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Globalization & the Nordic Success Model: Part II

Arto Lahti

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Part II

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Globalization & the Nordic Succes Model – Part II
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–Vad skiljer er från andra företag?

Kunderna som får dig att växa

”Vad skiljer er från andra revisions- och konsultföretag?” Den frågan får vi ofta. Svaret är enkelt. Vårt kundfokus – dynamiska ägarledda företag. Hos oss arbetar du med spännande entreprenörer vars företag vi hjälper att växa och utvecklas. Det gör ditt arbete varierande, utmanande och lärorikt. Du använder dina teoretiska kunskaper, bygger relationer och får värdefull erfarenhet. Vill du utveckla din egen förmåga? Välkommen till oss på Grant Thornton.

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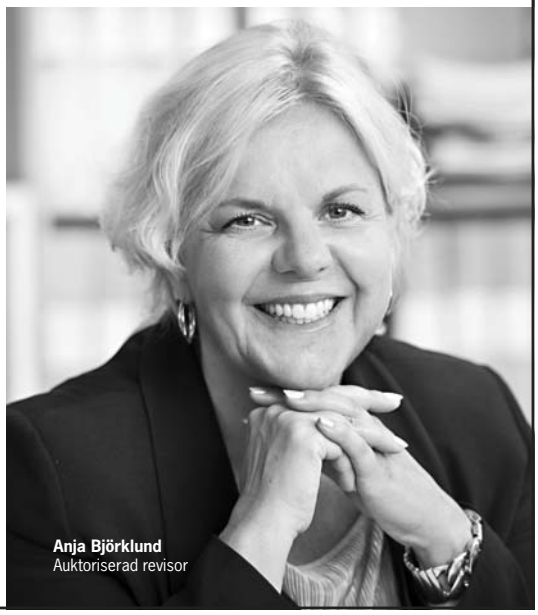

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Preface

This book analyses the global economy from the viewpoint of innovative firms. The main contribution relates to the argument that the best way to solve the current and future challenges facing the global economy is through a better understanding of Schumpeterian entrepreneurship in its modern forms. Multinational companies sell global commodities and mass-customized products, often by utilizing general principles of applied microeconomics such as Porter's matrix of generic strategies. Innovative (growth) firms are viewing their global markets from a bottom-up perspective. The resource-based (RBV) view is an important element of the bottom-up perspective and has become well suited to innovative firms when the industrial organization (IO) school is like tailored for big multinationals. The RBV and the IO dates back to the history of strategic management doctrine by Alfred Chandler, intended to deconstruct the black box of the economist's production function into some more elemental components and interactions

In the Nordic countries a rapid deregulation of the ICT industry happed in the late 1980s. Being the first mover in digital mobile phones and shifting its focus to the opportunity share (Hamel & Prahalad, 1994, pp. 34–35), Nokia, the flagship of the Nordic firms, made bold leaps in the 1990s from a mass-producer of commodities (e.g. paper) to the absolute elite group of global high-tech firms. Nokia's growth story is one of the most spectacular (Schumpeterian) cases over time. In terms of orthodox IO, Nokia jumped over market barriers in the way that should not be possible and that might have led to a devastating price competition in the oligopolistic market (Scherer and Ross 1990). By adapting Romer's increasing return model, Nokia achieved an optimal market share on the global mobile phones markets (Buzzell and Gale, 1987). Tom Peters (Peters, 1990) debated about fragmented markets, referring to flexible with a wider variety of products to narrower markets. This was the market strategy that Nokia succeeded to implement. This book is based the writer's own history and writings about the Nordic success stories that are useful to read.

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1 Agglomeration economies of regions

1.1 From the exogenous and endogenous growth theory

Economics has its underpinnings in the growth of markets. This is the standpoint of famous British economics from Adam Smith to David Ricardo to Alfred Marshall. Since the neoclassical economics or the Walrasian System was laid down in the first decades of the 20th century, neoclassical theorists have been reluctant to expand their models. According to **neoclassical or exogenous growth theory**, the main determinants of long-run economic growth are not influenced by economic incentives of human agents that are the core ingredient of Schumpter's thinking. The analysis on growth factor of nations has been based on residual analysis. Robert Solow, a Nobel Prize-winner, advanced the neoclassical growth model[1]. Solow found that technology progress has in the western countries been the most important input factor allowing long-run growth in real wages and the standard of living. In Solow's model, the growth is caused by capital accumulation and autonomous technological change.

$$Y = F(K, L)$$

where

K = the capital stock and
L = the labor force

Formula 1: Solow' model

Solow postulated that the production function displays constant returns to scale, so that doubling all inputs would double output. This kind of a simplifying assumption is the major weakness, since holding one input constant (labor) and doubling capital will yield less than double the amount of output. This is the famous law of diminishing marginal returns. Solow's model is a typical example of the ones of the **exogenous growth theories.** Through his residual analysis, Solow broke down changes in labor productivity into two parts:

1. **increase in the amount of capital per unit of labor** and
2. **technological progress** that includes improvements in the human factor.

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Later, Robert Solow has addressed that the technology progress has in western countries been the most important input factor allowing long-run growth in real wages and the standard of living. In his Nobel Prize lecture, Robert Solow referred to the rivalry (or occasional complementarities) as the catalyst of innovations. Solow highly appreciated Schumpeter's thinking. Solow admitted in his lecture[2] that, over the long run, countries appear to have accelerating growth rates and, among countries, growth rates differ substantially. This cannot be explained by the neoclassical growth theory. The **new or endogenous growth theory** has became popular during the two last decades, when Paul Romer recognized that technology (and the knowledge on which it is based) has to be viewed as an equivalent third factor along with capital and land in leading economies[3]. Paul Romer[4] has found that an economy's increased openness raises domestic productivity, and hence must have a positive effect on the living standards of a nation.

Endogenous growth theory is based on the idea that the long-run growth is determined by economic incentives. Like Schumpter, Romer maintains that inventions are intentional and generate technological spillovers that lower the cost of future innovations. An educated work force plays a special role in determining the rate of long-run growth.

The new or endogenous growth theory has become popular during the two last decades in the USA and, later, in newly industrialized countries like China and India that invest heavily in innovations. Multinationals expect that the EU could follow the new growth theory in its policy making like other major players in the global game. As an alternative to the new growth theory, the EU doctrine relies on the Stability and Growth Pact[5]. The EU's view on growth factors is still exogenous according to Robert Solow's growth theory. The EU is lagging behind in the growth policy[6] and is feared to be losing the global race in the same way as it lost the race against the USA in the second industrial revolution.

The new growth theory has been advanced by neo-Schumpeterian writers, like Kenichi Ohmae[7], Tom Peters[8] and Alvin Toffler[9]. They have offered a perspective on economic growth that differs in important ways from the traditional view. Growth theorists seem to believe that the incentives created by the markets affect profoundly on the pace and direction of economic progress. When humans do set to work in an unexplored area, important new discoveries will emerge. The key in the growth process is the market system, supported by the hybrid institutions like universities or R&D labs and by other more informal networks like consultants and technology parks.

The new growth theorists, believe like William Baumol has remarked, that the study of business without understanding of the real entrepreneurship is biased[10].

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Traditionally, social scientists and policymakers saw economic progress as a result of progress in knowledge or technology (Kuhn's paradigm). Revolution instead of evolution is the core content of neo-Schumpeterian writers. An example of neo-Schumpeterian discovery is the famous **Gordon Moore's law of the new cost curve**. In 1965, Gordon Moore, co-founder of Intel, declared the law that the number of transistors on a chip doubles every 24 months[11]. A similar law has held for hard disk torage cost per unit of information and to some extent for many other technical devices. This law has remained true through countless cycles of high-tech development. It predicts technological progress and explains why the computer industry has been able consistently to come out with products that are smaller, more powerful and less expensive than their predecessors.

Ilkka Tuomi[12] has noticed that the semiconductor technology has evolved during four decades under very special economic conditions. The rapid development of microelectronics implies that economic and social demand has played a limited role. Contrary to popular claims, Tuomi believes that the common versions of Moore's Law have not been valid during the last decades. The same problem concerns other lawlike relationships. Like Moore's law, the BCG's experience curve is assumed to be an indicator of competitive advantage indefinitely. The time span to earn temporary monopoly profits is becoming shorter. Nowadays, semiconductors are the building blocks of the modern information society. They are undifferentiated mass-components that are traded based on their price. The relevant theory to predict demand and supply is the neoclassical price-theory, not Moore's Law. Many products that were hyped as high tech in the 1960s and 1970s are now to be considered as commodities.

For over four decades applications of Moore's law have expanded, often far beyond the validity of the assumptions made by Moore. However, Moore's Law is a benchmark for technology revolution and an empirical testimony of Schumpeterian creative destruction.

Michael Jensen[13] has made an elegant contemporary interpretation of the Schumpeterian creative destruction process. Comparing the growth of GNP with R&D statistics, Jensen predicted the dynamics of the modern industrial revolution. Because of the shock of the oil crisis in the mid 1970s, the Western countries invested in R&D. The growth of R&D expenditures has been twice as high as the growth of GNPs. The revolution of information technology (ITC) has been the major source of Schumpeterian creative destruction and innovation in the industrialized countries. But a Schumpeterian global shock means that the inefficient firms are being divested[14]. The driving forces of global markets are:

1. The **process of Schumpeterian dynamics** that requires policies which nurture processes of catalyzing investments in innovations, venture capital, startups, etc. The Silicon Valley region is an example of entrepreneurial, proprietary capitalism, personified by Bill Gates. One of the bottlenecks of the EU is weakly developed private venture capital markets, especially, compared to the USA[15].

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2. The **formation of globally competitive clusters of multinationals.** Geographic concentration of firms has been particular to Europe, as Alfred Marshall wrote in **Principles of Economics**, and later to the US[16]. Michael Porter's book **The Competitive Advantage of Nations**[17] proposes the diamond model as a doctrine for clustering that incorporates the determinants of a company's environment, which influence the firm's ability to create and sustain competitive advantage in the global markets.

Clustered multinationals have certain elements of collective capitalism that Schumpeter (1950) proposed. They invest heavily in global R&D and marketing, and they signal market power in the markets and countervailing power in politics. Because multinationals dominate the global markets of commodities, they can collectively determine the rules of the game in the global economy. There seems to be some measures that can be used to anticipate the origin and initial location of new geographical clusters of firms, and, thereby, new creative destruction that is the only countervailing power to multinationals. The most important is the existence of growth firms and successful new start-ups[18]. If several new firms spin off from a common parent, or a set of parents, then a cluster of firms could begin spontaneously. Schumpeterian entrepreneurship as the combination of **proprietary** and **collective capitalism** is functioning in regional clusters like Silicon Valley somewhere between local networks and global clusters (figure 25).

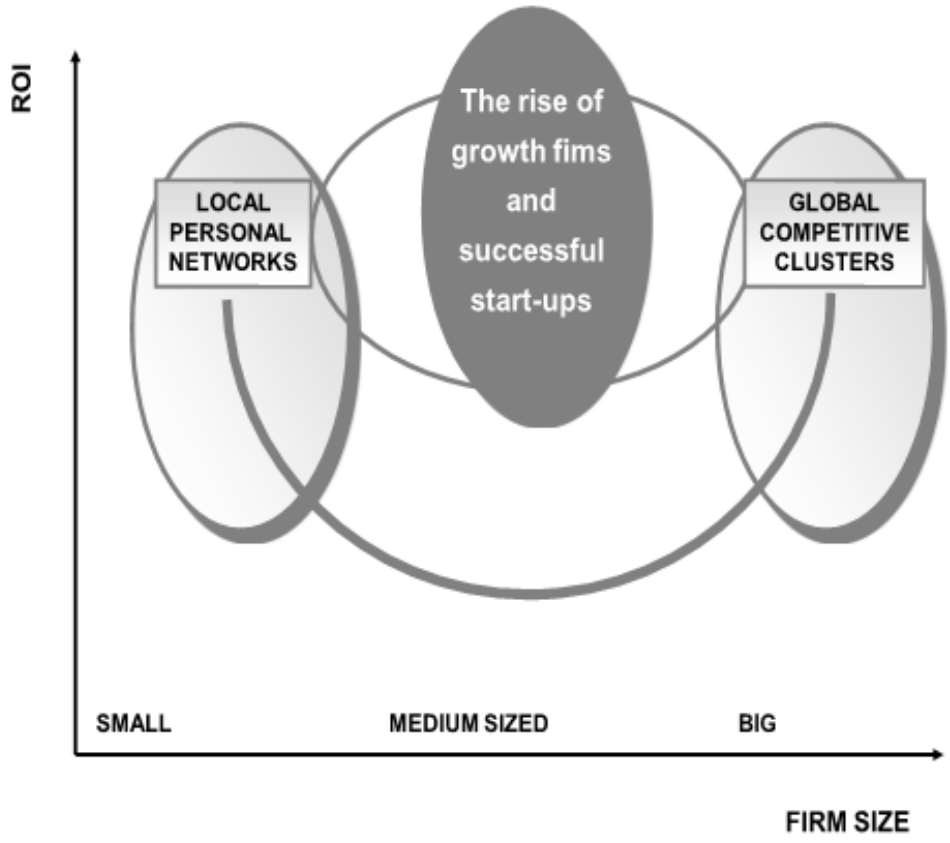

Figure 25: Two poles of the Schumpeterian dynamics

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The geographical area that seems to catalyst global growth is only a marginal part of the whole global base. The knowledge intensive or network intensive regions are potential winner of the global game. They can be called **Hot Spots**. In the same way there are regions that can be called **Cool Spots**. In order to understand the new growth theory, the hot spots are useful object of analyses. In the model, Pounder & St. John[19] have three evolutionary phases of hot spot that pattern the model:

1. **Origination of the cluster and emergence of the hot spot identity**
2. **Convergence of clustered firms**
3. **Firm reorientation, which includes a decline in the performance of hot spot**

Do we have regional life cycles in parallel with technological or demand based seems evident. Evidence has shown that geographic concentration of firms or hot spots, such as Route 128 in Boston, Massachusetts (minicomputers) or the Minneapolis, Minnesota (mainframes) have experienced great declines in growth, accompanied by economic devastation. This rise-fall pattern suggests that some geographically clustered groups of competitors may experience evolutionary phases similar to those experienced by larger industrial population. The specific characteristics of hot spot is that it is regional cluster of firms that (1) compete in the same industry, (2) begin as one or several start-up of firms that, as a group, grow more rapidly than other industry participants, and (3) have the same immobile physical resource requirements.

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Not all geographical clusters of competitors become hot spots. Firms that are located near one another in order to capture a local market opportunity would not constitute a hot spot. For example, managers of hotels, retail establishments, and restaurants consider the availability of customers when making location decisions, but these firms would not form hot spots. Hot Spots have their dynamics in the personal relationships, educational background and culture of managers, entrepreneurs or specialists. Drawing on Pounder & St. John (1996), we may assume that hot spot initially grows faster than the industry, but then it experiences declines not felt by the competitors outside the hot spot (figure 26).

