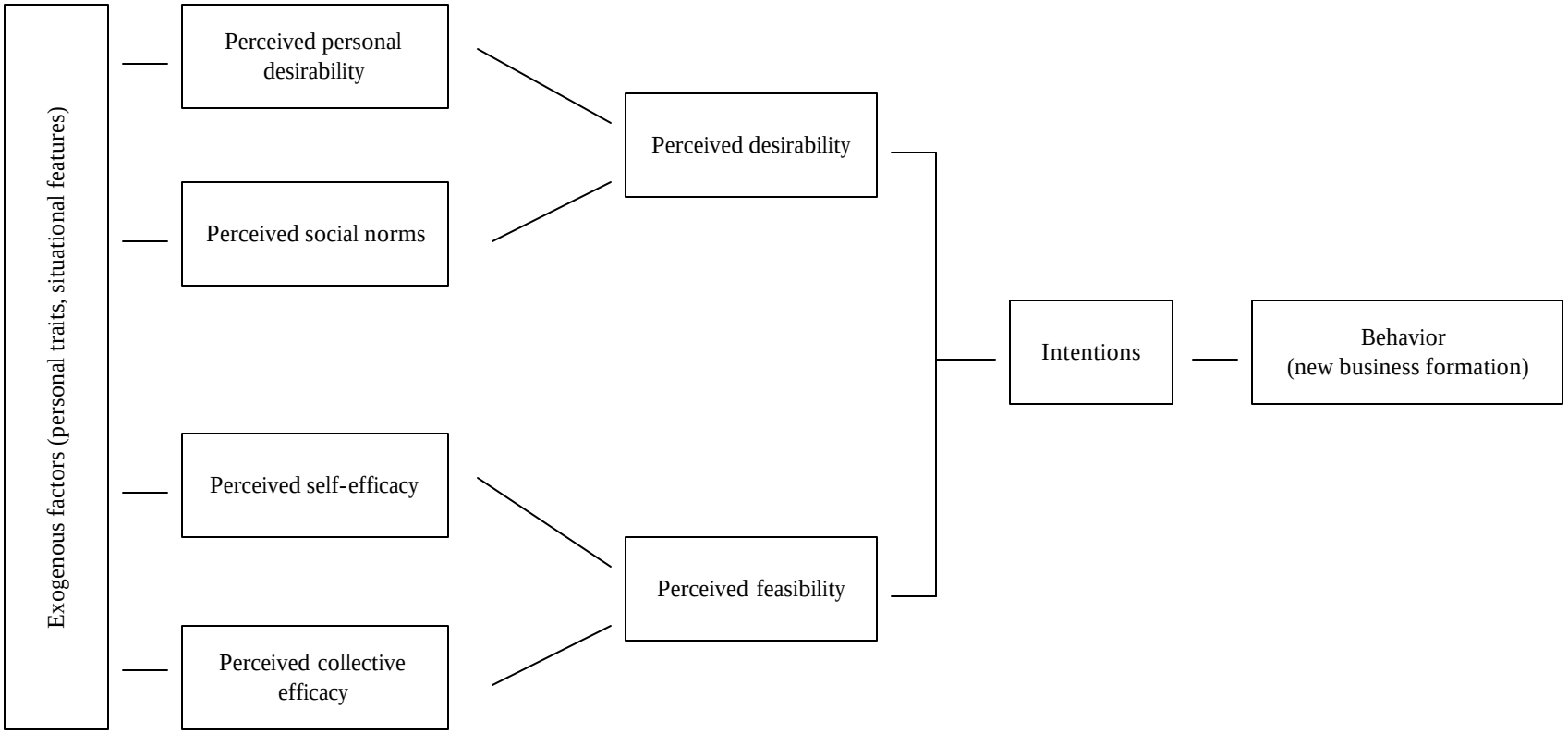


Figure 2: An intentions-based model of new business formation (adapted from Krueger, 2000)

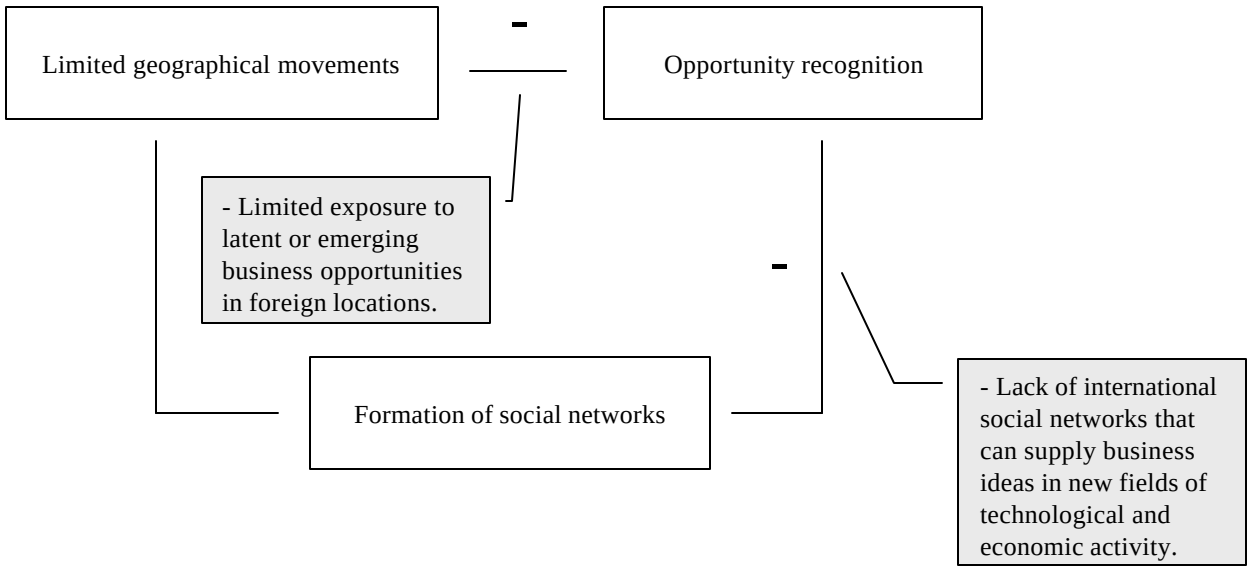


Figure 3a: The effects of limited geographical movements on the discovery of opportunities in foreign locations

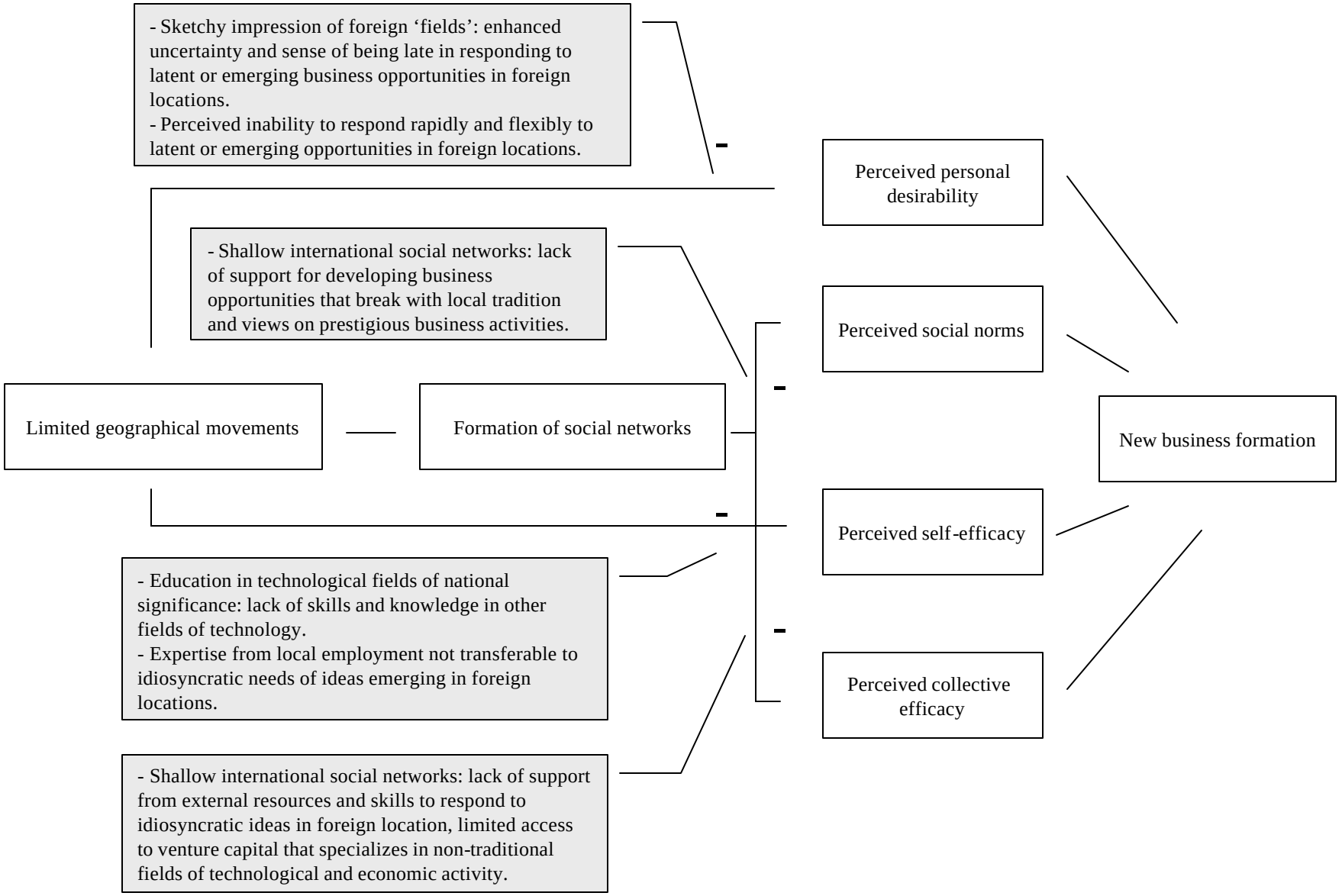


Figure 3b: The effects of limited geographical movements on intentions to respond to latent or emerging business opportunities in foreign locations

THE MICRO-FOUNDATIONS OF CLUSTER STICKINESS – WALKING IN THE SHOES OF THE ENTREPRENEUR

Ivo Zander

The observed phenomenon

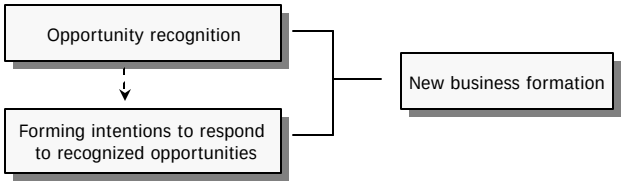
Cluster stickiness, or why clusters remain distinct in a globalized world economy.

The proposed explanation

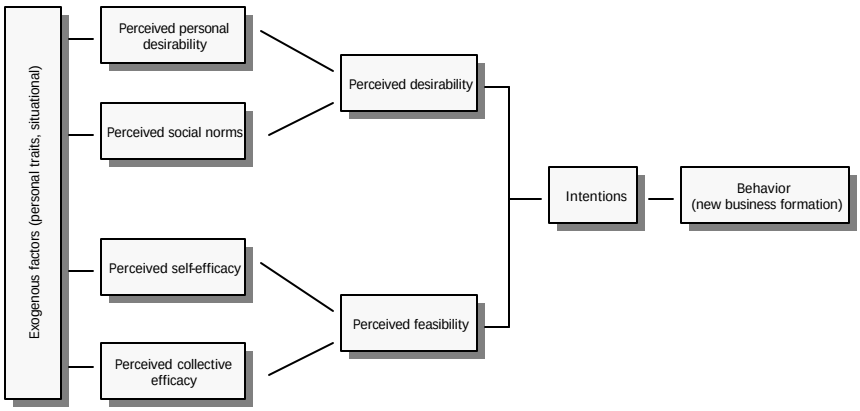
The micro-processes of entrepreneurship:

1. Opportunity recognition
2. Forming intentions to respond to identified business opportunities

The micro processes of new business formation



An intentions-based model of new business formation



How do people/potential entrepreneurs move about geographically?

- ✓ Sample from three Stockholm suburbs, ages 13-74, distribution of visits on yearly basis (1974).

  Average percentage of visits outside the Greater-Stockholm area:

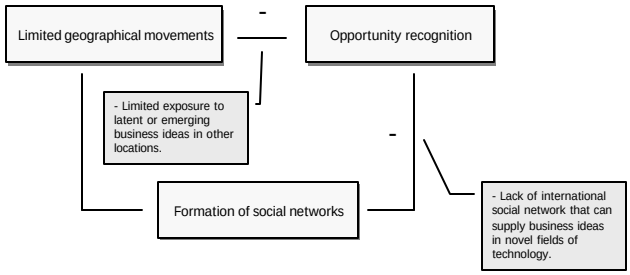
  1.8 per cent

- ✓ Larger survey on travelling patterns of Swedish citizens (Frändberg & Vilhelmson, 2002):

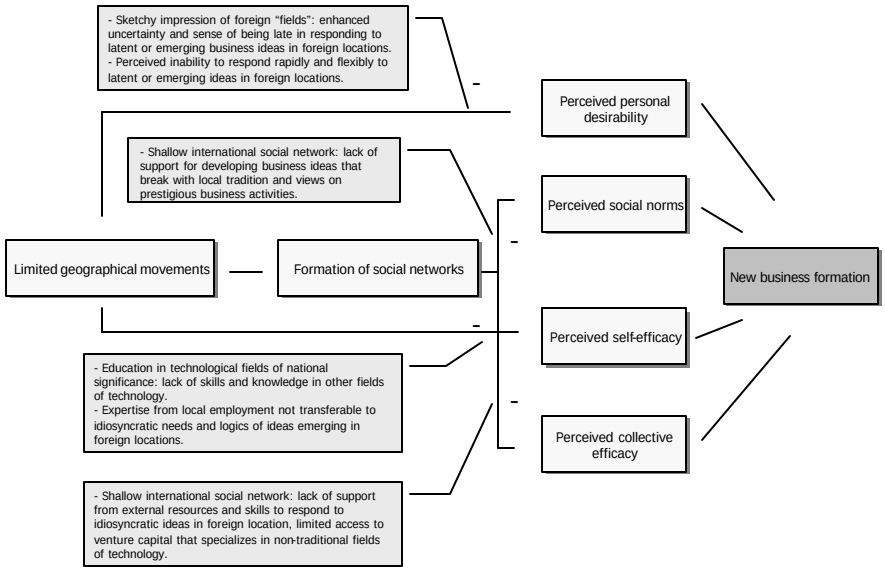
  Rapid growth in number of trips abroad (14 per cent of all long-distance travel in 2000), but 74 per cent is leisure related

  'Hypermobility', or more than five trips abroad per year, in 3 per cent of the population.

The micro-processes in geographical space – opportunity recognition



The micro-processes in geographical space – new business formation



Policy implications – new cluster formation at the national level

Promote the geographical mobility of individuals and potential entrepreneurs

⇩

Early discovery of new entrepreneurial ideas

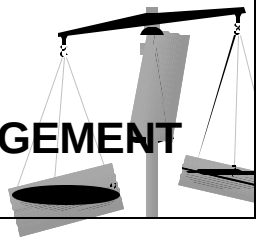
New combinations of internationally dispersed resources

but

Results are long-term and expectations should be moderate
May contribute to international brain-drain

IMPACT OF GLOBALIZATION ON NATIONAL INNOVATION SYSTEMS

VALUING RISK MANAGEMENT

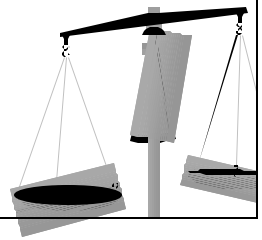


Risk Group

Presentation to

National Innovation Competencies and Interests in a Globalized World

Denver, Colorado
May 25-27, 2004



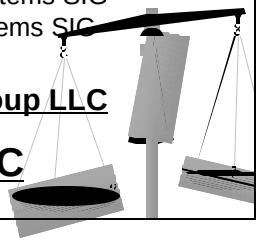
Presented by

Dr. Jayshree Pandya Ph.D, PMP

Member: Project Management Institute (PMI), Global Association of Risk Professionals (GARP), Professional Risk Manager's International Association (PRMIA)

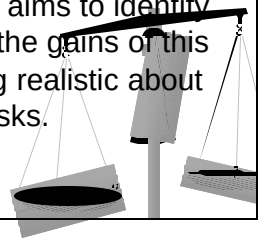
Director at Large: Converging Technologies Bar Association
Co-Founder, PMI Automation Systems SIG
Vice President: Automation Systems SIG

Founder and CEO Risk Group LLC



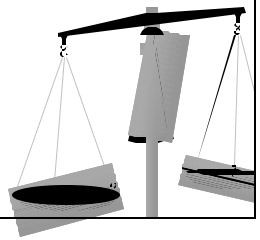
PRESENTATION FOCUS

This presentation offers an overview of some key aspects of globalization and its impact on the national innovation systems and aims to identify ways in which countries can tap the gains of this great innovation, while remaining realistic about its potential and its risks.