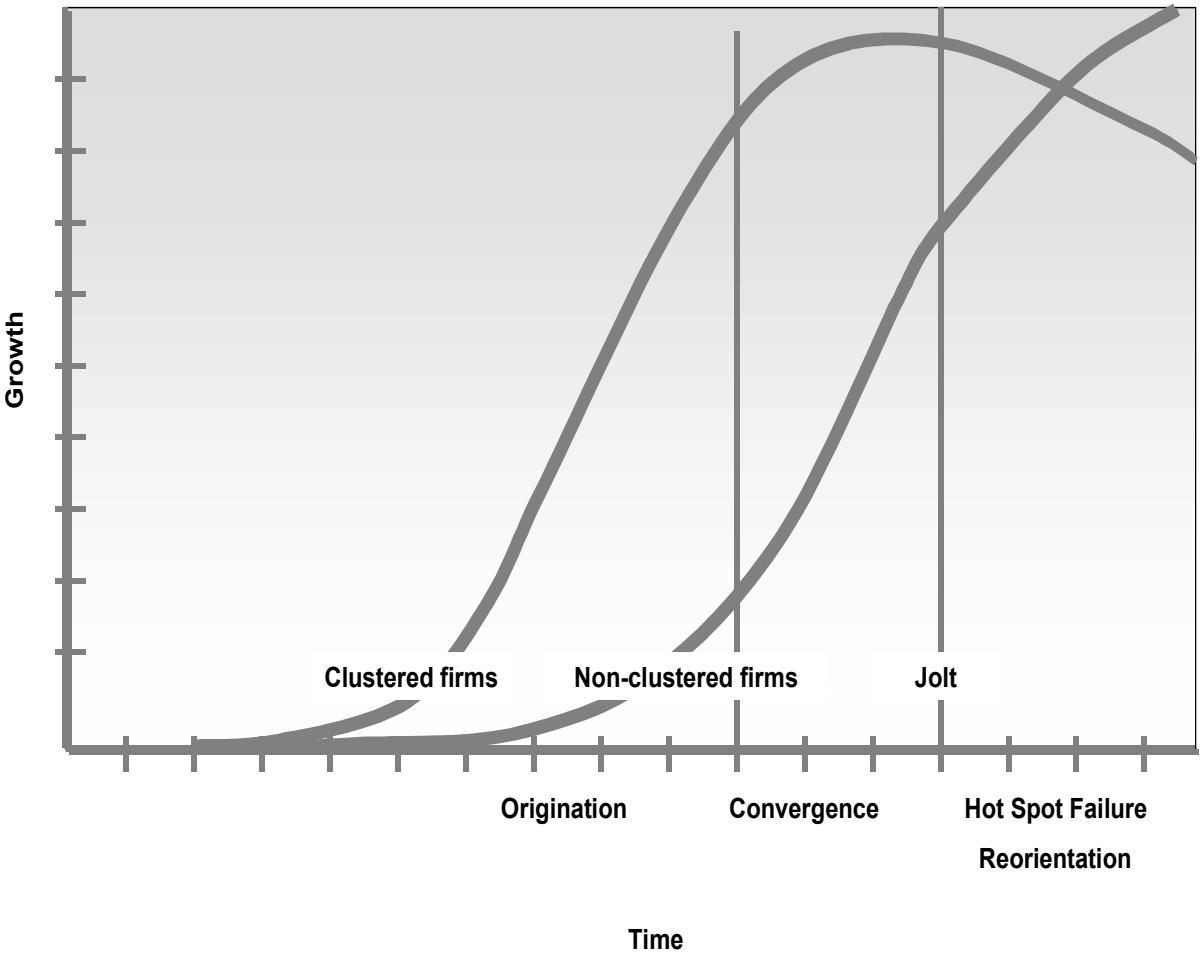

Figure 26: Hot Spot versus Non-Hot Spot Growth

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Clustered firms are successful in the origination stage when there are a lot of opportunities for growth. The innovativeness of clustered firms gives them a favorable time to markets. But although we know that there is a kind of **economies of timing**, it is difficult to identify the emergence of a cluster before it occurs. It seems to be evident that clustered firms are more successful than non-clustered in the early stages of life cycle of certain pioneering inventions. In the origination state, essential elements are agglomeration of economies, enhanced legitimacy and emerging salience of local competitors that through increased entry, competitive parity and differentiation catalyst innovativeness of hot spots. The theoretical framework of fast-growing, geographically clustered firms within industries can be found in figure 27.

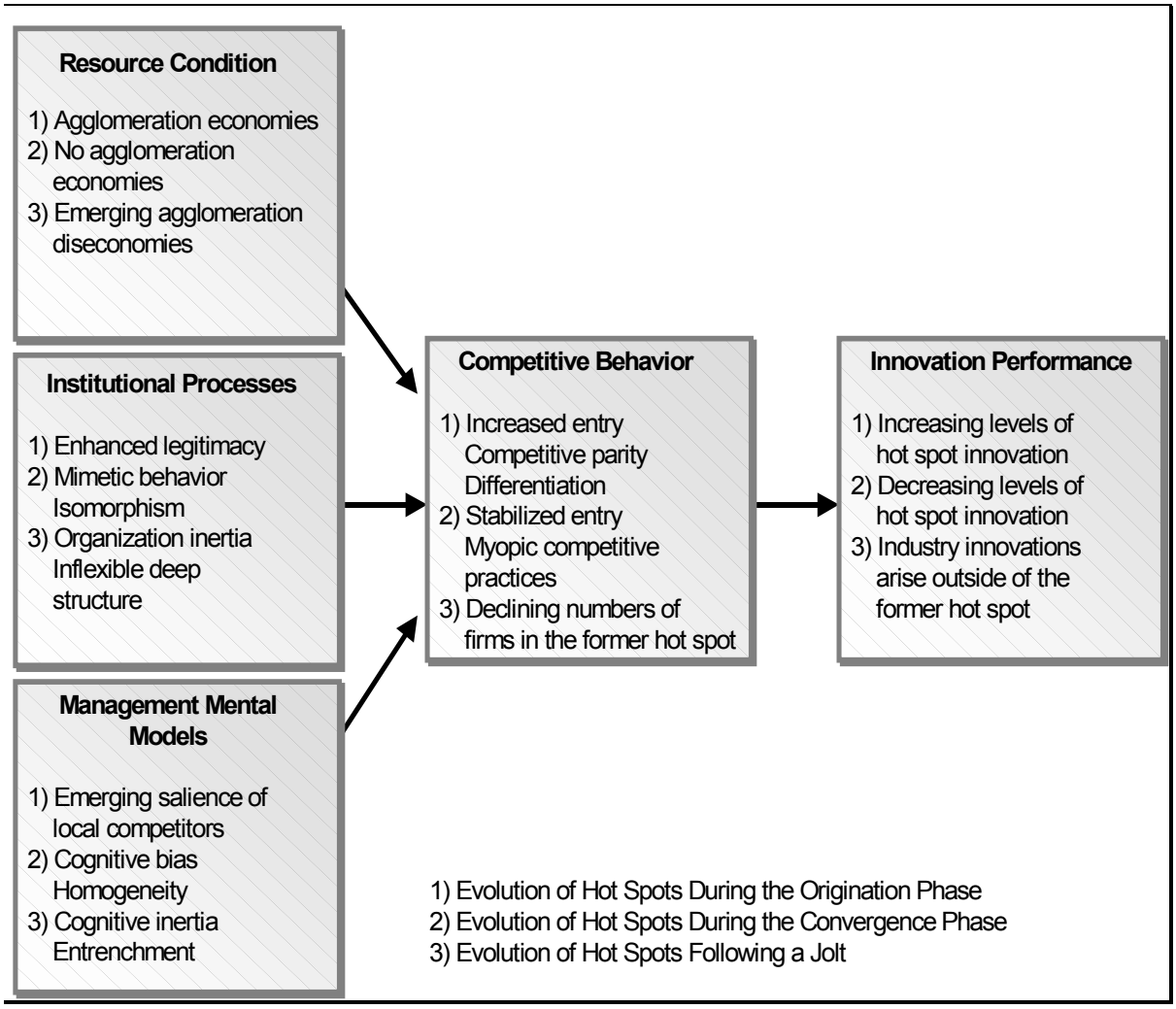

Figure 27: A Model of a Hot Spot

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1.2 The Nordic countries as early adapters of the new growth theory

The Nordic countries are an example of the applications of the new growth theory. Since the end of the 80s, the Nordic countries have been a test laboratory for the emergent so-called **mCommerce** that is a part of the ICT cluster. Mobile phones that were previously meant just for talking are becoming symbols of the global network economy. The Nordic corporate culture has been improved by the penetration of mobile phones, because employees can work quite independently, irrespective of the hierarchies. Entrepreneurs are, of course, heavy users of mobile phones. The Nordic countries have succeeded to handle the creativity challenge and utilized a good combination of clustering and networking described in figure 25. The prevailing profession includes an academic education and on-the-job training of high-tech devices as a hobby.

Creativity is a powerful competitive advantage. Creativity is one explanation why the Nordic countries, especially Finland and Sweden, have the leading position in one of the world's fastest-developing sector, mCommerce, and, thereby, in the global networking.

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Referring to the Nordic countries, there is no doubt that existing and future technology will impact people and tasks, although we may not yet know the full implications. The greatest innovations are likely to occur from the cross-fertilization of sectors and professions. For example, artists/scientists and businessmen work models are interrelated but different. A major difference is that artists/scientists are more likely to think **laterally and holistically**, businessmen are linkers of people and concepts whilst businessmen involve a **linear thinking pattern**. In the Nordic countries the inevitable successes of regional ITC clusters (like Oulu), has much to do with **two fast-growing and successful firms – Ericsson and Nokia.** Both firms are early adapters of bounderless organizations, a model that allows collaboration of large and small organizations and the mobility of human capital and its attendant tacit knowledge across these boundaries that are responsible for the creation and innovations. The Nordic countries are the 3G or even 4G laboratories of mCommerce. The social capital is generated parallel with the technological superiority. Four Nordic countries are in the leading position in the Internet penetration in Europe as demonstrated in figure 28.

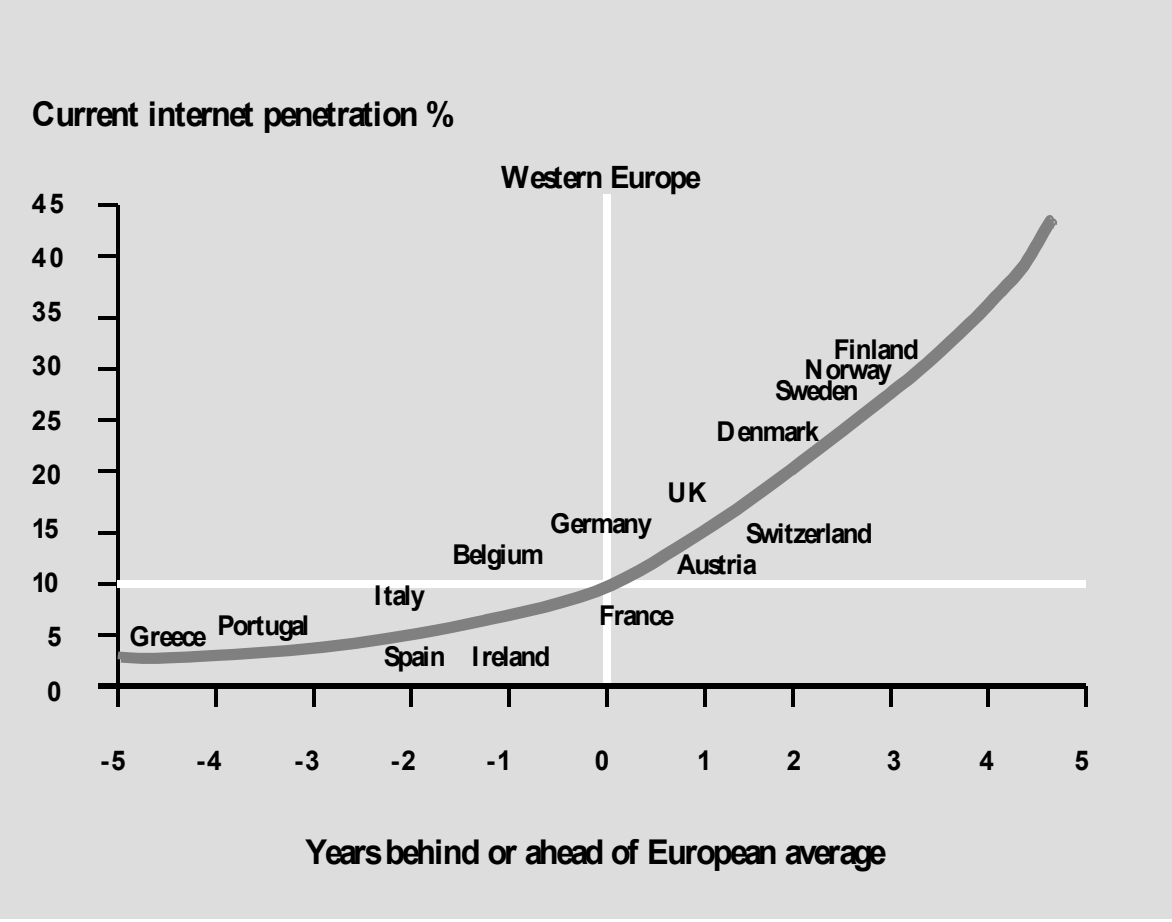

Figure 28: Internet penetration in Europe

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Having its long history as a state-owned research laboratory, the core units of the Nordic ITC firms are able to combine the university type of organization culture with the competitive behavior. In the areas of creative destruction like mCommerce, this kind of entrepreneurial culture is powerful.

The Nordic ITC firms have their own model of temporary monopoly profits in the Shcumpeterian sense. Like Hamel and Prahalad[20] suggest, **Nordic ITC companies have shifted their focus from market share to opportunity share**. A trustified window of opportunities may be easy to seen in the case of mCommerce. The huge speculation with the global, internet-based markets with a billion users means that the process of discovery in a market setting is totally chaotic. Because entrepreneurial opportunities depend on asymmetries of information and speculations in the stock markets, there are many winners and losers among the market participants. **The opportunity share of the Nordic ITC firms consists of the unique ability to integrate the Internet with mobility**.

In many areas of knowledge-intensive industries (e.g. software, Internet services), the new services arise without the agency of a central coordinating resource supplier. An excellent example is the meteoric rise of **Linux operating system**, which can be traced to 21-year-old computer science student Linus Torvalds, and the subsequent creation of the Linux community of programmers, testers, and adapters. The Linux community of volunteers, ad hoc participants has fostered the rapid development and evolution of the Linux software without firm-centric product development budgets, staffing, or marketing. The Linux community of volunteers is an example of how ad hoc participants can foster the rapid development technology and therefore, make a 'creative destruction' possible.

The Schumpeterian challenges are:

Can Nordic entrepreneurs following Linus Torvads' example challenge the big giants of communication industries?

Is there something in the Nordic cultural heritage, education system or mentality that makes it possible to act globally in the age of 21 – and win big industry giants?

1.3 The New Economic geography

Alfred Marshall, the most influential British economist in the era of the second industrial revolution from the 1880s to the 1930s, advanced the Ricardian analysis in his book **Principles of Economics**. Marshall analyzed externalities of specialized industrial locations. His prototypical industrial district was Manchester. In the Marshallian **industrial district** the concentration of firms enjoys the same economies of scale that giant firms normally get. In that sense, a Marshallian industrial district is an alternative to a giant firm that nowadays is a multinational. Marshall highlighted the presence of the so-called **industrial atmosphere**, although he did not elaborate its social foundations. Marshall was aware of the fact that there is the overlapping between the social and the productive systems.

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In Marshall's conceptualization of industrial district, the possibility to benefit from external economies, due to spatial contiguity[21], is the main reason that induces firms to locate near each others. The concept of externalities refers to the benefits that a firm takes from being located in an industrial district. In Marshall's analysis, industrial districts can contribute to the external economies of the regionally concentrated firms. In the theory, geographical agglomerations and regional imbalances result as an equilibrium solution of a tension between **centripetal**[22] and **centrifugal**[23] forces. Marshall described the three most important centripetal forces, called **Marshallian triad**, that are at the base of the existence of agglomeration:

1. **Effects resulting from specialization due to the division of labour with an industrial district**
2. **Effects resulting from creation of infrastructure, information, communication and R&D that a single firm can take advantage of**
3. **Effects resulting from the availability of high specialized labour force**

Gunnar Myrdal[24], the famous socio-economist after the Word War II, has developed the **core-periphery model** that is a simple yet useful conceptualization to be used at different geographical scales (global, national, regional, etc.). Myrdal proposed that the key concept of spatial development is **cumulative causation** that can be explained by **spread** and **backwash** effects. In relationships between core and periphery countries, there are spread and backwash effects. Spread effects are the positive benefits in terms of technology transfer from core countries to periphery countries. The brain drain, which refers to the tendency of highly educated citizens in periphery countries to migrate to core countries, can be considered as an example of the negative backwash effects[25].