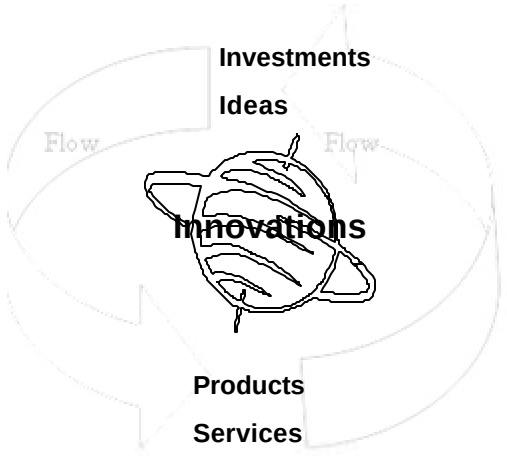


INTRODUCTION

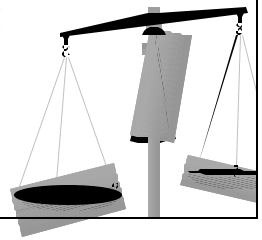
- **Age of Knowledge Management**
- **Age of Globalization**
- **Age of Innovation**



GLOBALIZATION

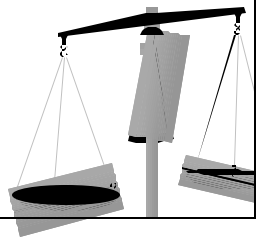


- **Definition**
- **Impact**



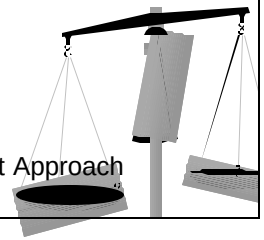
DRIVERS OF GLOBAL MARKET PLACE

- International Trade
- Technological Innovation



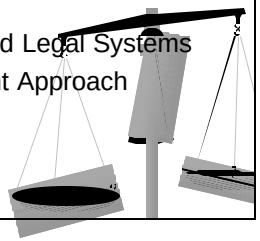
NATIONAL REQUIREMENTS

- Effective, Efficient and Transparent Financial Regulations to attract and keep Investment
- Modern and Cost-Effective Telecommunications
- Efficient, Rapid and Effective Customs Procedures
- Quick-Cost-Effective Transport, especially Air Transport
- Workforce well versed and educated in English
- Well Defined and Matured Intellectual Property and Legal System
- Stable Government
- Investment in R&D
- Proper Policy Framework
- Compliance with Global Standards
- Mature Processes
- Structured Pro-active Risk Management Approach



GLOBAL REQUIREMENTS

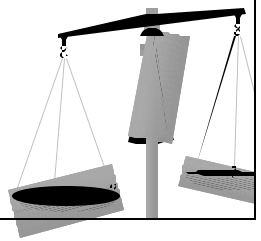
- Establishment of Global Standards
- Establishment of Global Policies
- Establishment of Global Control Board
- Establishment of International Rules and Legal Systems
- Structured Pro-active Risk Management Approach



GLOBALIZATION AND GLOBAL POLICY REGIMES

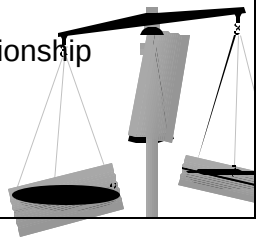
Globalization

- Private Sector driven?

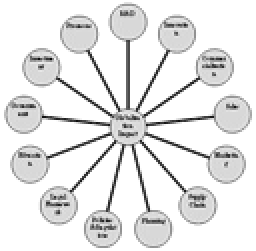


GOVERNMENTS ROLE IN GLOBALIZATION

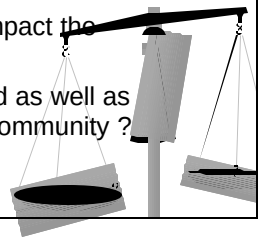
- Assessment
- Structure
- Direction
- Vision
- Championship



IMPACT OF GLOBALIZATION



- What is the Impact of this great Innovation-Globalization?
- How is this great Innovation going to impact the Innovation Industry?
- How is it going to impact the Developed as well as Developing countries and the Global Community ?

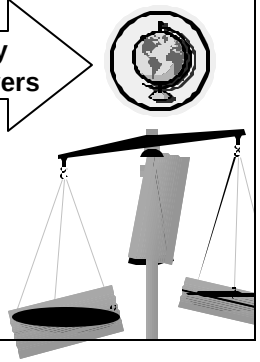


WHAT HAS GLOBALIZATION TO DO WITH INNOVATION

Innovation

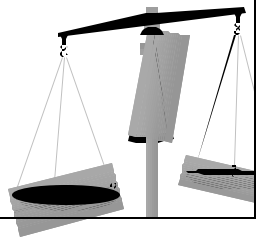
- Use of Knowledge
- Creation
- Diffusion

Key Drivers



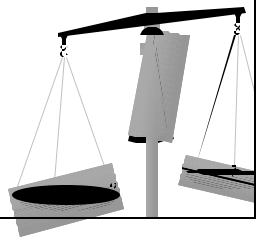
WILL THERE BE INNOVATION GLOBALIZATION?

- National Innovation Systems
- Global Innovation Systems



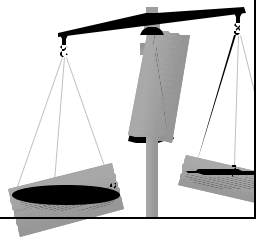
WILL GLOBALIZATION LEAD TO MORE GROWTH AND EFFICIENCY?

- Fundamental Questions



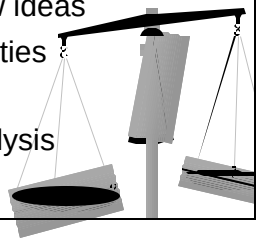
THE DYNAMICS OF INNOVATION

- Technology Innovation
- Process Innovation
- Other Innovations



FORMALIZING INNOVATION MANAGEMENT

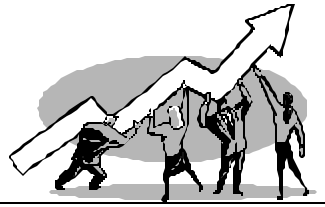
- Building a team to brainstorm new ideas
- “Testing the market" for opportunities
- Evaluation of the competition
- Development of Cost Benefit Analysis

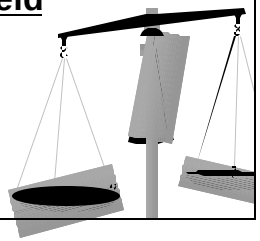


WILL THE INNOVATION CREATE VALUE?

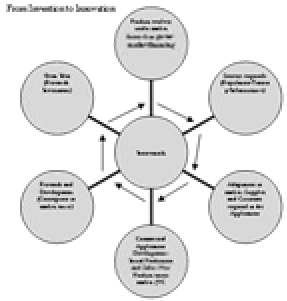
Innovation Necessitates New Yardsticks for Measuring, Monitoring and Managing Risks

Risk Management can be used both as a Sword and a Shield

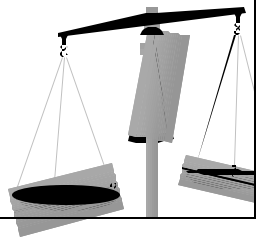




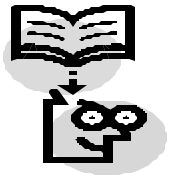
ROLE OF R&D IN INNOVATION



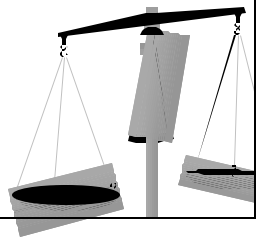
- Starting Point
- Who funds Initial Innovation?