Many industries (including service industries such as banking) are geographically concentrated, and such clusters are clearly an important source of international specialization and trade. **Regional clusters in general seem to perform better that the national average in the US[26].** A comparative survey of 34 regional clusters (of which approximately half are traditional and half science-based) in 17 European countries reveals that that young and science-based clusters dominate the European landscape[27]. They are relatively small in size compared with the US' clusters.

Paul Krugman is one of the leading economists that has competed the Marshallian triad. Krugman has made following summary of the centripetal agglomeration economies that are relevant in the global economy[28]:

1. **Market-size effect** (demand and cost linkages, also called backward and forward linkages). A large local market creates a large local market(s) that in turn creates both **demand linkages** (sites close to large markets are preferred location for the production of goods) and **cost linkages** (the local production of intermediate goods lowers the production costs of other producers and provides savings on transportation costs). An example is the financial services industry, clients and ancillary services concentrated in New York.

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2. **Thick labour markets**

   A local concentration supports the creation of a thick labour market, especially for specialized skills (where employees and employers are readily matched) and spatial externalities (the extensive division of labor of industry-specific co-dependent innovations), so that employees find it easier to find employers and vice versa.

3. **Pure external economies**

   A local concentration of economic activity may create more or less pure external economies through information spillovers.

But Krugman (1995) identifies also centrifugal forces that affect geographical concentration:

1. **Immobile factors**

   Certainly land and natural resources are always immobile, and in an international context, people. Therefore, some production must go to where the workers are and from the demand side dispersed factors create a dispersed market, and some production will have an incentive to locate close to the consumers.

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2. **Land rents**
   Concentrations of economic activity generate increased demand for local land, driving up land rents and thereby providing a disincentive for further concentration. For instance in Los Angeles land rents are a centrifugal force.

3. **Pure external diseconomies**
   Concentrations of activity can generate more or less pure external diseconomies such as congestion. Congestion is a state of excessive accumulation or overfilling, like the traffic congestion.

Krugman uses the name New Economic Geography that has been driven by considerations of modeling strategy to concentrate on the role of market-size effects in generating linkages that foster geographical concentration, on one hand, and the opposing force of immobile factors working against such concentration, on the other.

In the beginning of the 21st century, core countries are rich and developed. The average citizen achieves a high standard of living. The USA, EU, Japan, Canada and Australia are recognized as core countries. The periphery countries are less developed having low economic growth and poorly educated, housed and fed population. Many countries in Africa, Asia and Latin America are recognized as periphery countries. The semi-periphery countries seem to improve their position in the global economy whereas many periphery countries are stagnating. Newly industrializing countries (NICs) such as the 'Four Dragons' (South Korea, Taiwan, Hong Kong and Singapore) and the 'Little Dragons' (Malaysia, Thailand, Indonesia and the Philippines), owing to impressive economic growth rates in recent years, can be classified as semi-periphery.

In the EU, the economic integration has created new economic regions that are rich and developed in the global perspective. The new regional division of labour has many new forms. In the European context, in the deepening and enlargement process of the European Union the economic integration includes institutional development, which requires that participating countries have fairly high and similar levels of development[29]. Economic integration is divided into stages depending on how far the member states have advanced in cutting down barriers impeding economic activity among each other and how far the implementation of common policies has advanced[30].

The economic integration and globalization are the two trends of the current development of the world economy, and the role of states has been declining. Economic decision making has been devolving downwards to sub national units. At the same time some part of this power has also moved upwards to multiregional organizations (like the EU) due to formal integration[31].

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According to customs union theory, the creation of customs union will lead to **trade creation** and **trade diversion**. Trade creation occurs when domestic production is replaced by importing from a cheaper member country. This means specialization according to comparative advantage. Trade diversion means that original imports from world markets are replaced by imports from a more expensive member country. This phenomenon leads to a move from efficient producers, to less efficient producers, causing welfare losses. For similar reasons it is not invariably in the interests of a particular multinational or country to promote regional integration if that would mean subjecting an established market to increased competition from new entrants.

Due to liberalization of trade, Krugman's agglomeration economies are all relevant. Market-size effect in the core areas of the EU markets is remarkable. Demand linkages mean that the area from Milan in Italy to London in England is a preferred location for the production of high value-added service industries like financing. Some growth areas have a historical ground and have existed for a long time in certain growth poles like the 'Third Italy', Baden-Württemberg, and London-City. Regionally contemporary emerging economies of scale might be found in the new transition economies of Central and Eastern Europe. The development of these countries will depend on both internal as well as on external factors. There are new local, regional and supra-national location alternatives for firms to build up their competitive position and develop networks of relationships in the value chain. This can be done in order to reduce production costs, create distribution and logistics channels, outsourcing of non-core production and so forth.

The core-periphery model by Myrdal is dynamic. Paul Krugman (1995) has proposed increasing returns to scale (through backwash) and expansion to other nearby areas (through spread). Referring to Albert Hirschman[32], it is possible to claim that core cities grow through increasing returns (to knowledge), with the satellites of leading technology innovators' spread by knowledge exploitation nearby. Urban ghettos are parts of the famous **Silicon Valley production system** as are the engineering laboratories at Stanford, or the military R&D facilities.[33] In the US, the main reason for the clustering around universities has been the availability of government-funded technology has been a catalyst of agglomeration economies in modern science-based industries. Today, universities and their related research laboratories spread throughout most regions in the US.

Geographical proximity can be expected to serve the incubation of new technologies. As firms expand their competitive edges, their activities may move out of the region generating 'spread' of technological innovations globally.

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According to Krugman[34], differences in economic development are the very least associated with location. Those countries that are located close to the equator tend to be poorer than those in colder temperate zones. Krugman has also found that per capita income within Europe seems to follow a downward gradient from the northwest corner of the continent. The Nordic countries are success stories of the EU and the global economy. How much this fact is dependent on geography is the key issue in application of cluster models. It is apparent that there are both large regional inequalities in development within countries and, often, a powerful tendency for populations to concentrate in a few densely populated regions. The problem of countries that are located close to the equator is not the tropical climates. It is more or less political history. These countries were colonies during the time from the 1880s to the 2000s when the technological and commercial dominance of Northern Hemisphere regions, especially the US, the EU and Japan, was created.

The economic destinies of locations are not determined by location. Like Krugman points out small historical accidents can cause one country to become part of the industrial core or periphery with the site of a 10-million-person metropolitan nightmare.

What is the pattern of evolution of countries and continents in the global economy is an interesting research question to tackle. Michael Porter presents a model to describe the different stages of competitive development that a nation's industries move through. Porter (1990, pp. 545–565) suggests four distinct stages of national competitive development (figure 29):

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1. **Factor-driven**

   Practically, any of the internationalized or globalized industries have drawn their competitiveness from the basic factor conditions, such as low-cost labor and access to national resources. Firms typically produce commodities more than specialities. The rate of technology and R&D investments is low. The local economies are highly sensitive to fluctuations in commodity prices and exchange rates. There are only a few truly international firms. Domestic demand for exported goods is modest. The role of foreign firms is considerable, as they act as a channel for foreign markets and they bring foreign technology, knowledge and management with them to the host country. Technology is assimilated through imports, imitation, or foreign direct investment.

2. **Investment-driven**

   In the investment-driven stage, countries develop their competitive advantages by improving their efficiency in producing standard products and services, which become increasingly sophisticated. While the advanced technology still comes mainly from abroad, with licensing and joint ventures, local firms' invest in process technology and modernization of production facilities etc. Firms often produce under contract to foreign manufacturers that control marketing channels. Home demand is still rather undeveloped, and related and supporting industries are not functioning optimally. It is typical to this stage that wages and input prices are higher than before and employment is increasing. Public policy concentrates on long-term matters. One of the major areas are infrastructure projects. Harmonization of customs, taxation, and corporate law may allow the economy to integrate more fully with global markets.

3. **Innovation-driven**

   In the innovation-driven stage, the number of industries operating successfully at international level increases and broadens. Firms create new technologies and methods and compete with low costs due to high productivity rather than low production factor costs. Home demand increases and becomes more sophisticated. Clusters are well developed, fostering innovation and technological change. A country's competitive advantage lies in its ability to produce innovative products and services at the global technology frontier using the most advanced methods. Institutions and incentives supporting innovation are crucial for further development. The economy becomes stronger against outer shocks, like cost shocks, because of its ability to compete with technology and product differentiation. Improvements related to externalities, market imperfections and incentives are important to develop the well-functioning factors, product and financial markets.

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4. **Wealth-driven**

   Unlike other stages the wealth-driven phase is driven by past accumulation of wealth and becomes unable to generate new wealth. Firms become more vulnerable to uncompetitiveness. They innovate less and the investment rate decreases. Employees begin to lose motivation and so on. The result is that firms lose competitive advantage compared with foreign firms and may even start to move their headquarters from their original home country to other countries. The standard of living and welfare is still rather high. The policy attempts in this stage try to increase the dynamism of the economy, innovations and profitability.

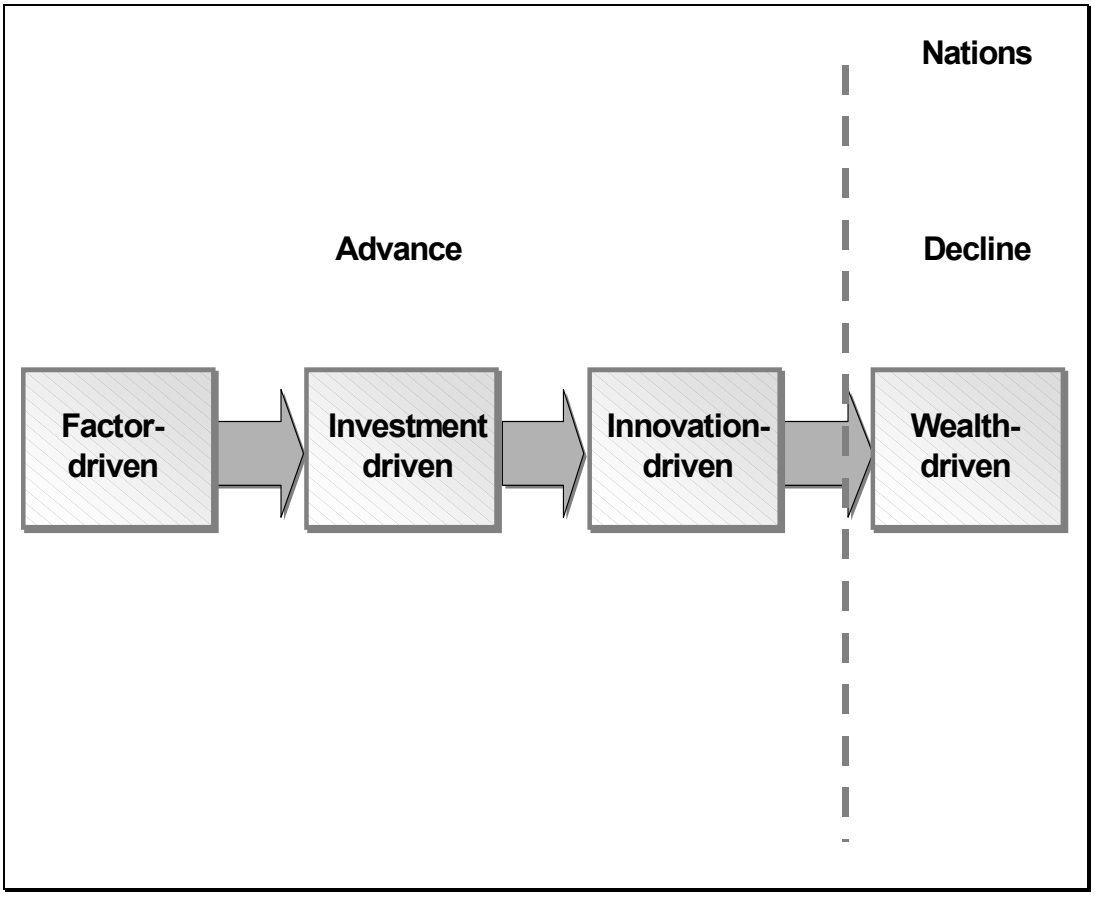

Figure 29: Porter's model of the stages of competitive development of a nation

The first three stages involve successive upgrading of a nation's competitive advantages and will be associated with progressively rising economic prosperity[35]. The wealth-driven stage leads to the decline of competitive advantages of a nation, because the driving force in the economy is the wealth already been achieved. An economy driven by past wealth cannot maintain its dynamism since the motivation of investors, managers, and individuals undermine sustained investment and innovation. The transition through the four stages is not automatic since countries may get stuck in a stage. In Africa investment-intensive economies such as South African republic are finding that their relatively high-cost labor make them vulnerable to competition from really lower-wage countries, especially China.

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Porter believes that we can identify the predominant pattern of the competitive advantage model that a country, through its firms, poses at a particular time[36].

For instance, in the factor-driven stage, the competitive advantage in the production of either primary goods or labour-intensive goods is different from the investment-driven stage or from the innovation-driven stage. Thus, the transition from the factor-driven to the investment-driven stage generates outward investments towards lower-wage countries in labour-intensive manufacturing, particularly if the critical competitive edge happens to be organization of mass production. Similarly, the transition from the investment-driven to the innovation-driven stage brings about simultaneously inward investments in technology-intensive industries and outward investments in intermediate goods industries.

In the global economy, any country, if it is serious about raising its standard of living, must open its economy so as to avail itself of opportunities of trade, interact with and learn from the already advanced.

Japan's rapid post-war structural transformation clearly demonstrates rapid evolution through different stages of Porter's model[37].

From US viewpoint, Rugman[38] thanks Porter for the brilliant concept of the diamond, the identification of clusters and the four stages of economic development that are justified.

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What is the validity of Porter's model of economic development is the major concern. The global economy is not only economic in its nature. These phases cannot be separated too accurately. However, they describe the main components to which a country's economic and industrial competitive development at certain stages is based on. These phases also reflect the sources of advantage of a nation's enterprises in international competition and the nature and extent of internationally successful industries. The growth firm in the EU is a major challenge to be tackled. In the global markets, the mix of relevant mobility barriers is, perhaps, different from that of the GATT period from the World War II to the year 1995.

In the new paradigm based on the emergence of knowledge economy the importance of access to and the use of knowledge increases. Globalization, on the other hand, means increasing competition and also emphasizes the importance of specialization and the use of local comparative advantages. The global economy has its dark side. Substituting labor with capital and technology, along with shifting production to lower-cost locations has resulted in waves of **corporate downsizing** throughout Europe and North America[39].

There are two actual topics of the New Economic geography that are widely discussed at global contexts:

1. The US model: The Competitive Advantage of Nations
2. The new, digital economy

1.4 The Competitive Advantage of Nations

Michael Porter's book **The Competitive Advantage of Nations** proposes the diamond model as a doctrine for clustering that incorporates the determinants of a firm's environment. Porter represents Harvard's view of industrial economics. Firms are not supposed to make voluntarily significant changes in their strategies; they are forced to do that because of the keen competition. Proximity of firms further intensifies the competitive pressure on firms. Innovations are created and sustained through highly localized processes. Porter emphasizes domestic rivalry, local clusters, and physical neighborhoods. Porter believes that regional proximity increases the concentration of information, and thus the likelihood of its being noticed and acted upon.

Differences in national culture, structures, institutions, and histories all contribute to competitive success of nations[40]. A firm's home base is the nation in which the essential competitive advantages of the enterprise are created and sustained. It is where a firm's strategy is set, where the core product and process technology is created and maintained, and where the most productive jobs and most advanced skills are located. Porter's epistemological standpoint is **normative**. He argues for what firms and nations should do in a globalized economy, and less why they do what they really do. Rugman (1991, 61–62) summarize Porter's epistemology: 'To the extent that he brings together the firm-specific linkages between the four determinants and the two outside forces, his model is useful and, potentially predictive'.

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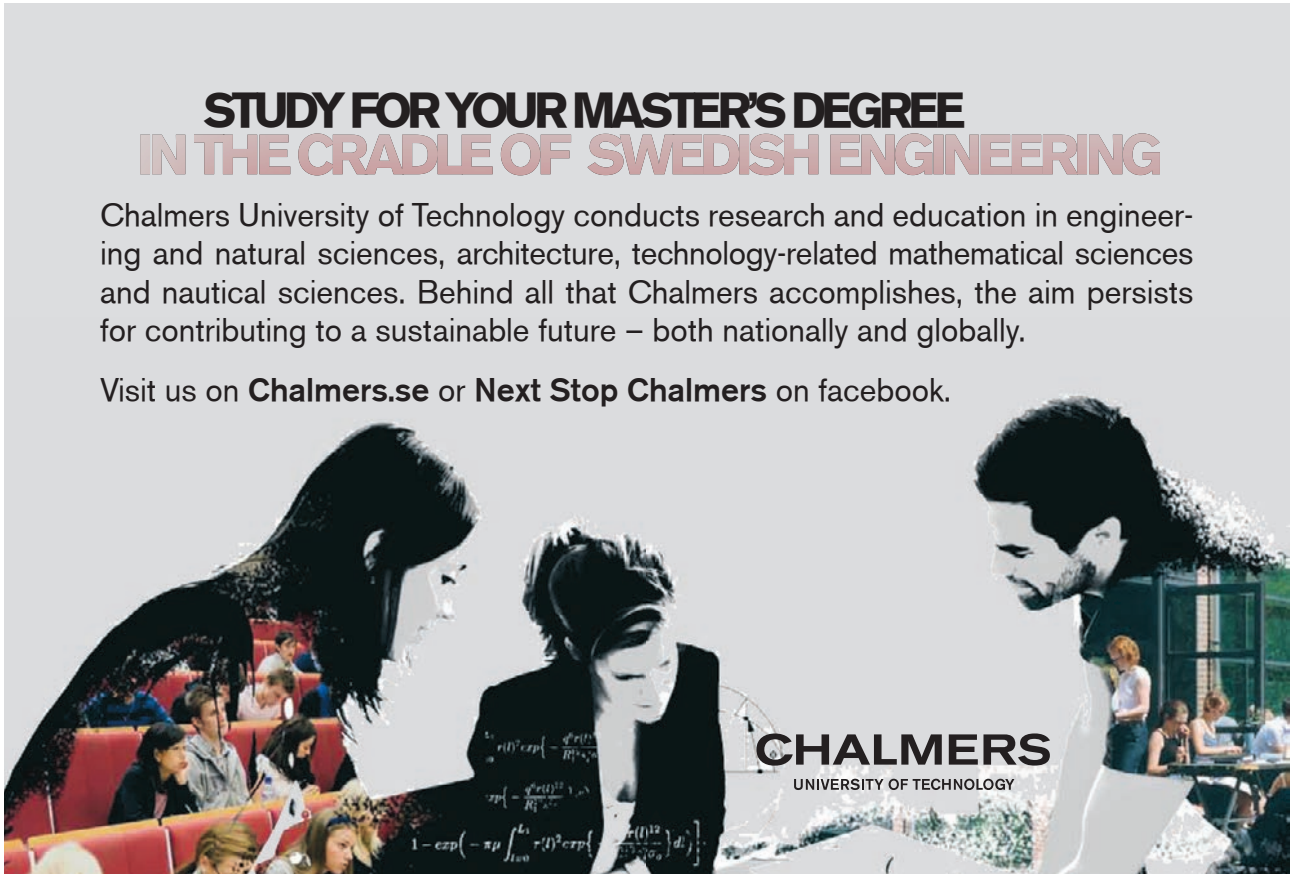
Porter focuses the characteristics of the home base as the primary source of competitive advantage. Pressure and proximity together explain many of Porter's views on innovation. National rivals are good but rivals in the same region or city are even better.

The revolutionary aspects à la Schumpeter are lacking from Porter's view of rivalry. In Schumpeter's thinking, creative destruction creates economic discontinuities, and in doing so, an inherent entrepreneurial environment for the introduction of innovation.

Having his focus on innovation, Porter favors industries that draw on advanced technology and sophisticated demand. The importance of geographic proximity is clearly shaped by the academic people who are more likely to be located in the same region as their universities, and this makes possible the continuous transfer of latest scientific knowledge. Informational, intellectual, and innovation-based clusters like Silicon Valley have succeeded well. Financial service providers that recruit highly educated people are very much clustered in big cities, and especially in the triad of New York, London and Tokyo[41]. London City is a well-know example of a successful European cluster. Many of the new technology parks in Europe have failed to attract a critical mass of growth firms, at least for now. The oldest technology parks in the U.S.; at Research Triangle in North Carolina, at Stanford Industrial Park and the University of Utah Research Park, have kept going on[42].



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The study of the interaction of information technology and Silicon Valley highlights the highly mediated nature of regions in the penetration of new revolutionary technologies that shape new industries.

The core concept underlying Porter's diamond is the centrality of sustained performance. Porter depicts and analyzes the national characteristics of the firm's environment through the **diamond model**. The model incorporates the determinants of a firm's (general and industry) environment which influence its ability to create and sustain competitive advantage(s) in global markets (figure 30).

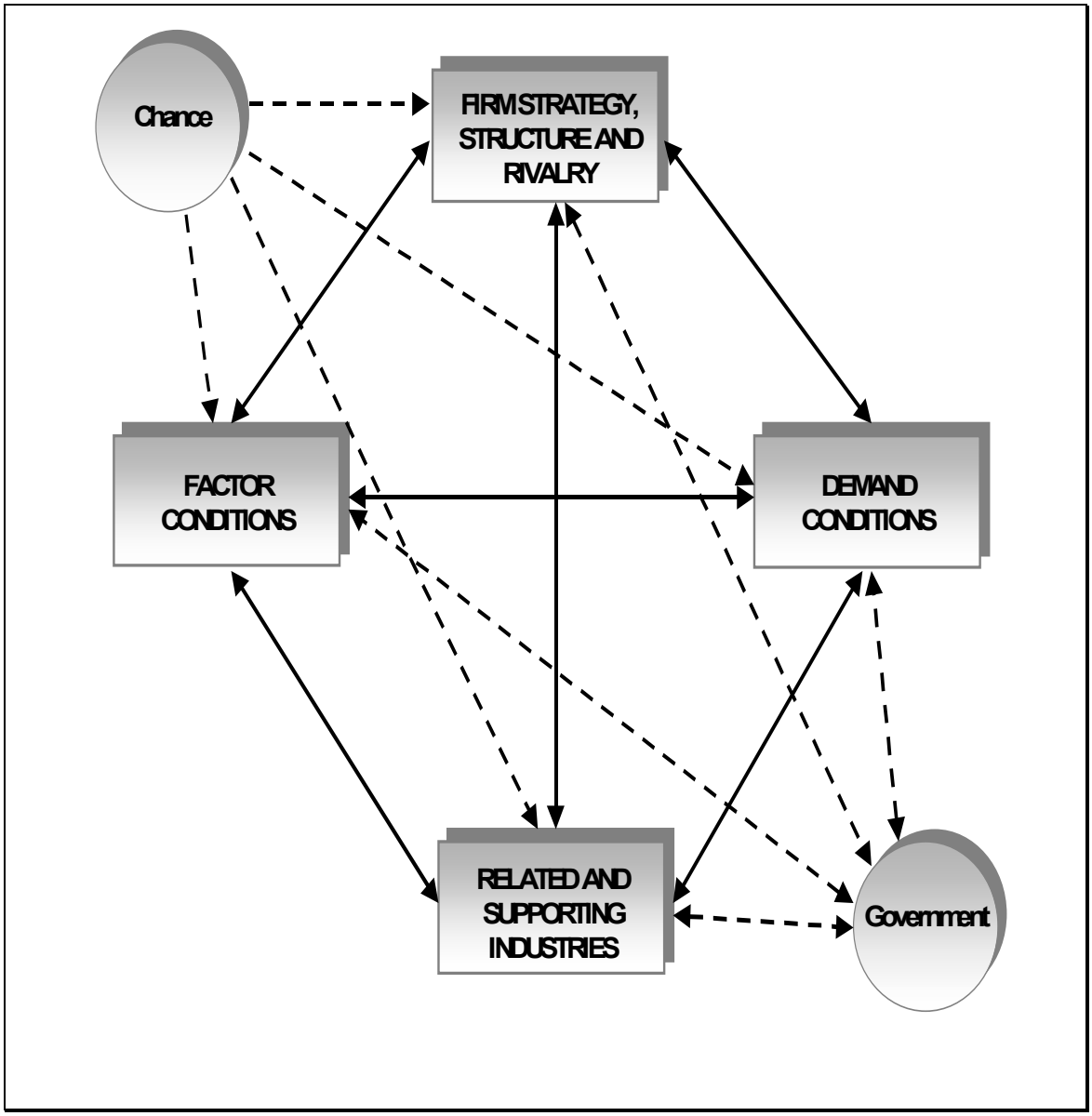

Figure 30: Porter's diamond model

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The diamond model is made up of four determinants:

1. Factor conditions

Factors of production can be divided into basic and advanced as well as generalized and specialized. Advanced factors, like the availability of educated personnel or industry-specific research institutes, are important to the global industries. Their development requires long-term investments at three levels:

1. Individuals to develop their own skills
2. Firms provide educations and training
3. Governments support factor upgrading.

Specialized factors, like experienced and skilled personnel in a certain industry sector, are crucial for innovations. Factors that are specialized are the most desirable, but they require continuous reinvestment to upgrade them, because the standards of what constitute specialized factors rise continually in the global markets. Markets of specialized factors, like highly professional labor force or advanced technology, are likely to be imperfect. Schumpeterian monopoly profits can then be earned by entrepreneurs (or firms) who have superior insight into the likely value of a strategic factor and consequently pay less than the full economic value necessary to implement it. This can be due to more accurate expectations, good fortune or both, like Peter Drucker (1985) has noticed.

2. Demand conditions

The size of the home market is a determinant of firms' international competitiveness. This is the famous economies of scale argument first mentioned by Adam Smith. There is also the economies of scope argument of David Ricardo that the quality of resources matters. In modern terms, sophisticated and demanding buyers or consumers put pressure on local firms for product quality. Geographical proximity allows for better communication between the firms and their customers, thus, the product development process is faster. This is the often mentioned as the advantage of the Nokia cluster. The buyers are more focused on the cost-quality relationship, if they themselves face the competitive pressure. Firms can achieve first mover advantages if the home demand saturates fast, which forces firms to penetrate international markets. Home demand has an influence on rate of product innovations by the firms[43]. There are three important characteristics of home demand[44]:

1. Composition of home demand (or nature of buyer needs)
2. Patterns of demand growth
3. Ability of domestic needs to be transmitted internationally.

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3. Related and supported industries

One of the most important signs of the global economy is interdependence of actors, which has meant a fast development of international networking. Growth of the world economy as well as fast development of information technology has accelerated this networking. A typical trend in the global markets is the combination of networking and specialization, which has increased a firm's dependencies on other firm's, especially those in related and supporting industries. The relevant framework behind Porter's diamond model is the SCP paradigm by Frederick Scherer and his followers shown in figure 8. The only major difference in Porter diamond model is 'Related and supported industries'. In Porter's model, related industries are industries which can employ the same technology or skills in manufacturing, distribution, marketing, service, etc as the core industry or which involve complementary products, like product-related technological know-how. Related industries often produce new competitive industries through spin-offs. Thanks to proximity, there are opportunities for information sharing and technical interchange that can lead to joint (product) development.

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4. Firm strategy, structure and rivalry

Economic actors create economic growth, employment and welfare. That is why nations' abilities to answer to the global challenges (positive or negative effects) and mobilization of factors of production across national borders is essential. Michael Porter stands out from economics and assumes that a firm's strategy is based in economics. This approach is decidedly less successful when applied to the firm[45] than when applied to the industry[46]. Porter's 'Firm strategy' is the same in context than 'Conduct' in the SCP paradigm. Porter's five forces (suppliers, substitution, entry, customers, and rivalry) have an obvious affinity with the SCP model that would have been comfortable and familiar. What is worth noticing is that Scherer's SCP model is dynamic; starting from the markets and ending to performance. Porter's diamond model is more static.

In addition to these 'inside' determinants, there are two outside forces shaping the environment of firms and industries, namely:

5. Government

In Porter's reasoning, 'Government', through its policies, can affect any of the four determinants of competitive advantage. Government is involved in the creation and upgrading of certain factors of production (transport, infrastructure, and qualified people). The main task of the government is to assure investment in the infrastructure in order to assist the formation of a dynamic comparative advantage. Governmental actions are especially important in the context of a policy promoting infrastructure investment, R & D, education and training, development of information systems etc. The SCP paradigm uses the concept 'Public policy'. There is a major difference in the context. Porter accepts government's intervention as a Harvard professor that is not in line with the mainstream economics and the long tradition that Harvard has in the area of market liberalism. The mainstream argument is given by Paul Krugman who does not regard nation states as subjects of global competition[47, 48].

6. Chance

Chance events include breakthroughs in basic technologies, discontinuities in input costs (such as the oil shock), external political shocks, and creative destructions. Such events create discontinuities that reshape industry structures and, thus, create new ones. By including chance as a model element, Porter tries to make his model more dynamic. This is not certain because the context of chance is about the same as the residual of econometric models of neoclassical economists. From that perspective breakthroughs in technologies, that are Schumpeter's prototypical innovation and the major source of creative destruction, are exogenous to the four core elements of Porter's model.

According to Porter, firms in an industry gain competitive advantage, if they can maintain the diamond, the most productive use of resources.

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However, it is only through continuous innovation that the advantage can be sustained. The required dynamism is achieved only through positive interaction between all of the diamond elements, since the elements are mutually reinforcing. What the positive interaction is like in practice is more or less of an open question. Porter only repeats some ideas of the New Economic geography and Industrial Organization Economics. For instance, the geographical proximity of firms enhances the interaction between the four determinants of the diamond and promotes competition and cooperation. This cluster hypothesis of Porter is not unique, since regional agglomeration has been the central topics in classical and neoclassical economics, especially that of the economic geography.

The summary of the key ideas of the New Economic Geography and the Industrial Organization Economics presented by Porter is not unique since Alfred Marshall discussed of both in the first decades of the 20th century. Porter's model includes also immaterial factors of production but so do the modern economics in general.

As Porter puts it, successful firms are frequently concentrated in particular cities or states with a nation. Porter's accepts a local or national initiative but takes pains to differentiate cluster strategy. Industry clusters are built not only on the physical flows of inputs and outputs, but on the exchange of business information, technological know-how, etc. The interaction between closely located firms with some common ways of communication makes the transfer of tacit knowledge easier. Trust is important for such communications to take place. Porter believes that localization economies, not urbanization economies, draw on **information flows**. Being near competitors and mutual suppliers, a firm can enhance its knowledge of the industry operations and permits employees' specialization.

Porter's diamond is relevant to big countries like the USA. Its relevance for small and open Nordic countries is far from being verified. An alternative concept is Erik Dahmen's development block49 that is more entrepreneurial in terms of Schumpeter. Internationalization is vital to small and open countries like Finland in sourcing of new radical innovations.

The validity of Porter's diamond has, at least partly, been challenged by Alan Rugman50 who discusses about a double diamond. He notes that Porter's view about firms being able to succeed with a strong home country base may still be true for USA, but it is at least 30 years out of date for Canada, whose firms are highly integrated with the USA.

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Through sharing a common cognition of global markets, clustering of firms can maintain rigidities in terms of Edith Penrose that prevent investments in truly radical innovations, which tends to invalidate the existing pools of talent, information, suppliers, and infrastructure. The global demand for innovative products in knowledge-based industries is high and growing rapidly; yet the number of workers who can contribute to producing and commercializing new knowledge is limited to just a few areas in the world. There are two fundamental characteristics of knowledge that differentiate from the traditional factors of production in the traditional economy[51]:

1. Knowledge has increased the importance of geographic proximity
2. A great degree of uncertainty, asymmetries and transactions cost lead to an increased role of entrepreneurial activity.

The Nordic countries specialize in small missions and this narrowing of the global business scope forces firms to make the strategic choice: Internationalize (or globalize) or die[52].