THE INNOVATION PROCESS



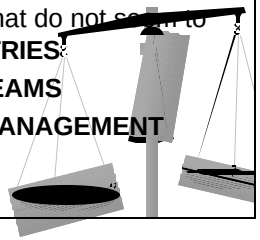
- Commercialization Strategies
- Risks and Rewards



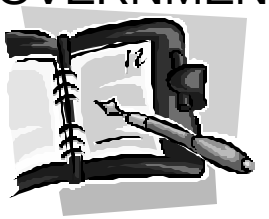
INNOVATIVE NATIONS AND HOW TO BUILD THEM

Most of the Innovative NATIONS display the following characteristics:

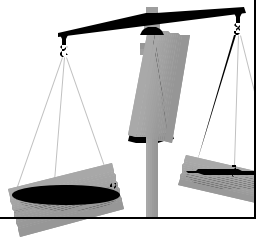
- Strong **VALUES**
- **OPEN CULTURE**
- Government with **VISION**
- Intense **VALUE FOCUS**
- Clear focus on **TRENDS**, even those that do not seem to directly affect **NATION** and its **INDUSTRIES**
- **CROSS-FUNCTIONAL INDUSTRY TEAMS**
- **STRUCTURED PRO-ACTIVE RISK MANAGEMENT APPROACH**



HOW WILL GLOBALIZATION IMPACT NATIONS AND ITS GOVERNMENTS

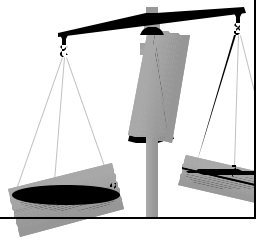


- Developed Countries
- Developing Countries



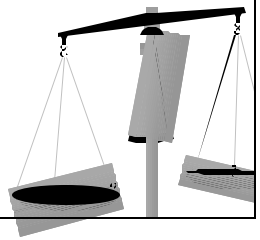
IMPACT OF GLOBALIZATION ON DEVELOPED COUNTRIES

- Are the Developed Nation's Government's in control?



IMPACT OF GLOBALIZATION ON DEVELOPING COUNTRIES

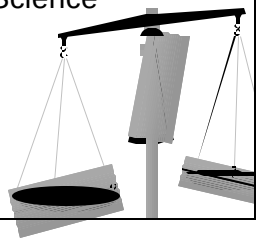
- Domestic Competition
- Global Competition

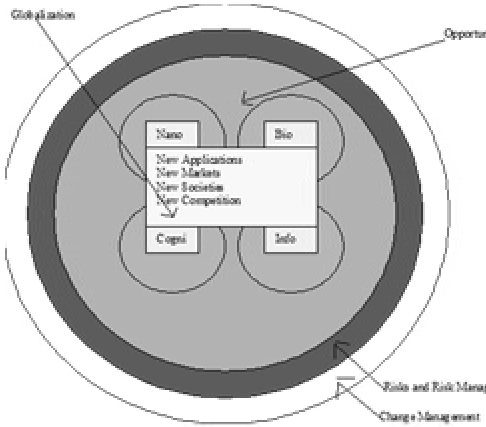


EMERGING INDUSTRY

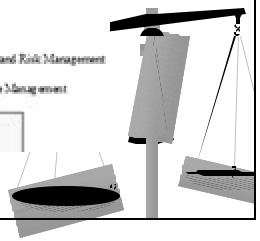
NBIC

- Nanotechnology
- Biotechnology
- Information Technology
- Cognitive Science





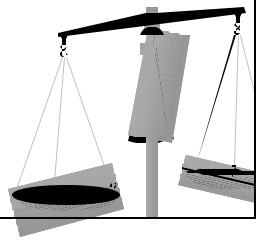
Converging Technologies: Managing Risks



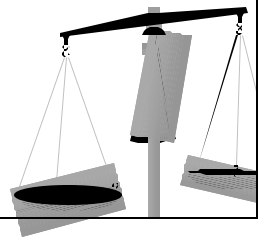
UNIFIED APPROACH

Globalization calls for a Unified Approach

- Public Sector
- Private Sector
- Academic Sector
- Non-Governmental
- Governmental

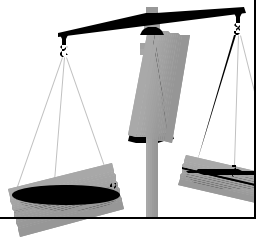


INNOVATION NECESSITATES RISK MANAGEMENT



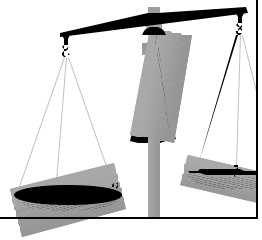
INNOVATION RISKS

- Risks



HOW DO WE GET TO WHERE WE NEED TO BE?

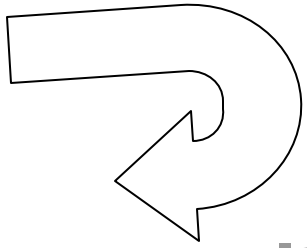
Prior State	Transforming Events	Future State
•Lack of connection to the National Vision	•Improved Communication between Government and Industries	•Government knowledgeable of Tools, Direction and Activities
•Lack of Direction	•Risk Management Office	•Manage Industries with a Global Vision
•Manual Processes	•Strategic Planning Office	
•Duplicate Efforts	•Changes	
•Lack of Priorities		



WHAT IS THE GAP?

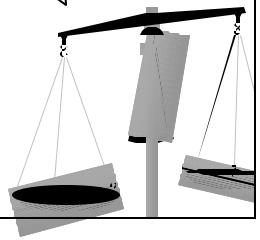
Where are we today?

- Nations
- Industries
- Businesses
- Organizations
- Opportunities
- Risks
- Research
- Products
- Sales
- Revenues
- Marketing



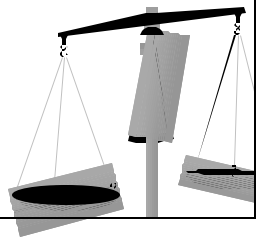
Where we want to be?

- Nation
- Industries
- Vision
- Opportunities
- Risks
- Revenues
- Licenses
- Alliances



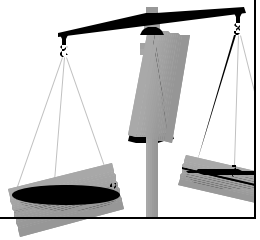
WHAT ARE THE OPTIONS?

- Costs
- Advantages
- Disadvantages
- Risks
- Rewards
- Resources
- Time
- Competition Strategy



INNOVATION GOALS

- Advancement of Current Capabilities
- Creation of Value: ***Creation of Value is the key!***

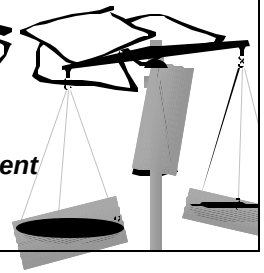


INNOVATION VALUE CREATION

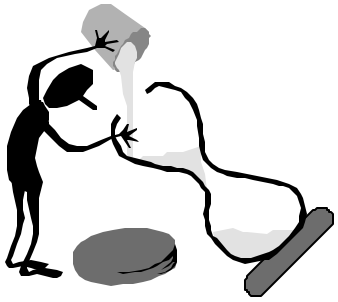
Who will have to adapt to changes?

- Nations
- Governments
- Industries
- Markets
- Businesses
- Organizations
- Approach

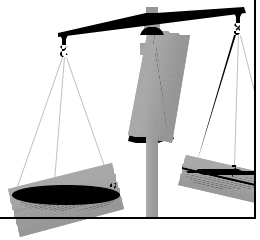
Need for Risk Management



NEED FOR CONSTANT INNOVATION

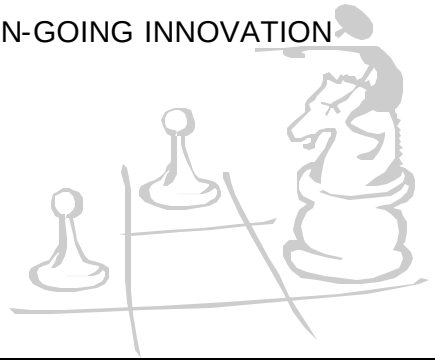


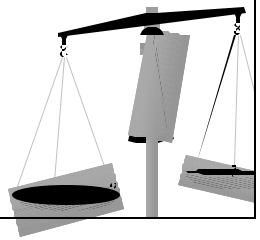
- Is one time Innovation enough?



CONTINUOUS ON-GOING INNOVATION

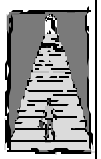
- ONE TIME INNOVATION
- ON-GOING INNOVATION

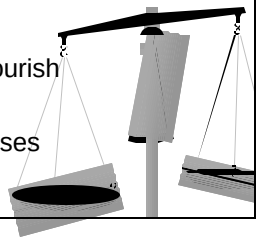




COMPONENTS TO NATIONAL SUCCESS

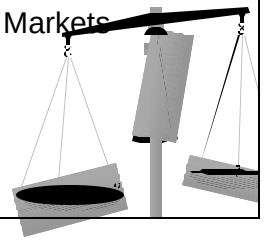
1. Creating a Conducive Environment for Innovation
2. Articulating the right strategy to guide Innovation
3. Understanding the Global Customer and the Global Market
4. Visioning of the Domestic and Global Future
5. Creating Value
6. Driving Market driven Domestic Policy
7. Continuous Innovation
8. Proper framework for Innovation to Flourish
9. Establishing a Right Structure
10. Structured Effective Innovation Processes





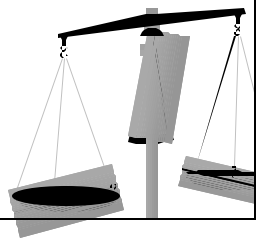
COMPONENTS TO NATIONAL SUCCESS

11. Establishing a Right Culture
12. Developing a Right Labor-Force
13. Defining Affiliations, Alliances and Benchmarks
14. Recognizing and Coping with new Competitors
15. Defining the Business's Value Proposition
16. Obtaining Financing and Building Markets
17. Right Industry Guidance

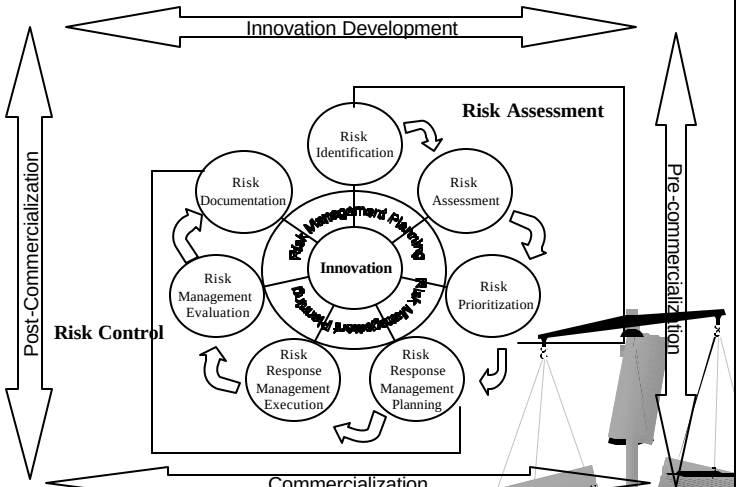


INNOVATION FAILURES AND LESSONS LEARNED

- Case Study

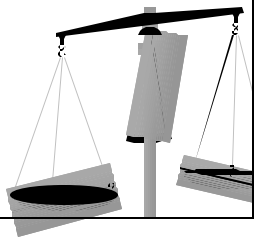


INNOVATION: VALUING RISK MANAGEMENT



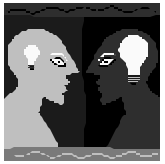
NEED FOR RISK MANAGEMENT IN INNOVATION MANAGEMENT

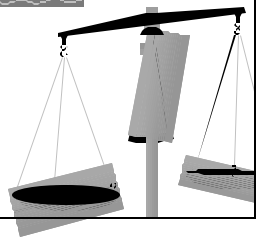
- Innovation is a very Risky Business



NEED FOR RISK MANAGEMENT IN INNOVATION

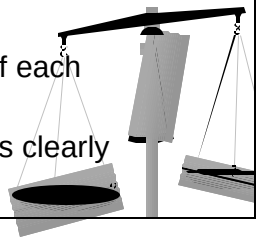
- Pre-Assessment
- Development
- Pre-Commercialization
- Commercialization
- Post-Commercialization

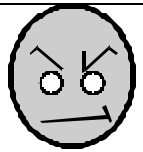




Think how much more successful every Nation would be if its Important Decisions were made from a

- List of Value Creating Alternatives to Current National Strategy
- The Value Creating Potential of each Alternatives were stated
- And the Risks of all Alternatives clearly understood





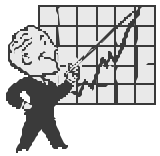
There is little doubt that better choices would be made

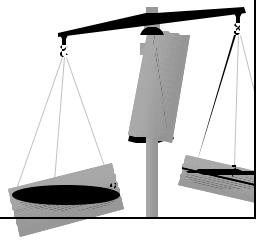
Unfortunately most Nations, its Industries and its Organizations lack an Effective Process and set of tools for Building the Foundations of Good Strategy at any level-at the top or within their Units

CHANGE IN APPROACH

- Traditionally,
  Reactive Response to Crisis and Risks

- Now,
  Proactive Risk Management





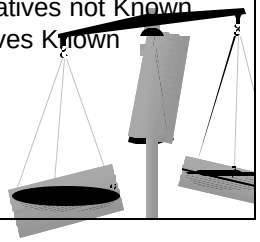
Why Risk Management?

WHAT IS A RISK?

In simple terms, a Risk is any Uncertainty about a future event that threatens any Nations, its Industries and its Organization's ability to accomplish its Mission.

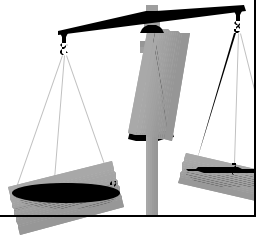
A Risk is also an Uncertain Event or condition that , if it occurs, has a Positive or Negative effect on an Objective

- What is Uncertainty: Outcomes of Alternatives not Known
- What is Certainty: Outcomes of Alternatives Known



RISK

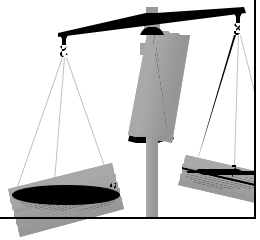
- Risk is Ubiquitous
- Risk is the Fundamental Element that Influences Behavior and Decisions
- Most of the Decisions are focused on the Management of Risks



MAIN COMPONENTS OF RISK

Risk has Three Main Components

- The Uncertain Event
- The Probability of Occurrence of that Event
- The Impact of the Event

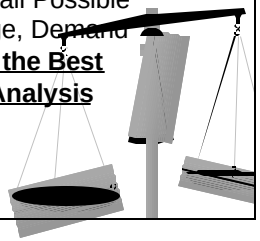


WHY NEED RISK MANAGEMENT?

1. Increasing Global Competition
2. More Demanding Customers
3. Fast Changing Environment
4. The Increasing Pace of Technological Development and other Global Changes
5. Increasing Complexity and Novelty of Business Opportunities
6. Price and Demand Fluctuation
7. To identify the Global Market Risk Factors that affect the Volatility of the Nations and its Earnings and to Measure and Quantify the Combined effect of these Factors

WHY NEED RISK MANAGEMENT?