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Globalization has generally been understood as a set of processes in economy, culture and society. Globalization as a concept has much in common with earlier concepts, like **internationalization** or **transnationalization**. It was Professor Theodore Levitt at Harvard who first discussed global markets and global company giants[53], called multinationals. When Michael Porter published his book **Competitive Advantage of the Nations**, globalization was in the mainstream of economic policy. In his top-down approach, Porter concentrates heavily on the nation state. Porter is, of course, affected by the size of his own country, the USA. In Porter's thinking, the only meaningful measure of competitiveness at the national level is **productivity** that is the value of the output produced by a unit of labour or capital, since competitiveness is created and sustained through a highly localized process.

Kenichi Ohmae predicted that the collapse of nation states is to be expected[54]. Region states with sound socio-cultural structure are the winners of new regional agglomeration[55].

Region states often constitute fertile ground for stimulating innovations and competitiveness of existing firms, encourage entrepreneurship and may attract inward investments. The geographical areas that seem to catalyst global growth are only marginal parts of the whole global base. The digital economy is dramatically reducing transport and communications costs. It has therefore the potential to alter the current equilibrium of centrifugal and centripetal forces, and to re-design the existing economic landscape. Economic activities are concentrated geographically. Most people in core countries, and a growing number in periphery countries, live in large, densely populated metropolitans. Ohmae refers to his home country, Japan, where the Tokyo metropolitan, a region state, is totally dominating in the global business.

John Dunning[56], a well-know writer of international business, has proposed that the domestic influences on the diamond should be considered as only a specific case of the global influences. Dunning points out that clustering in a geographically limited area may, after a point, lead to diseconomies of agglomeration. Dunning has argued that firm-specific advantages are not independent of their industrial structure, economic systems and institutional and cultural environments. National governments can and do play a decisive role in affecting the competitiveness of the economic activities located within their borders[57]. They do so both by providing the appropriate incentives for domestic firms to upgrade the quality of their ownership-specific assets; and by ensuring that the location-bound general purpose inputs (including educational facilities and communications infrastructure), necessary for these assets to be fully and efficiently utilized, are available.

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1.5 The new or digital economy

Economies have been knowledge-based for over 5,000 years. Sumerians in the Mesopotamian river basin began the use of clay tablets 5,000 years ago. As Kenneth Arrow[58], a Nobel prize-winner, pointed out, **information as an economic commodity has attributes of an experience good**. Individuals intending to obtain information either by purchase or production cannot know in advance the costs and benefits of certain types of information before they have acquired it. This can be referred to as **information paradox**. The conclusion is that geographic proximity matters in transmitting tacit knowledge. The managerial knowledge is inherently 'public' of its nature but infinitely extensible. While the Internet revolution has minimized the marginal cost of transmitting information across geographic space, the marginal cost of transmitting knowledge, and especially tacit knowledge, rises with distance.

The "new" products, such as software, databases, videos, and broadcasting represent what he calls the weightless economy: an economy where products are not-excludible, infinitely replicable and transportable costless through space, like knowledge.

Nevertheless, it is important to stress that knowledge is the clue of global economy. While it is possible to translate a piece of information into bits, this is not true for every kind of knowledge. Knowledge represents the capabilities of individuals or social groups associated with meaning and understanding, as well as the abilities to organize, interpret and assess information, while information is knowledge reduced to messages that can be transmitted to decision agent[59]. Moreover, the value of information is also dependent on the recipient's prior knowledge. If we have no previous knowledge of a particular subject, it's usually difficult if not impossible to make sense of data related to that subject. Conversely, **the more we know about a subject, the better able we are to evaluate and use new data about it**[60]. While information represents the mere datum, knowledge represents the meaning of that datum, and the force that can create new meanings and structures, new ideas and strategies to use it in a valuable way.

It is possible to transform only the codifiable knowledge into bit strings, while tacit knowledge, embodied in practices, people or networks of relationships, cannot.

In the beginning of the 1990s, when the Internet emerged, it was suggested that the Internet would free the economy from the constraints of geography. The Internet is the protocol that makes possible to communicate over nations' borderlines. The Internet will reinforce the importance of face-to-face contact, and make possible greater linkages between localized clusters at very long distances. Since products of new economy such as software, databases, electronic libraries and new media lack physical distance and geographical barriers, the digital revolution could bring about the **death of distance**[61]. The impact is not only to be felt in digitalized industries, but also in those traditional industries that would benefit from improved access to world markets[62].

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In the US, the success of the government-created Internet over the proprietary standards of firms is in many ways a classic illustration of the agglomeration economies.

The Internet's existence would counteract proprietary networking strategies, notably by Microsoft, and, thereby, open the possibility for a wide range of firms to compete based on innovations around the Internet. Previous infrastructure innovations have had a double effect, permitting dispersion of routine activities but increasing the complexity of productive activity. The Internet produces forces for de-agglomeration and agglomeration[63]. It allows remote coordination of innovative activities. Because the Internet cannot 'feel' or 'touch', it maintains needs for deep personal contacts[64]. This has led to the rise of **net economy** that integrates the Internet with media and other industries. Besides information there is the **knowledge** dimension. The idea is that the possibility to digitalize a huge amount of information can increase knowledge profitability, production, use and diffusion[65].

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The new economy represents, however, a minor part of the GDP in industrialized countries. The potential impact of the adoption of digital technology on traditional industries is wide-ranging. In some industries the digitalization of products allows infinite replicability of the product and disrespect of geographical distance in its delivery (music, e-book, insurances). In his article **Cyberspace as Product Space**, Ian Miles demonstrates new interactive consumer media products under the label Interactive Television. The future of television is opened up beyond the vistas of countless new channels such as video on demand, surfing to Internet, and teleshopping. Miles emphasizes the term **interactivity** that has been applied to new consumer products like CD-ROMs and Websites. A recent issue, 'interactive TV' covers all of the 'multimedia' products. Interactive features are both result of, and element of, a number of interrelated trajectories in technological functionalities and design, as figure 31 indicates[66].

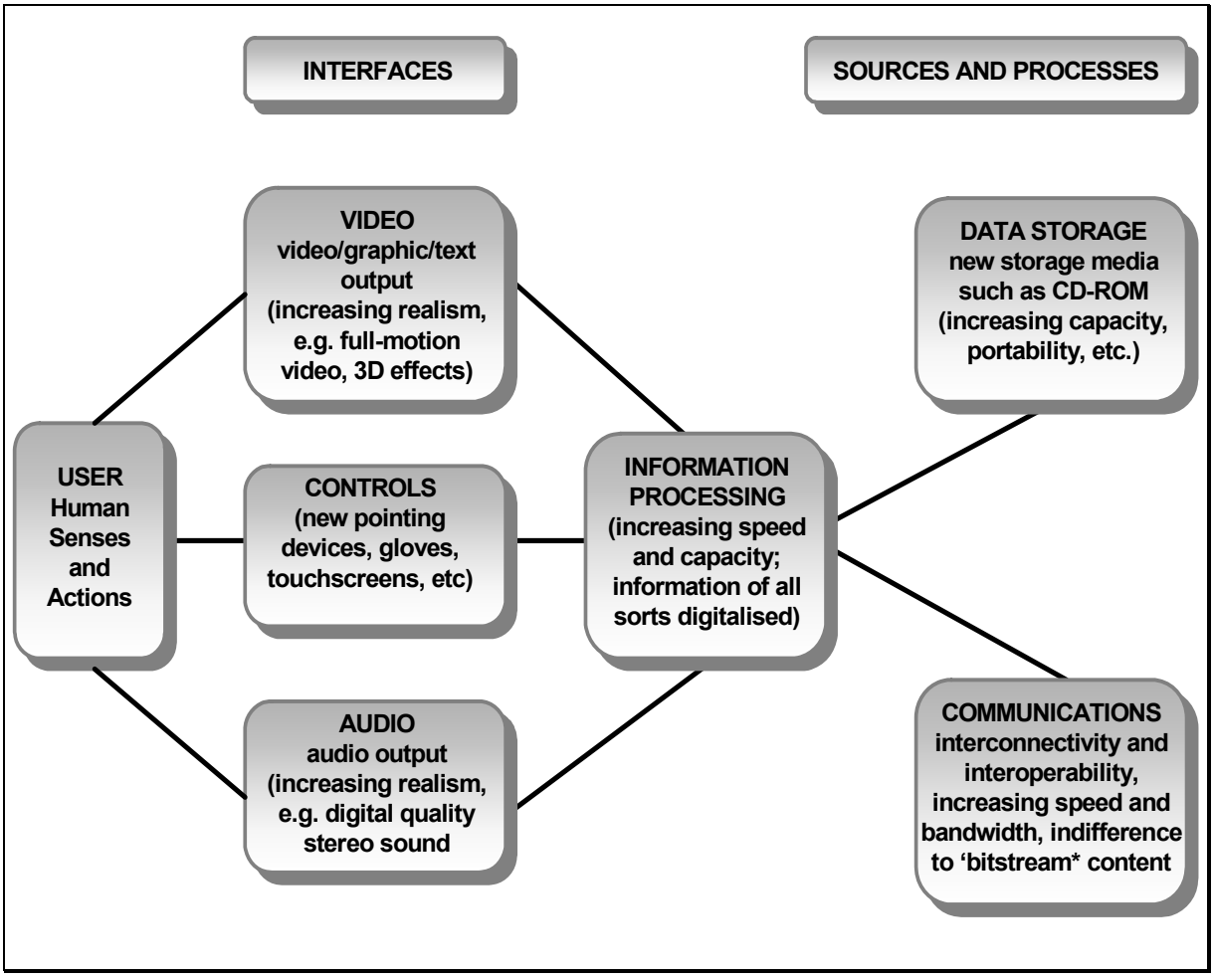

Figure 31: Stepping Stones into Virtuality

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A one-way flow of information has been typical of mass broadcast and recorded media. The powerful information processing capacity of new IT products allows them to respond to more user input, and to deliver more requested output, more rapidly. Highly interactive products are perceived to be intimate ones, with users shaping what happens next. Some new media applications allow for anonymous contact in **cyberspace** (like bulletin boards, chat lines on CB radio or multi-user games through internet). One of the global mega-trends is the **convergence** of computers, communications and broadcasting systems that means that there may be significant cross-over between media. An example of new media product is cyber music, graphical arts or film being run on the Web. Some products seem to succeed, other to fail. Miles (1997) has examined the evolution of dominant design in the mid 2000s plotted below (Figure 32).

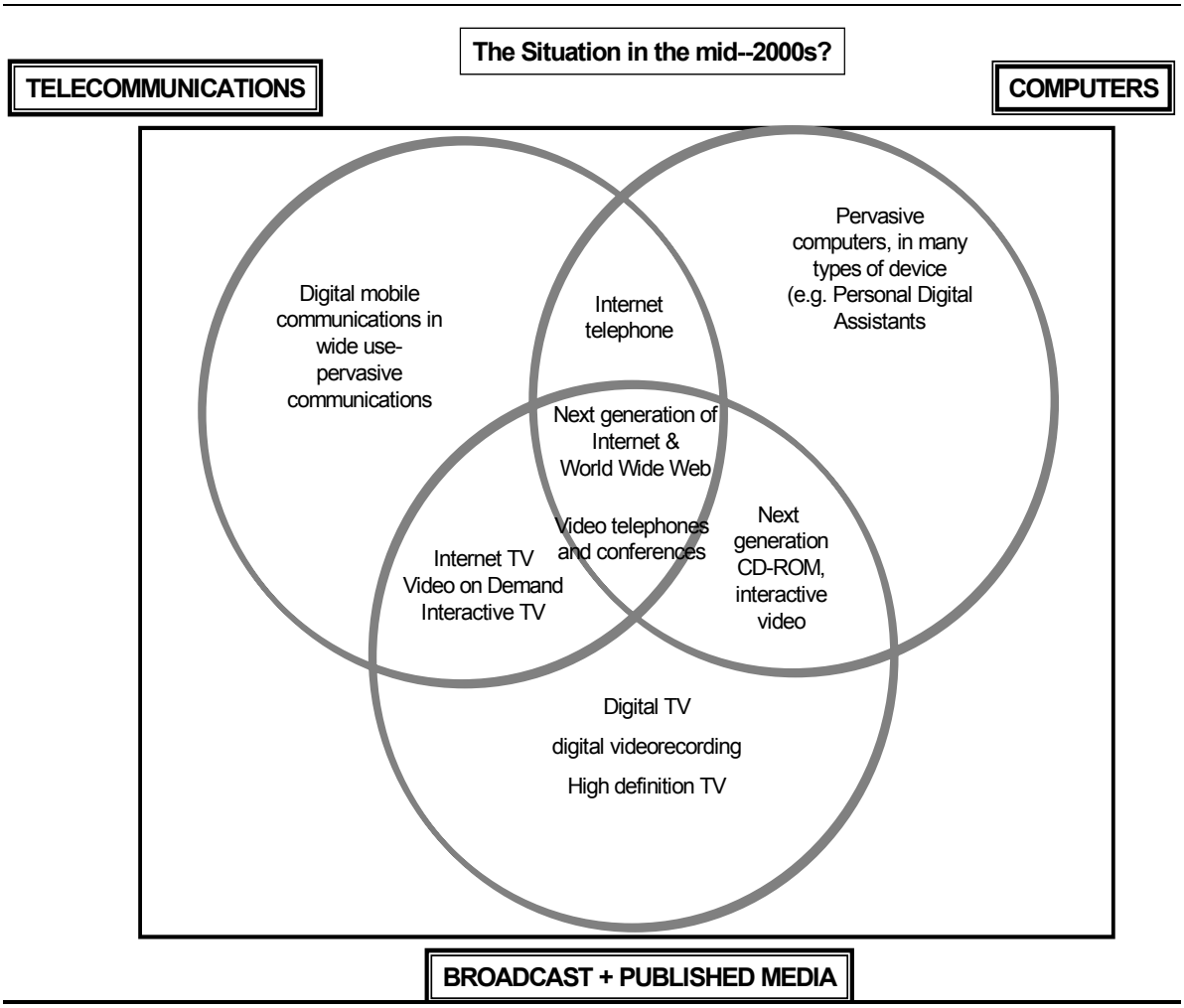

Figure 32: The convergence in the mid-2000s?

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According to Ian Miles, interactive products are felt to be not merely more powerful and functional than many of types of communication devices. Digitalization and Internet offer immediate advertisement everywhere and facilitate worldwide relationships with clients, and traditional firms in peripheral regions may have immediate access to world markets. Finally, last but not least, the increased capacity in data management at the firm level might allow an internal reorganization of the firm, towards a different spatial structure. The new technologies, internet, e-mails, mobile phones in particular, reduce significantly the search and matching costs of finding a partner.[67]

In terms of centrifugal and centripetal forces, the costs of searching and matching global partners are marginal compared to the time before digitalization.

Besides the convergence, the importance of high-quality content as a competitive factor will be strengthened in the media industry. Upgraded, customized information via Internet will become a competitive trump card. The traditional media will win out over Internet, since there are not such heavy investments in the production of content. If the reliability of information on Internet is not at a journalistic level, its contents will increasingly resemble marketing communication, not journalistic information. The trend of Internet and user-friendly technology, that have empowered the young generation, can catalyst a fundamental shift **from seller-driven to buyer-driven markets**, even in public administration. Some firms have created on-line direct, make-to-order distribution model, and through that eliminated middlemen in the distribution or marketing channels[68]. This buyer-driven approach is most efficient in the highly developed cities and clustered regions like the Silicon Valley in California.

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These kinds of agglomeration effects of the new Economic Geography have inspired policy-makers around the world to try to imitate the success of Silicon Valley by offering tax breaks, infrastructures and regulatory relief to high-tech firms in specific locations.

The consequences of agglomeration effects are not straightforward. Two counterbalancing effects can be identified. On the one hand, assuming the global convergence of computers, communications and broadcasting systems, the relevance of Marshall's and Krugman's demand and costs linkages is reduced and being close to suppliers and customers become less important. On the other hand, the need to be close to key customers is crucial because of the tacit knowledge transfer. These immobile factors can be fully utilized by regional clustering of actors. Certain business areas are global in their nature. As activities are codified and digitized, they can be moved costless through space. Transport costs of many economic (intangible) goods are reduced to zero. This is true for knowledge intensive business services, such as accounting, advertising and, management consulting in which the global, electronic delivery to customers is a substitute to the in-person delivery.