8. Decisions are made every day-which INNOVATION Request should get Funding; where to Invest, what Product to Produce, which Policies to Change, which Industries to Outsource, what Committees to Establish - The list is endless. Decisions are Probably Based on whatever data is on Hand - Trends, Competitors' Strategy, Gut Feelings, and Political Strength etc. How often do we have Full, Complete Information? It's easy to make Wrong Decision if we don't take all Possible Scenarios into Account (Trends Change, Demand Fluctuates, and Costs Rise). **Making the Best Decisions means Performing Risk Analysis**

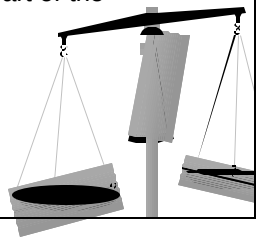


WHY NEED RISK MANAGEMENT?

9. Ever-Increasing number of Professionals and Managers in Government, Industry, and Academia are devoting a larger portion of their Time and Resources to the task of improving their Approach to, and Understanding of, Risk-Based Decision-Making
10. The Education of Future Professionals would be Incomplete without Knowledge of Risk Management and its Applications to National, Societal and Industrial Competitiveness
11. Risk and Uncertainty must be Managed Effectively to Permit the Development of Reliable, High-Quality Innovations

WHY NEED RISK MANAGEMENT?

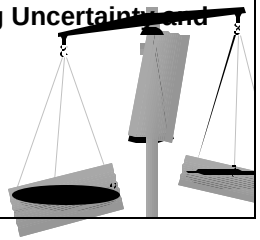
12. To combine the Effects of the Underlying Global Exposures with those of any Financial Hedges that are put in Place
13. To Understand the Underlying Risks when Planning and Developing Strategy
14. Risk and Uncertainty are always present in the Actions of Human Beings
15. Risk Management must be an Integral part of the Management of Innovation



WHY NEED RISK MANAGEMENT?

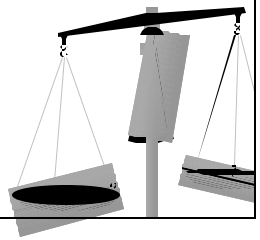
16. Nations and Organizations that successfully address the Risk and Uncertainty caused by future Innovation and Product Designs, Resource Availability, Natural Forces, Market Changes, and the Global Forces will dominate the Globalizing World

These are some of many more factors that are demanding the Need for more Structured, Systematic and Effective Approach to Managing Uncertainty and Risks



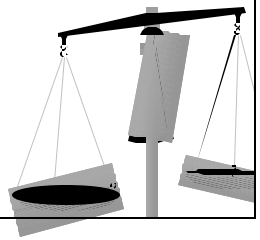
RISK MANAGEMENT

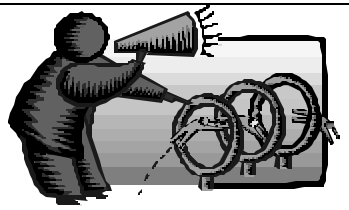
- Is Risk Management an American Phenomenon?



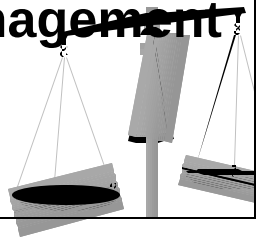
RISK MANAGEMENT AND DECISION PROCESS

- Strategy Development
- Identification of Realistic Alternatives
- Evaluation of Value and Risk of each Alternative
- Selection of Alternative
- Implementation of Selected Alternative





Global Stakeholders Demand Proactive Risk Management



Every Nation and its Organization must answer the following Questions:

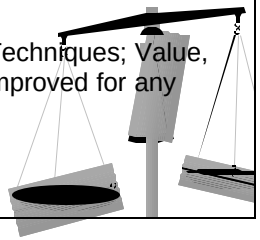
- How much Risk is too much?
- How much Risk is too little?
- How will the Nation, its Industries and its Organizations benefit for the Risk they take?

WHAT IS RISK MANAGEMENT?

Risk Management is a Process consisting of Well-Defined steps which, when taken in sequence, support Better Decision Making by contributing to a greater insight into Risks and their Impacts

It Deals with Identifying Opportunities as well as Avoiding Losses

By Adopting Effective Risk Management Techniques; Value, Safety, Quality and Performance can be improved for any Nation and its Organization



RISK VERSUS OPPORTUNITY

- Risk and Opportunity go Hand in Hand!
- Risk Taking is the First and Most Essential Step in all Human Progress!
- Risk in itself is not Bad; Risk is essential to Progress, and Failure is often a key part of Learning. But we must learn to balance the possible Negative Consequences of Risk against the Potential Benefits of its Associated Opportunity
- Calculated Risks are in everyone's Interest when Opportunities arise

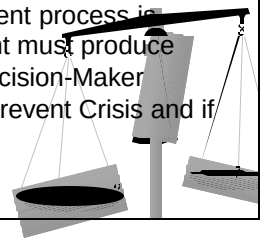
The Key is Calculated Risks and not Blind Risks

WHAT ARE THE OBJECTIVES OF RISK MANAGEMENT?

1. Risk Management must help us to Identify Global, National and Innovation Risks and Issues while there is still time to Manage them
2. Risk Management must help us Assign Realistic Priorities because no Nation will usually have Enough Time or Resources to Manage all
3. When we are making Decisions as a Whole, we need to Understand the Overall level of Risk that is Represented; so the next Requirement is to Aggregate Several Individual Risks into a Measure of Overall Risk

WHAT ARE THE OBJECTIVES OF RISK MANAGEMENT?

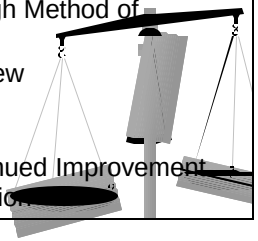
4. We need to Follow Risk Assessment by Risk Management through such tools as Containment and Contingencies with Defined Triggers enabling Risk Responses to be Timely and Effective
5. No Risk Management Plan or Response Plan can be Successful without Clear Steps of Execution
6. The heart of the whole Risk Management process is Decision-Making, and Risk Assessment must produce Information in a form that helps the Decision-Maker
7. The Objective and Goal should be to Prevent Crisis and if it happens to Manage Crisis!



BENEFITS OF RISK MANAGEMENT

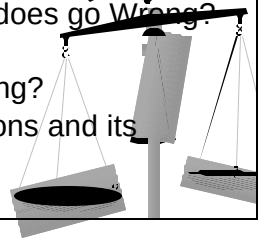
There are many Benefits in Implementing Risk Management :

- More Effective Strategic Planning
- Better Cost Control
- Enhancing National Value by Minimizing Losses and Maximizing Opportunities
- Increased Knowledge and Understanding of Exposure to Risk
- A Systematic, Well-Informed and thorough Method of Decision Making
- Increased Preparedness for Global Review
- Minimized Disruptions
- Better Utilization of Resources
- Strengthening National Culture for Continued Improvement
- Creating a Best Practice and Quality Nation

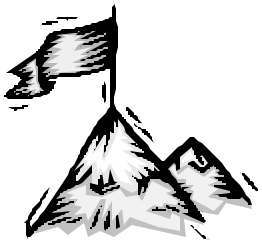


RISK MANAGEMENT IS A FORMAL, STRUCTURED ATTEMPT TO RESPOND TO QUESTIONS SUCH AS

- What can go Wrong?
- How likely it is to go Wrong?
- What are the Consequences if it does go Wrong?
- How can it be Managed?
- What should we do if it goes Wrong?
- What Risks might cause the Nations and its Industries to go awry?



RISK MANAGEMENT GOALS



Achieve the Best Combination of

- Risk Reduction
- Risk Retention
- Risk Transfer

Consistent with the Optimum Effect on Nations and its Organization's Overall Value!!!!

HOW DOES RISK MANAGEMENT HELP?

Risk Management Provides a Disciplined Environment for Proactive Decision-Making to

- Assess Continuously What can go Wrong (Risks)!
- Determine what Risks are Important to Deal With!
- Implement Strategies to Deal with Those Risks!

WHO IS RISK MANAGEMENT FOR?

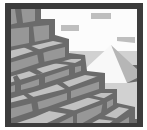
Basically

Any Nation,
- Big and Small

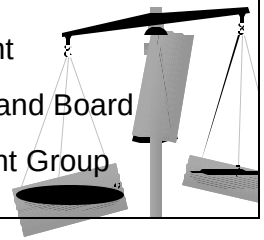
Any Organization,
- Large or Small
- Private or Public

can Benefit from the Implementation of Risk Management Strategies!