The Internet's agglomeration effects seem to be stronger than deagglomeration. University centers' purely intellectual activities are even more clustered than material activities. This suggests that present or future improvements in communication technologies, such as the Internet, also may not eliminate the role of proximity.

Nevertheless, the requirement to be located close to customers/buyers still exists and often, if the Internet appears to be a necessary condition to acquire information, it is not sufficient to conclude a trade.

Firms are becoming **footloose**[69]. Sunk costs of moving operations to a different country (or region) are reduced. The change in relocation costs affects the thresholds at which firms may decide to move locations. Much of resources are likely to be less mobile. Grant[70] proposes that some resources may be geographically immobile due to the costs of relocation. The defining characteristic of **tangible assets**[71] is that they are transparent and relatively weak at resisting duplication efforts by competitors. **Intangible assets**[72] have relatively unlimited capacity and firms can exploit their value by using them in-house, renting them (e.g., a license) or selling them (e.g., selling a brand). They are relatively resistant to duplication efforts by competitors. More recent discussion of regional agglomeration includes also those that are created by a country. The common feature of this type of resource is that it is a product of investments made over a long period of time in any given country. Typical examples are the education system[73], technological and organizational capabilities, communications and marketing infrastructures[74], labour productivity and research facilities (Porter 1990). Localized capabilities can deteriorate over time because of three main reasons[75]:

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1. **Substitution** takes place, e.g. due to a new technology
2. **Asset erosion** refers to the fact that localized capabilities are no longer maintained
3. The risk of **lock-in** has to do with the concern that in the long run, somebody's interests will be to stop the required changes for further development.

A major challenge is the **integration of digital technology and creativity**. Creativity would include such uses as developing software for retrieving data from electronic libraries and an issue arising from this is the compatibility of hardware and software in different systems. The major obstacle in the adaptation of the new economy is not technological, but more cultural. Culture, as the collective memory, includes images, symbols and values that are brought forward from past events. We are in the midst of transition from industrial society to information society. Because of this transition, prevailing business assumption will be challenged. Knowledge is replacing labor and capital as the key value driver. Markets are expanding from regional to global. Intelligent networks and virtual spaces are superseding the need for continuous material investments and bits are becoming more powerful than atoms.

The challenge of creativity is immense. It is a culture matter. User-centric interactive services are smart. Applications of New Economy engage people's brains and hands. What is the new, global culture is an open question.

Robert Lucas[76] has argued that human capital externalities constitute a major growth factor. Alfred Marshall accepts this factor as one of the main reasons to justify the existence of cities. Two sub-factors that seem to catalyze communication externalities are the city size and education system. Human capital could have some external effects through a variety of other channels. Marshall's argument is that the supply of specialized intermediate goods improves the productivity of final producers. Marshall refers to a more extensive division of labor within a more educated workforce, etc. The particularity of the story of the evolution of the Internet and its interaction with the Silicon Valley region, like the unique story of all technologies and regions, helps to undermine the simplistic models of universal economic development. The Internet economy has produced high densities of dot.com firms in San Francisco, New York, Los Angeles and Seattle, and is following precisely the same geographical pattern as financial service industries and others. The most famous example is Silicon Valley, the region most associated with the rise of the Internet[77]. For immaterial intellectual production, there is great value in being at the center of business, where the division of labor can be pursued intensively through seminars, conferences, and spontaneous face-to-face contacts. The exchange of experiences requires trust, understanding and long-term relationships, either directly or through third party enforcement.[78]

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The close relationships between universities, federal research labs and industry leaders have shaped the collaborative and entrepreneurial network of firms in the region. Researches on innovation process shows that location and proximity are of critical importance. Firms need networks of experts and institutions around them to test and get feedback on the new products and services, get ideas for new products from customers, related industries and research institutions. For this to happen, a lot of formal and informal communication has to take place. On such communications, trust is built, and trust allows the exchange of information, otherwise considered sensitive. For the transfer of tacit knowledge, face-to-face contacts are a prerequisite. One can distinguish between the degree of knowledge embedded in physical, human and social capital[79]. Social capital refers to norms, trust, networks, etc. that facilitate co-operation and coordination among the group for the mutual benefit of the group. A big share of human and social capital is embedded in the local context, in formal and informal networks and looses its value if taken out of the system of interrelationships.

Digitalization has lowered the management and control costs allowing a **dispersed organisation of the firm**, for example by allowing back-office operations to be separated from control and strategic functions[80]. This is very much particular to faster growing firms that tend to exhibit an increasing average distance from headquarters to local units. One of the most empirical results is a **dramatic reduction in transport costs**[81]. Klier[82] finds that 70–80% of suppliers of the US automobile industry are located within one day drive of the assembly plant. He also finds evidence that the concentration of supplier plants around assembly plants has increased since 1980 with the introduction of just-in-time production methods. The cross-border trade of computer software and other digitized media, such as music, graphic images and the written word, "on-line" via the Internet and the World Wide Web has proliferated in recent years. Some services, notably certain marketing, banking and insurance products, are also now sold internationally this way. Although clearly not on the same scale (in volume and value terms) as more traditional means, the continued growth in electronic-based methods of exporting seems assured in certain service industries[83].

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2 Global Markets and Economics

2.1 Some of the international trade theories

The predominant basis for international trade theories is interregional divergences in supplies of primary factors, technology and patterns of demand. It was against the supply side of the structural features alone that Adam Smith and David Ricardo set out to theorize the phenomenon of international trade and its benefits. Smith introduced the doctrine of **absolute advantage**, which is built on the economies of scale realizable from an extended market through exports. Smith's notion is relevant, since globalization of markets has brought economies of scale in the front line of international trade. Ricardo's contribution is the doctrine of **comparative advantage,** which has been the basic concept of international trade theories from the 1880s, the decade of the second industrial revolution, to the 1980s. By specializing in production and by trading with other developed countries, the industrial countries of today (the EU-countries, the US and Japan) have increased their BNIs. Since the mid 1990s, when the WTO was established, the industrial countries have oriented towards Smith's absolute advantage. An indicator of that is the rapid adoption of Porter's diamond model in most of the developed countries.

Porter's model includes a hidden mercantilism84. A cluster is supposed to be a closed system of its core elements, which determines the competitive advantages of a nation.

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The key concept propagating openness in international trade is the Ricardian comparative advantage, which can be found in the accumulation of the factors, where the nation has the most favorable comparative costs.

Of the many writers modifying Ricardo's idea, the representatives of the Stockholm school of economics are worth of noticing. Bertel Ohlin, a Nobel Prize winner, reformulated Ricardo's overall model incorporating a number of realistic characteristics of production[85]. The **Heckscher-Ohlin theory (H-O-theory or -model)** has its historical roots in the phenomenal success of the Nordic countries from the second industrial revolution to the time of globalization, from the 1880s to the 1980s. The Nordic countries have succeeded to increase their BNIs from the bottom ranking to the top. The H-O-model predicts trade patterns based on relative factor advantages. A country with a relative abundance of one factor is expected to produce goods that require a relatively large amount of that factor in their production.

The H-O-model is still relevant to the low-tech production that is local of its nature (e.g. mining), but not to the high-tech production that is global, R&D-oriented and Schumpterian of its nature (e.g. the telecommunication sector).

The H-O-model is generally accepted as a theory of trade. Empirical research has produced a number of results that do not match the expectations of the model. In 1954, Wassily Leontief, a Nobel-prize winner, attempted to test the model in the U.S. in the early years after the Second World War and found that a capital-abundant country exported labor-intensive and imported capital-intensive commodities. This so-called **Leontief's paradox** is the reason why some economists have dismissed the H-O theory. However, the problem is not the H-O theory as such, but the concept of capital. The U.S. has its advantage in highly skilled labor. This can be seen as human (or intellectual) capital. Using this definition, the exports of the U.S. is human capital abundant, not particularly unskilled labor abundant[86]. During the wartime the U.S economy oriented towards innovations and human capital, which is the historical reason for the Leontief's paradox. Later, the U.S. technology and knowledge were delivered all over the world.

The problem with the neoclassical theory of international trade, like the H-O-theory, is the exclusion of dynamic factors, such as technological revolution and knowledge accumulation. In his neoclassical growth model, Robert Solow solved the problem using the residual analysis of dynamic factors.

Some explanations for the Leontief's paradox dismiss the importance of comparative advantage as a determinant of trade. This is not the best possible option of theory building. Schumpeter, for his part, never denied the relevance of the neoclassical theory of the firm.

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Staffan Burenstam Linder is a well-known Swedish economist who tried to provide a possible resolution to the Leontief's paradox, which questioned the empirical validity of the H-O-model. The H-O- patterns of international trade are factor-driven. A country with high levels of capital is expected to produce capital-intensive goods, while those with an abundance of labor are expected to produce labor intensive goods. Staffan Linder hypothesized that **demand plays a more important role than comparative advantage in trade**[87]. In his model, a pattern of trade is determined by the aggregated preferences for goods within a country. Demand-based international trade arises from consumers' taste of variety. This aggregate taste for variety arises because different individuals have a different specification of their ideal variety. Countries with similar preferences are expected to have the same structures of industries. For instance, the U.S. and Germany have both large automotive industries that can be explained by a significant demand for cars in both countries. In terms of Chamberlin, there are a lot of monopoly elements in international trade, since both countries trade differentiated cars.

This demand-driven explanation is a complement of factor-driven explanations because the supply side has dominated the theory of international trade.

Helpman and Krugman believe that countries are trading in differentiated goods because of their similarities[88]**.**

Besides theories of the functions and benefits of international trade, there are theories that try to explain the dynamics or process of international trade. Raymond Vernon[89] has proposed the **product-life-cycle theory of trade and investment** that is parallel with the concept widely used in marketing[90]. Vernon noticed that in the 1950s and 1960s, new products were initially introduced in a high-income country, notably in the U.S. and spread to the world, first to other advanced countries, and later to the developing countries. As the products mature[91] and become technologically standardized, the United States, the initial exporter, will lose its export markets and become an importer of the product.

Vernon, attempting to explain patterns of international trade, observed a Schumpeterian type circular phenomenon in the distribution of trade over countries in the world markets.

However, Vernon's product cycle model is fundamentally production oriented and applicable for mass products, since the model ignores trade of intangibles such as services or brand names.

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Because of the imperfection of markets, the international markets are mosaic and the country-specific characteristics only partly determine what the efficient pattern of trade is. What is generally valid in Vernon's thinking is that the comparative advantage of a country is **dynamic**. At a particular stage of economic development, a country poses a unique set of basic production factors, technologies and knowledge to which the evolution path of the country in question must be compatible[92]. Whether a country's life-cycle model follow any **sequential pattern of stages** is difficult to know for certain. Liberalization of international trade and the growing amount international investments have led to a situation where a country's production capacity depends much less on the basic factors of production (i.e. natural resources, capital, and labor) included in the theories of comparative advantage.

Michael Porter (1990) introduces his stage-theory of the competitive development of nation. Porter relies on the product cycle theory like Vernon. Both models are, perhaps, more tentative in their nature than empirically grounded.

The key factors of a country's global competitiveness are firm-specific, competition-related factors and the advantages created by firms themselves[93]. Perhaps the relevant aspect of modeling is a firm-specific pattern of internationalization.

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Of the all the Nordic countries, Finland is a special case. In the 1860s, a major part of Finland's adult population died of hunger. Later, Finland has gone through the civil war (in 1918) and to wars against the Soviet (in 1939–1940 and 1941–1944). Today, Finland is among the winners of global economy. There certainly is much to learn about Finland's application of the Heckscher-Ohlin theorem. Finland is a country that, as a whole, has benefited greatly from specialization and international trade. One of the cornerstones of Finland's economic policy has been the **high priority given to the industrialization**. This policy was dominant from the war time to the 1970s, when Finland's export was factor-driven. The government was obliged to devaluate the Finnish mark continuously to maintain price-competitiveness. As consequence, the domestic demand was weak and wages low. Finland's export industry[94] was well positioned in the international trade. Exactly as the Heckscher-Ohlin theorem advices, Finland's export industry invested their monopoly profits, earned by the continuous devaluation of Finnish mark, t**o develop and adapt the most advanced industrial technology,** and **to increase productivity of industrial processes.** The difference it made in industrial technology was extremely advantageous to Finland's export industry in the production of specialized products.

From the war time to the 1970s, all groups in the Finnish society, workers and capitalists, invested their resources to improve Finland's export industry's comparative advantages, an excellent example of the wisdom of the Heckscher-Ohlin theorem. In the 1970s and 1980s, Finland moved with a bold jump from a factor-driven nation to an investment-driven nation. Finland's international trade was planned to lead the country to specialize in producing goods that require lots of capital and little workers. But the boom in the Finnish economy, due to the specialization in export, led to huge increases in wages which decreases the income of the capital owners. In the beginning of the 1990s, the whole economy was near collapse because of the low price-competitiveness of the export industry.

2.2 The Nordic school of stage-theory

Much of the firm-specific internationalization process research done has been based on the **Uppsala-model**. The main developer of the model has been Jan Johansson who together with Finn Wiedersheim-Paul[95] and Jan-Erik Vahlne[96] developed the process model to include a sequential pattern of entry into successive foreign markets. Johansson & Wiedersheim-Paul (1975) have concentrated on Swedish MNEs. Their stage-model of internationalization is called the **establishment chain**. This name is logical since the model has four incremental stages:

1. No regular export activities,
2. Export via independent overseas agent,
3. Overseas subsidiary and
4. Overseas production /manufacturing.

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This stage-model includes very much what the Nordic industrial firms did in the first decades since the wartime. Later, Johansson & Vahlne (1977) constructed their model of internationalization which is known as the **Uppsala Internationalization Model**. The model is not basically deterministic. A firm's internationalization process is supposed to be a **continuous process of adjustments to the ever-changing international markets**. Because of the Schumpeterian dynamics and Knightian uncertainty in the international markets, a firm cannot make optimal decisions of its internationalization. The model presumes that the greatest barrier to internationalization is the lack of knowledge of foreign markets and operations. Knowledge can be acquired through experience in foreign operations.

The building block of the model is the **progressive deepening through learning-by-doing**[97] of a firm's commitment in each of the entry markets. Internationalization of a firm is a **gradual and sequential expansion process** driven by the interplay of market commitment and market knowledge. As the firm increases its knowledge of the market, it may increase its commitment by entering knowledge agreements and finally by foreign direct investment (FDI). The network school of internationalization[98] is closely related to the mainstream pattern the **Uppsala-model.** The network approach has developed the behavioral aspect of decision-making further and attempts to identify the actors, contexts and interaction modes in business interactions. Another extension of the basic model is the concept of **psychological distance** that is the sum of factors preventing the flow of information from and to the market[99].

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Reijo Luostarinen has developed a parallel model with the Uppsala model. Luostarinen[100] made an extensive study, including almost all Finnish exporters in that time, accounting for 92% of total exports. Luostarinen's approach is holistic. He includes factors characterizing the domestic markets of firms. In Finland the domestic markets are small, peripheral and even open, when the situation is different in big countries, like the U.S. Luostarinen interprets this fact so that **Finnish firms are "pushed" into internationalization**. This country-specific stages theory is interesting, but not well theoretically grounded, since the main topic, the new Economic Geography, has never been included into Luostarinen's model in a proper way. Concentrating on the firms' product, operation and market (POM) strategies Luostarinen identified a systematic and consistent pattern of internationalization, which came to be known as the **POM-model**. It is an elaboration of how companies from small and open markets internationalize. Luostarinen (1979) describes internationalization of a firm through three dimensions: **product**, **operational mode** and **market**. (Figure 33).