RISK MANAGEMENT STRUCTURE



- Who should do Risk Management?
- What should be the Structure of Risk Management Group?
- Centralization of Risk Management
- Establishment of Risk Committee and Board
- Independence of Risk Management Group



ROLE OF RISK COMMITTEE

Risk Committee Ensures that the

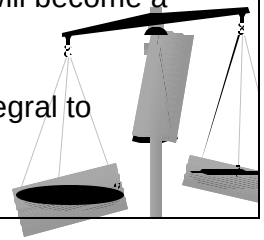
- Risk Management Process is Implemented and Followed
- To remove Political Obstacles
- To Provide Value
- To Ensure Unbiased Neutral Risk Management is carried out

WHAT WILL RISK MANAGEMENT DO FOR YOUR NATION?

There will be a Cultural Shift from “Fire-Fighting" and “Crisis Management" to Proactive Decision Making that Avoids Problems before they arise

Anticipating what might go Wrong will become a part of everyday Business

Management of Risks will be as integral to NATIONS as Project Management



IF I IMPLEMENT RISK MANAGEMENT, DOES THAT GUARANTEE SUCCESS?

No!

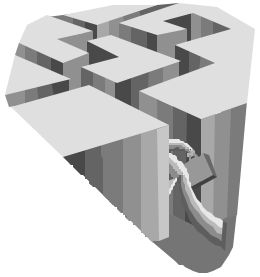
There are Many Aspects to Achieving Success

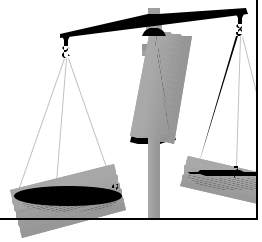
Risk Management is not a Silver Bullet

However, it can Improve Decision Making, help Avoid Surprises, and Significantly Improve the Chances of Succeeding

WHEN SHOULD RISK MANAGEMENT START?

Right at the Beginning!

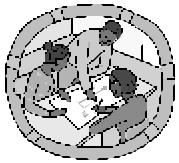


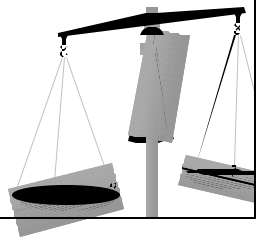


INTEGRATION OF RISK MANAGEMENT AND PLANNING

"Risk Management and Strategy/Planning must be Linked"

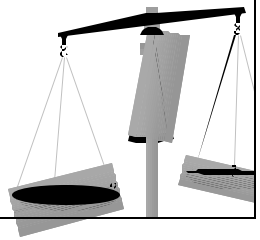
When Strategy is being Developed, Risk too often gets swept under the Table