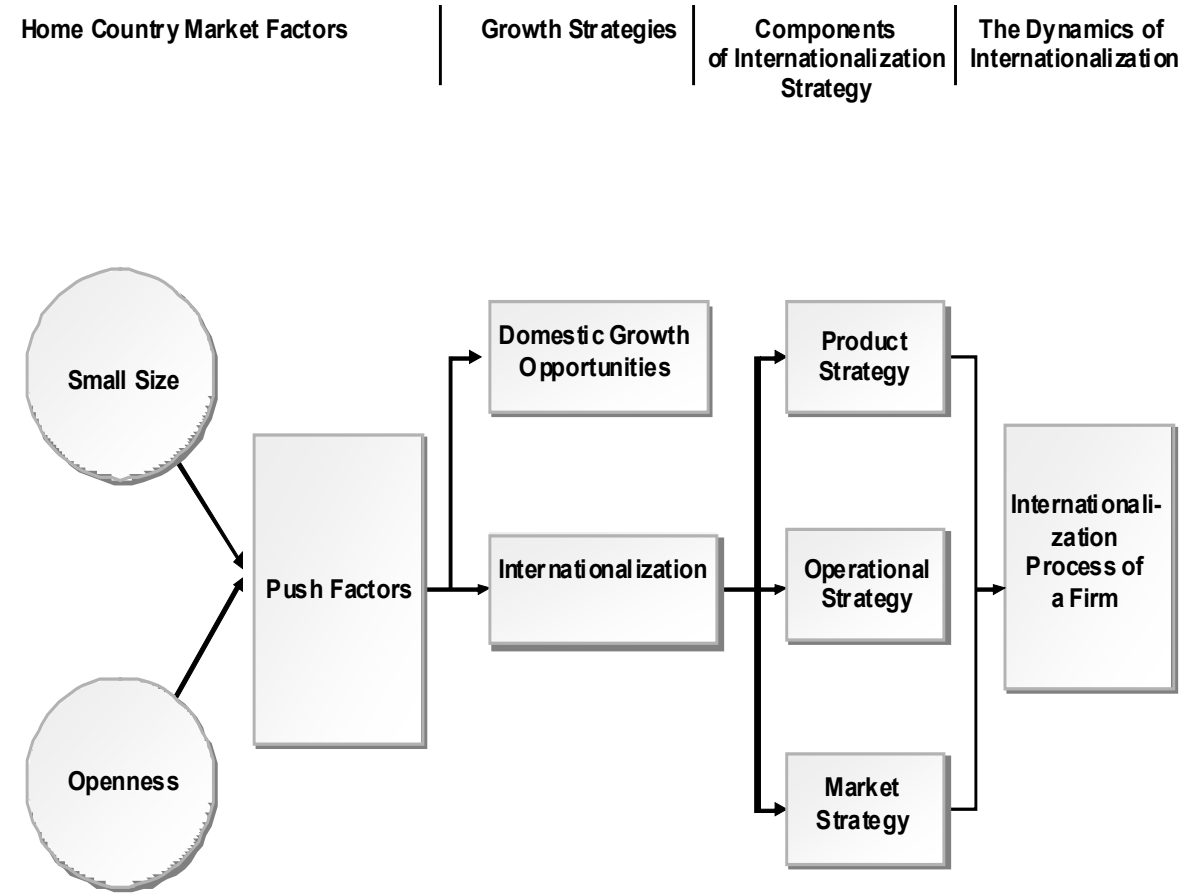

Figure 33: POM-model

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With respect to the market dimension, Luostarinen's model is similar to the Uppsala approach. Luostarinen (1979) defines internationalization on a broad way to include not only outward internationalization but also inward and cooperative and later, all types of foreign operation modes[101, 102]. Luostarinen refers to Edith Penrose (1959) who stresses the importance of knowledge by experience[103]. The Uppsala approach expects that experiential knowledge of clients, the market, and competitors constitute a subtle change in individuals and thus, cannot be transferred[104]. Luostarinen introduces the concept of **lateral rigidity** as being a major barrier to internationalization. As to the product dimension, the pattern of business operation is related to the export of business systems that combines[105]:

1. **Goods**: the physical output of a manufacturing firm
2. **Services**: planning, supervising, installation, testing, training, development, servicing and maintenance services
3. **Systems**: turn-key deliveries, co-production arrangements and franchising packages
4. **Know-how**: management, technological and marketing know-how, patent, trademark, pattern design and copyright.

The product dimension is a major contribution since the nature of a product is related to the stage of internationalization. Physical goods are often introduced first by manufacturing firms based on domestic markets offerings. Services complement good providing installation, maintenance, etc. The demand for systems or know-how selling is very much export-specific, since in the home markets, there is a long tradition to include these complex services into the delivery of goods[106]. This affects the Finnish firm's internationalization process, as Finnish firms have no domestic demand for complex services and they are stuck in lateral rigidity.

Therefore, the Finnish firms have had a historical tendency to gradually deepen and diversify the product offering to include all items in the product strategy[107].

The concept of **business distance** is relevant, since firms will tend to first invest in countries culturally similar to their own, which they find easier to understand and, as their international experience grows, move towards those which are culturally dissimilar. A firm must learn the habits, preferences, and the market structure of the target countries. This experiential knowledge is a critical resource since it is country-specific and it cannot be easily transferred between firms or business units. Knowledge and experience of international business often determines the market strategy a firm adopts. The choice of a target market country is strongly related to the business distance concept that is parallel to the Uppsala school. Luostarinen's distance concept is broader and includes **physical or geographical, cultural and economic factors**. Referring to the jargon used in management practice, Luostarinen discusses about a "hot" country with a short business distance and a "cool" country with a long distance. As a firm increases its experience country classification moves from hot to warm, from warm to medium, from medium to cool and finally from cool to cold countries.

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Luostarinen (1979) also makes an ambitious effort to further develop the establishment chain of the Uppsala school. Basically, his operation model has the same content. The basic division in both is between marketing and production operations. Luostarinen renames these and presents four major steps of outward operation modes[108]:

1. **Non-direct investment marketing operations (NIMOS)**: Indirect or direct operation of goods, service, know-how and partial project export operations
2. **Non-direct investment production operations (NIPOS)**: Licensing, franchising, contract manufacturing, turnkey, and co-production
3. **Direct-investment marketing operations (DIMOS)**: Sales promotion subsidiaries, warehousing units, service units and sales subsidiaries
4. **Direct investment production operations (DIPOS)**: Assembling subsidiaries and manufacturing subsidiaries

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These elements are incorporated into the stages model to define the degree of internationalization as a process. The development of internationalization can be divided into four stages according to the types of product, operation and market patterns used[109]:

1. **Starting stage**
2. **Development stage**
3. **Growth stage**
4. **Mature stage**

The transfer from one stage to another requires the utilization of more demanding operation modes and much deeper commitment. This means that a company must make changes in its product, operation or marketing posture. Lateral rigidity is most pertinent in the starting stage.

During the development stage of internationalization firms have already introduced good or services to a foreign market and make adjustments to their product or operation strategies. The move from the development stage to the growth stage requires further commitments. It is expected that the firm is moving to more distant markets (measured by business distance) and is using more complex operation modes, such as NIPOS. The final stage, maturity is reached by selling systems and know-how and by utilizing the DIPOS operation mode types. It is also expected that companies in this stage have foreign operations in countries with a very long business distance[110]. The stages model represents internationalization as a result of knowledge and involvement in foreign operations. Firms are expected to have deviations in their internationalization process. Welsh and Luostarinen[111] point out that in a case of long international experience, the knowledge transfer is flexible and some stages in the chain can be skipped.

What is unique in Finland is the FIBO (Finland International Business Operations)[112] database. There are, however, a lot of open questions concerning the validity[113] and applicability of the stage-theory.

2.3 Multinationals and Foreign Direct Investment (FDI)

International markets have been promising after the war. The rise of open markets for goods as the result of GATT processes and later the globalization of markets for capital, and partly for services and labor, have been understood as a set of processes in economy, culture and society. Globalization as a concept has much in common with earlier concepts like internationalization. It was Professor Theodore Levitt[114] at Harvard who first discussed global markets and global giants, **multinational corporations (MNCs) or simply multinationals**. It is worth noticing that parallel to globalization, there has been a shift in the comparative advantage of international trade away from traditional inputs of production, such as land, labor and capital, towards knowledge. The knowledge intensive or network intensive regions are the potential winners of the global agglomeration economies. The large home market countries, such as the U.S., are most frequently the host countries of MNC headquarters. The role of MNCs has been recognized to be important in present, intertwined global economy. The growth of the MNCs in number has been remarkable (table 1).

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Year	Number of MNCs
1969	7 000
1990	24 000
1995	37 000
1997	53 000
2001	60 000

Table 1: Number of MNCs in 1969–2001[115]

Stephen Hymer's dissertation[116] explicitly recognized the existence of firm-specific assets. In other words, **FDI**[117] **draws on the role of firms as creators and exploiters of intangible firm assets**. It was highly popular in those days, particularly among the general public and the political science discipline, to "see MNCs as big and bad". Hymer was not an exception. He saw MNCs as taking advantage of barriers to entry to earn monopoly profits. Today, MNCs are embedded in practically in all contemporary capitalist societies, the most powerful actors of the Schumpeterian trustified capitalism. John Kenneth Galbraight, referring to the U.S., wrote that **MNCs are the continuation of a country's power system on an international level**[118]. Peter Buckley, Mark Casson, and John Dunning are among the writers that developed a more analytical theory that argued that MNCs exist to complement the supply of markets.

In the macro level, Alan Rugman has written extensively on MNCs and government policy, particularly trade and FDI policy[119]**. Alan Rugman believes that MNCs are inherently increasing world welfare and are not exploitative. Government regulations of their behavior are likely to reduce overall welfare gains, since they prevents MNCs from doing what they do best (internalizing markets).**

The global markets are dominated by MNCs. The logical consequence of that is to reject the neoclassical assumption of perfect competition. Referring to the IO theory[120], the existence of MNCs engaged in FDI can be explained by **market imperfection** that are resulted from factors like proprietary technology, scale economies, control of distribution systems, and product differentiation[121].Through their decisions, MNCs themselves restructure the markets and the rules of the game. What MNCs are doing is dependent on the **oligopolistic nature of competition**[122] in terms of Chamberlin. Even in a global oligopoly, firms are interdependent. They enter a market as a chain action of others[123]. Firms go abroad to follow their competitors, customers or partners. Instead of neoclassical assumptions, the relevant indicator of the market efficiency is **contestability**[124]. One of the major problems in that sense is the "newborn" mercantilism that at least partly is reflected by the clustering boom. Contestability is especially difficult to maintain in industries where major firm's production function is based on country-specific matters or where there are essential governmental regulations or barriers of trade.

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MNCs are dominant players in the global markets. Markets are contestable, if they are open for new entrants. In other words, this can be interpreted that competition in the market is working, not perfectly, but adequate enough to give consumers new, genuine alternatives[125].

MNCs take advantage of the homogenous consumer segments[126] in the global markets. This increasing similarity or homogenization of tastes leads Levitt[127] to conclude that **there are global markets for some products and services**. Serving the global market segments with standardized products or services offers valuable economies of scale and scope for MNCs[128]. The fact that MNCs can have a major impact on the restructuring of consumer segments globally has lead to an assumption that **oligopolistic rivalry provides MNCs a chance to empire-building at the global level**. One of the major reasons behind such an assumption is that MNCs, through strategic entry deterrence[129], build-up overseas capacities in order to stop potential rivals from entering the most potential market segments. The worldwide economic growth rate is relatively low, especially in the developed countries. MNCs have competitive pressures to win market shares from local competitors, which is an explanation to FDIs in relatively mature markets. In the growth markets, MNCs attempt alternatively to reestablish market power through strategic alliances, joint ventures and collaboration over R&D.

MNCs are the dominant actors of the multi-cultural supply of global commodities. Globalization has had a fundamental effect on shifts in demand from local to global. Customer tastes around the world are becoming more similar.

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In some product markets, MNCs attempt to improve their market share to reach an oligopolistic equilibrium, a market leadership. MNCs make portfolio investments abroad to increase and obtain control of some critical resources[130].

According to Nagesh Kumar, FDIs' contribution to the host country's GNP growth is more than proportionately compared to domestic investments, because of knowledge and technology spillovers to domestic firms from MNCs[131]. The externalities, such as spillovers, may not take place in some cases because of poor absorptive capacity of domestic firms. MNC's entry may affect domestic firms adversely given the market power of their proprietary assets such as superior technology, brands and aggressive marketing. The effects of FDIs on domestic investment and growth are dynamic in nature[132]. Because of superior assets of MNCs, domestic firms may loose their market share in the short run. In the long run, domestic firms may absorb spillovers of knowledge through vertical or network linkages.

Economic globalization means that economic actors in firms and public sector have a challenge to develop their abilities to genuinely operate at the global level.

Some economists believe that FDI disciplines governments' macroeconomic policies.

The openness of markets is one of the key questions for increasing welfare and industrial dynamism in the transition and developing countries. Terutaka Ozawa emphasizes the **remarkable effect that foreign investment has on economic growth through increase in trade**. Ozawa believes that the patterns and directions of inflows and outflows of foreign capital change in conjunction with the stages of structural transformations in the economy. Inward FDI is typical for the first, factor-driven stage when seeking for cheap sources of raw materials and lower labour costs compared to home countries[133]. The existence of MNCs brings market dynamics to be considered. The assumption of immobile factors of production is also no more valid for empirical purposes[134].

The growth of total capital invested into developing economies has been huge during the three decades of globalization[135]. FDI is an important source of external resources and a significant part of capital formation, despite that their share in global distribution of FDI is declining[136]. The majority of FDI still goes to the well developed countries, where wages are high relative to those in developing countries. We are in the midst of a global reallocation of production activities. China and India were the star performers in aggregate GDP growth in the 1980s and 1990s. The rush of Western firms to access these countries, with their enormous domestic market, seems to continue. What is surprising is the speed by which the local firms, especially Chinese firms, have developed their technologies and positioned themselves as potential competitors to producers in the EU and the U.S. Chinese firms have succeeded to turn the state control to their advantage by beating MNCs their home markets. Now these firms are launching their first export products to beat western MNCs globally[137].

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The vitality of the Chinese "Dragon" and the Indian "Tiger economy" has risen some concerns. What is the global economy like, if virtually all production competencies will disappear from developed countries and be taken on by eager producers in China and India.[138]

The recent growth in MNCs and FDI in the world economy is explained by global factors, specifically liberalization.

2.4 Some theories of advantages of MNCs

In the 1960s and 1970s, economists explained MNCs through their FDI location patterns. Peter Buckley and Mark Casson[139, 140] were the first who called attention to advantages which may accrue to a firm from **internationalization**, i.e. engaging in foreign production itself. The essence of internationalization theory are market imperfections that may arise as the result of exogenous variables (externalities) in the goods or factor markets. These externalities can take the form of government induced regulations and control actions. There is, of course, the continous risk of market failure in the foreign operations, because of the lack of relevant information or knowledge (natural externalities). MNCs attempt to overcome these negative externalities by internalizing is operations. Thereby, MNCs are able to maintain control over their international operations outside their national boundaries.

The theory of internationalization drew on the **transactions costs theory**[141] which provides a rationale to explain why it may be advantageous to concentrate certain international operations within the firm, rather than rely on the market mechanism[142]. Marks Casson believes that in order to explain the existence of the MNCs it is necessary to include transaction cost theory. In the global context, markets are far from being perfectly competitive, and, therefore, the market operations are not costless. There are transactions costs of many kinds. Such costs include seeking buyers and sellers, and costs involved in negotiating, co-coordinating, monitoring, and enforcing contracts. When it is cheaper for a firm to undertake transactions internally, rather than via the market mechanism, internationalization which is engaged in the foreign production will be preferred. When the market does not exist, firms internalize transactions and become organizing units that supplants the price mechanism. One major source of transaction costs is the tacit nature of firm specific knowledge. When tacitness is high external market mechanisms become unsuitable to transfer intangibles assets such as knowledge.

The essence of internationalization for the MNCs is not that it explains the existence of the firm (transaction cost theory), but that it explains MNCs' multi-plant operations[143] **over space (Casson, 1982).**

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Internationalizing the market mechanism because of transaction costs is not a unique idea. Based on his analysis of the industrial history of Western countries from the 1880s to the 1980s, Alfred Chandler[144] proposes the **concept of economies of speed.** Chandler's concept of economies of speed has much in common with the transactions costs theory. In Chandler's thinking, the idea of speed of throughput has been important in explaining the rise of the large, vertically integrated firms. Chandler emphasizes the role of these firms as the innovators of new technologies. These firms, nowadays MNCs, exploit the potential of economies of scale and scope made possible by the new technologies of production. The economies of scale depends on the size of capacity and speed (or the intensity) with which the capacity is utilized. Chandler focuses on a managerial process, not the costs of acquiring inputs like the writers of the transactions costs theory.