RISK ASSESSMENT AND MANAGING RISKS

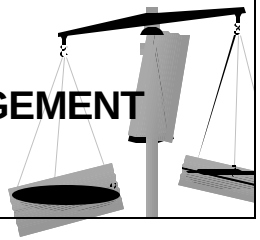
- Required Tools
- Available Tools



BETTER RISK MEASUREMENT

Means

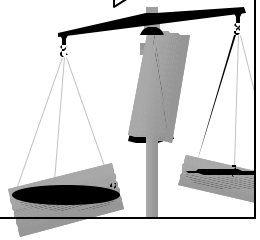
BETTER RISK MANAGEMENT



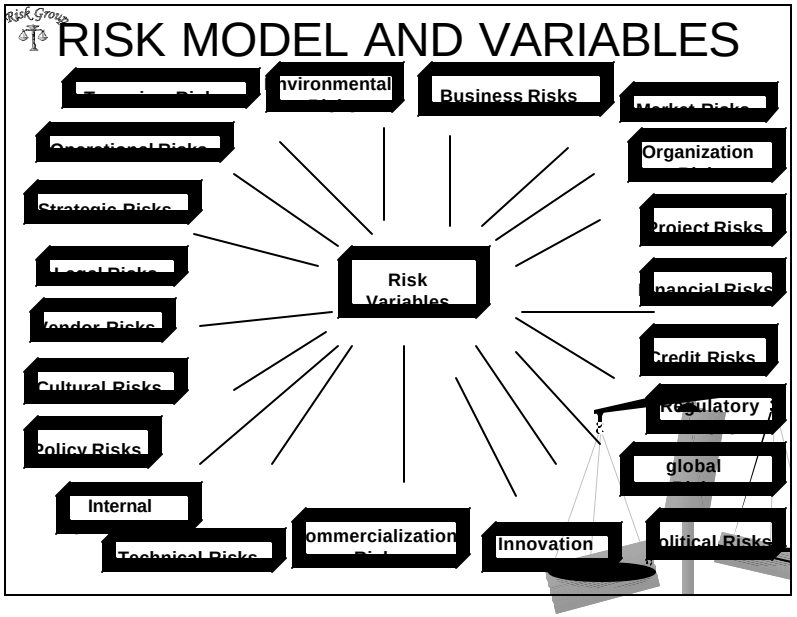
RESULT DRIVEN APPROACH

Activities → Results

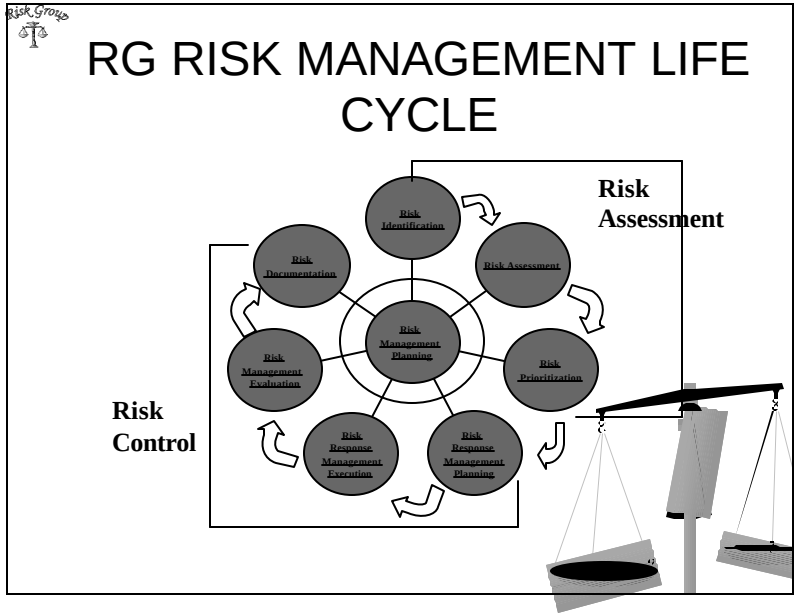
Yes! Results → Activities



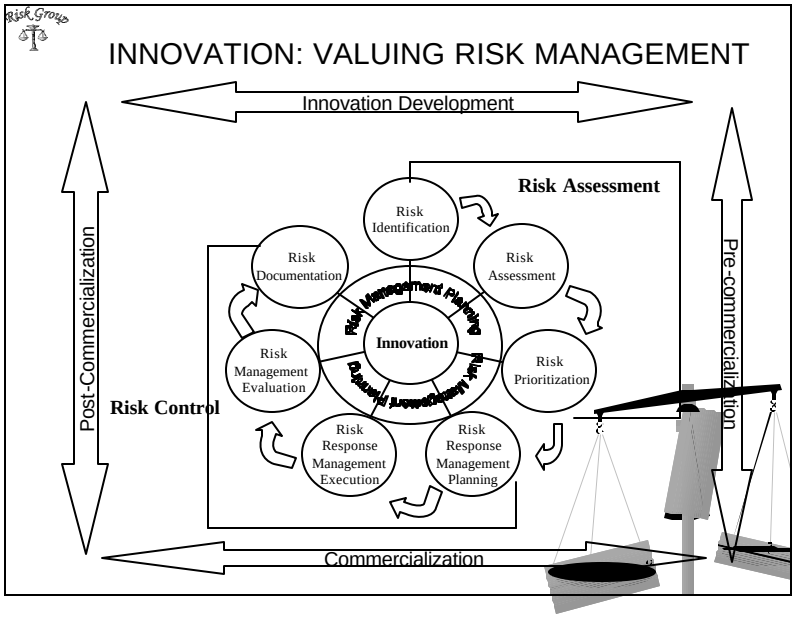
RISK MODEL AND VARIABLES



RG RISK MANAGEMENT LIFE CYCLE

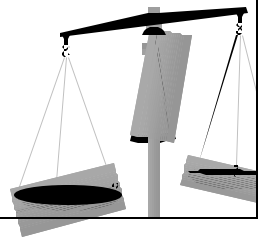


INNOVATION: VALUING RISK MANAGEMENT

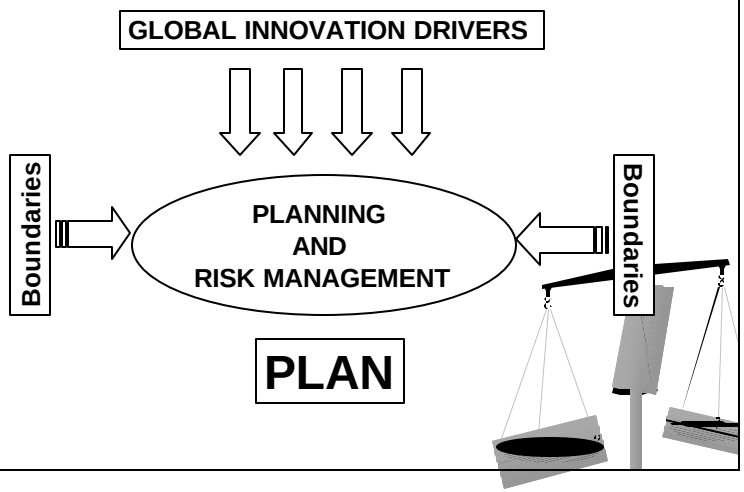


ON-GOING RISK MANAGEMENT

- Risk Management is an On-going Continuous Process



INNOVATION DRIVERS

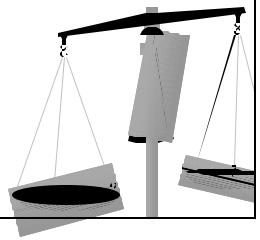


INNOVATION DRIVERS

- How does INNOVATION PLAN identify Better Operating Effectiveness? Through the following key success factors:
  - Creation of High Performance Customer oriented Nation
  - Increased Manufacturing Efficiencies, Consolidations and Outsourcing
  - Enhanced Sales and Customer Support Processes
  - Re-defined Financial and Administrative Processes that Reduce Cost

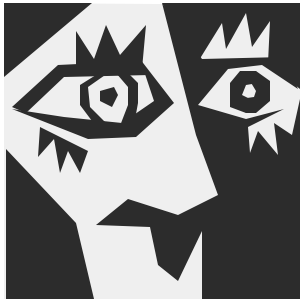
INNOVATION PROCESSES

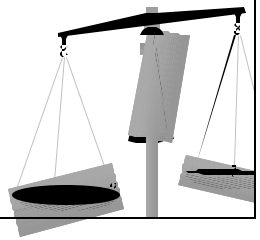
- How well the Nations Processes are Identified, Analyzed and Improved will determine the Nations Success in the Future
- These Process Improvements results in Changes and are therefore important to Identify in the Strategic Planning Process
- The amount of Change necessary to a Process may also have an Impact on the overall fit



COMPETITOR PROFILES

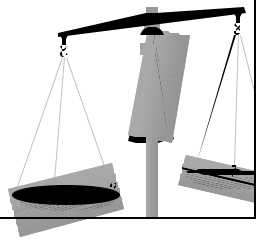
- What are your Competitors Doing?
- How do you get Competitor Profile?





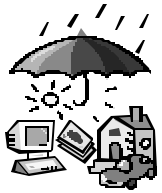
DETERMINE THE GAP BETWEEN YOUR CURRENT STATE AND FUTURE VISION

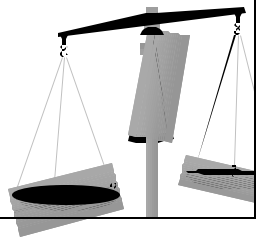
- What would it take to Go where you want to be?
- Determine Gaps from Current to Future



RISK MANAGEMENT GROUP

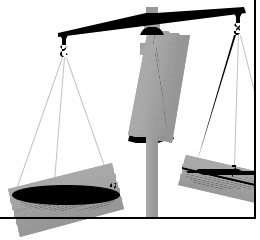
- Government should have Independent Risk Management Group which is Independent and reports directly to the Decision Maker



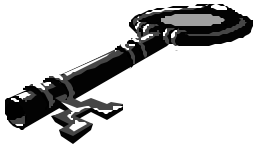


SUMMARY

Pro-Active, Formal, Structured Approach of Managing Innovation over Reactive and Informal Approach will be a required competency for all the Nations and its Enterprises in the coming years



KEY TO RISK MANAGEMENT



Right People
With
Right Skills
Doing
Right Things
At
Right Time

CHALLENGES AHEAD!

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THANK
YOU!

Digital Transitions and Globalization: The POLIS Theory and The NIEs

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MAY,2004

Digital Transitions: The POLIS Theory and The NIEs

- In the fast developing digital technological revolution even the newly industrialized economies (the NIEs) have found it hard to catch up and maintain the pace required for not falling behind.

Digital Transitions: The POLIS Theory and The NIEs

- The developing economies are clearly at a great disadvantage in such a fast paced technological race.
- Thus there is a digital divide that is growing and through a cumulative causation the gap will widen further unless coordinated action is taken.
- This paper discusses some of the most important economic issues conceptually and offers some modest policy advice.

Digital Transitions: The POLIS Theory and The NIEs

- The basic problem of adoption of a new technology system such as the ICT(information and communications technologies) is explored via the theory of a positive feedback loop innovation system (POLIS) in a nonlinear, path-dependent world where institutional structure and its evolution matter crucially.

Digital Transitions: The POLIS Theory and The NIEs

- The most widely accepted definition so far is the one agreed to at the April 1998 meeting of the Working Party on Indicators for the Information Society (WPIIS) and subsequently endorsed at the September 1998 meeting of the Committee for Information, Computer and Communication Policy of OECD. The following principles underlie the definition.

Digital Transitions: The POLIS Theory and The NIEs

- For *manufacturing industries*, the products of a candidate industry:
  - Must be intended to fulfill the function of information processing and communication including transmission and display.
  - Must use electronic processing to detect, measure and/or record physical phenomena or to control a physical process.

Digital Transitions: The POLIS Theory and The NIEs

- For *services industries*, the products of a candidate industry:
  - Must be intended to enable the function of information processing and communication by electronic means.

Digital Transitions: The POLIS Theory and The NIEs

- By investing strategically in physical, intellectual and other forms of human and organizational capital as well as building new institutions of cooperation the NIEs may be able to forge a path not only in the ICT sectors, but also create innovation systems of their own that can be extended to region-wide systems.

Digital Transitions: The POLIS Theory and The NIEs

- Under the emerging globally competitive market environment this will be the best way to compete dynamically. However, creating comparative advantage in this way requires capabilities that many NIES in Asia will need to promote.

Digital Transitions: The POLIS Theory and The NIEs

- Creative policy interventions with a mix of market promotion, good governance, relative openness, and promotion of sustainable development in an equitable manner are necessary if the NIEs are not to be left far behind.

Digital Transitions: The POLIS Theory and The NIEs

- Cooperating to build specific program oriented organizations through regional cooperation will be necessary.

Digital Transitions: The POLIS Theory and The NIEs

- Ultimately, creation of regional POLIS may be possible.
- The theoretical approach developed here also allows to evaluate the state of the economy and society ethically by extending and incorporating Amartya Sen's capabilities approach within the POLIS.

Digital Transitions: The POLIS Theory and The NIEs

- Concrete Country Examples from H.A. Khan,*Interpreting East Asian Growth and Innovation:The Future of Miracles*, Palgrave/Macmillan,2004, H. A. Khan, "A Schumpeterian Model of Innovation", *Oxford Development Studies*,October,2002, and Creative Capital in POLIS, SW Review of International Business Research, March,2004.
- **Korea**
- **Chinese Taipei**