When Tom Peters published his book **Thriving On Chaos**[145] in the end of 1980s, many felt his dramatic predictions of the fundamental changes facing U.S. firms were extreme. A decade later, it appears he may have underestimated both the intensity and complexity of those changes. Tom Peters refers to **fragmented markets**, and proposes a flexible specialization as a strategy, by which he means smaller economic units or firms providing a wider variety of products for narrower markets. Tom Peters declared it the **time of uncertainty**. It was not the first time. Both Joseph Schumpeter and John Kenneth Galbraith made the same declaration after the wartime. The Schumpeterian creative destruction has been going on since. One of the most devastating periods was in the end of 1920s and early 1930s, when the industrialized countries transferred from industrial to postindustrial society. Now, it is question of the revolution of information technology (IT) and globalization of economies.

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According to a modern interpretation of Chandler's thinking, the reason why a firm decides to internalize its operations can be the threat of transaction costs because of tacitness of intangibles assets. In that case, a firm's management is the Visible Hand[146], the powerful actor that internalizes the critical part of production. This is exactly what the Nokia management has done, for instance.

Internationalization and economies of speed are closely related to Schumpeterian-based production, which refers to fast-growing, innovative and know-how-based production. Interpreting Chandler's concept, the first movers are often firms that through interrelated sets of investments in production, distribution, and management can achieve the competitive advantages of scale, scope or both. The global first movers, in terms of Chandler's economies of scale and scope, are very often MNCs, although this is basically the core area of entrepreneurship. The critical managerial competence is MNCs' ability to implement multi-plant operations globally. A counter power to MNCs' excellence in internalizing of global markets is the so-called **venture capital approach** that centers on the exponential growth of innovative firms.

According to John Dunning, the IO theory failed to differentiate between structural (Bain, 1956) and transaction-type (Williamson, 1975) imperfections of markets. The transaction cost type imperfections are the main reason for MNEs to internationalize their markets. The potential cost savings provide the impetus for MNEs to expand their operations via internalization. Internationalization theory provides an explanation of the growth of the NMCs and gives insights into the reasons for FDIs[147]. John Dunning[148] establishes the **eclectic theory** according to which a firm possesses three advantages:

1. **Ownership advantages** are endogenous to the firm. According to Dunning, firms move their production abroad when they have certain ownership specific advantages over competitors. Ownership advantages primarily take the form of intangible assets, which are exclusive or specific to the firm possessing them. Globalization requires reappraisal, since a firm, reaching for ownership advantages, has to overcome barriers, which which do not confront local firms.
2. **Location advantages** which are external to a firm. There are extra costs for a firm investing in a foreign country related to the familiarity of local markets and institutions.
3. **Internationalization advantages** encourage a firm to internalize operations for production to replace the need to utilize markets. Internalization advantages result from exploiting market imperfections and internalizing them into firm advantages. Internationalization theory is thus very closely related to transaction cost theory (Rugman, 1981).

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The propensity of a certain country to participate in international production is dependent on the extent to which its firms possess these advantages and the locational attraction of its endowments compared to those offered by other countries or regions. Dunning makes no predictions, about which countries, industries or firms are most likely to engage in foreign production. He says that **these three advantages will not be evenly distributed across countries, industries and firms**. Furthermore, Dunning expects that advantages interact with each other and that their significance and structure may change over time. In this context it is also useful to consider a country's international competitive position through the internationalization process of its firms. Dunning (1979) suggests that there really is a close connection between the ownership advantages of firms and some specific characteristics of countries.

Reijo Luostarinen (1979 has stated that Finnish companies specialize in small missions and that the narrowing business scope within extremely small domestic markets forces firms to make the strategic choice: **Internationalize (or globalize) or die**. Specialization therefore demands international markets, even in the early periods of firms' lives. Division of firms into two categories is not simple, because fast and flexible production and well-developed final products are important to all kind of firms[149]. Different kinds of industries are usually divided according to their location-specific factors into three different categories. These are:

1) **factor-seeking**
2) **market-seeking**
3) **footloose production**

Factor-seeking production is looking for production possibilities near sources of raw material or energy. This is very typical for the primary sector, but it is also common for some higher-level production processes. Market-seeking production seeks demand for final products. Production according to market demand is very typical for well-developed final products. But also the role of transportation costs is meaningful for products belonging to this group. The third group, namely, footloose production, is somewhere in between the two previous extremes. The level of production of these goods is usually medium-stage. The determination of location in footloose-based production is a much more complicated process than in factor- and market-seeking productions, and companies react to factors that influence the attractiveness of a location much more easily than in other two cases. Globalization lessens the relative share of factor- and market-seeking production.

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3 New Insititutional and Organization Economics

3.1 The New Institutional Economics (NIC)

The **New Institutional Economics** attempts to incorporate a theory of institutions into economics. It was Ronald Coase[150], a Nobel prize-winner, who made the connection between institutions, transaction costs and the neo-classical theory. Institutions are formed to reduce uncertainty in many kinds of human exchange. Institutions are usually not necessarily created intentionally by governments or some other powerful actors of a society. Institutions are patterns acquired from others which guide individual actions. Institutions economize on the scare resource of cognition, by providing us with ready-made anchors of sense or premises to decisions[151]. Institutions have their unique histories. Douglass North[152], a Nobel prize-winner, focused on the institutional aspects of the economic past, concluding that economic institutions are **path-dependent**. Economic institutions are a market structure element. They exist because of network externalities, economies of scope, and complementarities.

Douglass North (1993) has claimed that institutions which protect property rights and lower transaction costs are the most decisive to the economic growth.

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Institutional environment is a cluster element. According to North's thinking, the state can never be treated as an exogenous actor, since the state has the mandate to a set of property rights and to enforce competitive market conditions.

The neoclassical economics relies on competition. Monopoly profits[153] induce entry into the industry. The entry of new firms provides an equilibrating function in the market to restore prices and profits to the competitive level. Coase explains the firm size through its efficiency in market transactions. A firm with a hierarchy is, thus, an alternative to the market mechanism. What are the comparative (transaction) costs is the question which Coase never answered. The Coasian transaction cost theory has remained abstract although the relevance of the theory is evident, if we assume like Chamberlin that markets are both competitive and monopolistic. Coase includes the **ex-ante** costs of transacting following the idea of the mainstream economics. Oliver Williamson[154] includes also **ex post** costs of transacting. This extended cost concept is useful, since an ex-post contractual failure is salient when transactions are significant because of the asset specificity of a firm[155] or because of the human nature. Williamson follows the idea of **agency theory**[156] that human behavior is not rational. Bounded rationality, moral hazards and risk awareness characterize human behavior more than assumptions of the perfect rationality.

Coase and Williamson define the firm as the governance structure or nexus of contracts, a view that contrasts with the mainstream theory of the firm[157]**.**

The firm exists (in a certain size) if the use of market coordination via price mechanism is more costly due to ex ante transaction costs (e.g. bargaining of a contract) and ex post transaction costs (e.g. safeguarding an investment) than coordination via a firm.

The axioms of the Coasian transaction cost theory are widely applicable. Marks Casson provides a rationale to explain why MNCs **internalize international operations** rather than rely on the market mechanism. In terms of the modern IO-theory, an explanation to internalization is mobility barriers in the markets that a decision-maker cannot know ex ante, although could have the best possible information to be used[158]. This is also the point of Robert Lucas' information paradox. Ulf Petrusson's holistic model of IPR-protection tools demonstrates the complexity of barriers. Knowledge-intensive business services of universities and consulting firms and others provide are especially difficult to supply, because of IP(R)-issues. In general, the transaction costs of constant recontracting with outside suppliers are high. In order to eliminate these types of costs, firms use own employees that are in the command of the employer, the firm. But the hierarchy or vertical integration is the governance model that should be questioned most of all.

As Williamson[159] **emphasizes, the usual strategic preference for any kind of integration or internalizing is reversed by the transaction cost economics approach. Williamson's advice is:**

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Vertical integration is the organization form not of first but of last resort – to be adapted when everything else fails. Try markets, try long-term contracts and other hybrid modes, and revert to hierarchy only for compelling reasons.

The basic notion of the transaction cost theory is that properties of the transaction determine the **efficient governance structure**. In figure 34 there is a relation between various governance mechanisms that an economic agent has in his mind:

1. **Markets (M)**
2. **Hybrid (X)**
3. **Hierarchy (H)**

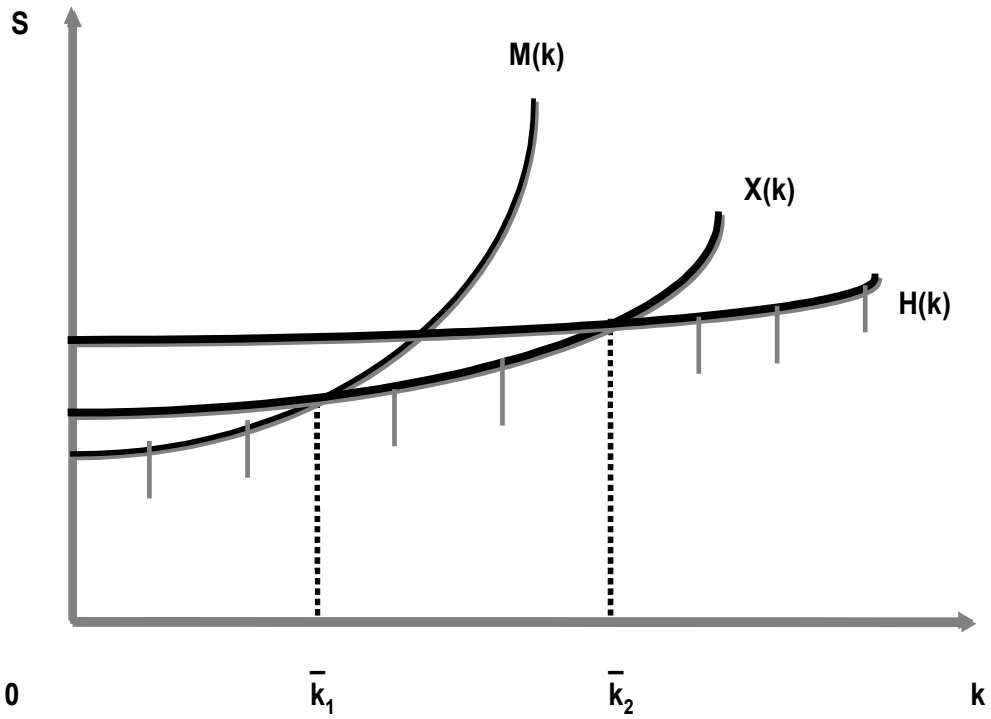

Figure 34: Williamsons' transaction cost economics

What are the properties of the transactions that determine the efficient governance structure in the global markets? Theoretically, there are many variations. It is only possible to demonstrate one set of properties what Williamson (1991) refers to. It is the **complexity of transactions** that can depend on the asset specificity or the human nature and many other things. In relation to complexity (k) these governance mechanisms have three different governance modes with different transaction costs:

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1. **Try market first** means that markets as a governance mode have inherently low transaction costs, but in any case when markets can be efficiently used, the complexity should be low. An example of that are stock markets.
2. **Hierarchy**, to hire own employees, is the dominant alternative when complexity is high. An example is a FDI.
3. **Hybrid,** that means alliances, networks, etc. are in in-between and the most efficient choice when complexity is medium.

Hybrid forms of contracting have been popular in international trade[160]. One of the major reasons is **time to markets** as the primary measure of ex post efficiency of governance. The popular operation forms of the hybrid type are subcontracting and contract manufacturing that as an application of long-term contracting make intra-industry business processes more flexible than integration or internationalization. Williamson's view is especially relevant to knowledge-intensive services that are embedded in many networks and that are supposed to be both competitive and complex to economize.

Firms organize contractual function primarily in order to decrease the uncertainty (Knight) of complex transactions where they need the internal depth of institutional knowledge and matching of business and legal processes.

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3.2 The WTO as an instititution and the new industrial devide

Globalization is a multifaceted concept. It should, therefore, be put into a specific context in order to make sense. The most debated symbol of globalization is the WTO (World Trade Organization). The WTO treaty signed in the year 1994 deals with the rules of trade between nations at a global level and makes all member nation states equal. **Non-discrimination** is the main principle on which the rules of the multilateral trading system are founded. WTO principles open up new business perspectives. This entails to look how trends across the globe, in markets, in politics, and new technology affect the globalization as a process. The challenge is international politics. The WTO treaty has **neoliberalism** as the dominant doctrine of market exchange. The advantages of neoliberalism are largely accepted. Among the positive results of the applications of neoliberalism are privatization of state-own firms and more open market processes.

The major ethical issue that David Harvey points out is, that to what extent can neoliberalism guide human actions globally[161]. This is the same question that Adam Smith asked in the early decades of the classical liberalism and industrialization.

Adam Smith was an early representative of the **Political Economics (or Economy)**. Smith developed the **labor theory of value of production**, the acts of buying and selling, and their relationships to laws, customs and government. Historically, another famous political economist was Karl Marx, who made his famous prediction of the socialist revolution throughout the world. Marx's theory of value was, however, based on a false philosophy of human nature. Revolutions in socialist countries today are against socialism and for free markets. In practice, socialism has failed to create the fully planned society. In most cases it merely has led to abuses of political power. Friedrich Hayek[162], an intelligent Austrian economist, has argued that socialism has, from its origins, been mistaken on factual, and even on logical, grounds. He labels as the **fatal conceit** the idea that man is able to shape the world around him according to his wishes.

The power perspective, the Political Economics is relevant to the NIC. As Schumpeter (1950) noticed, the monopolizing of markets by (big) firms has the same kinds of negative impacts on welfare expectations of nations as the socialism.

The modern Political Economics[163] is the interdisciplinary view to draw on economics, law and political science in order to understand how political institutions, the political environment and capitalism influence each other.

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Globalization enables firms **global geographical reach** in trade, investments, and competition[164]. Globalization in this form is driven by the advances of information technology (IT) that makes it easy to maintain a global, real-time information exchange. The commercial media are expected to be the winner of the global geographical reach. Concepts like eCommerce or mCommerce contain expectations that new, ambitious Schumpeterian entrepreneurs could participate in international trade and challenge the powerful MNCs[165]. The growth of transnational organizations of states, such as the EU and the UN, have not created such conflicts between national identities and the evolving transnational or global ones that many socio-economists expected[166]. To certain extent, the global superculture exists. Businessmen, politicians, scientists, pop-stars and students are examples of groups of people that are global in their minds.

Multiculturalism can be a strong asset for MNCs. For instance, Nokia's slogan "connecting people" and behavior expose what the multiculturalism is about at the best.

Kenechi Ohmae has invented a new concept, the **new regional division of labour**. By that Ohmae means the triadic development of the core regional entities in the global economy. Since the 1960s, economists used to look at the division of labour as a **North-South divide** in the world economy. After the oil crisis in the early 1970s, the two-poles-model of the world economy has not been valid. The New Industrialized Countries (NICs) and the Oil-Rich countries have emerged as in-between blocks. In the 1990s, the new entrants, China, India and the Asian Tigers emerged in the world economy. The historical North-South divide with the dominance of the U.S and the EU was over. The new entrants have even become competitors for Western MNCs. The Chinese and Indian MNCs have started to utilize the same advantages that Western MNCs have found in China and India for their FDIs. Many developing countries in Asia (Indonesia, Malaysia and Thailand) and Latin America (Brazil, Chile and Mexico) have successfully opened up their economies under outward-oriented policies.

The relocation of industrial activities from the U.S. and the EU to China and India is actually a manifestation of the H-O-theory. These countries are doing exactly what Finland did in the period from the war to the 1980s. The huge growth of FDIs in China and India is partly the result of the neoliberal policy that these countries apply in international trade. China and India have left behind the **Marxian labor theory of value**. They have successfully combined the state control in certain key areas with the price mechanism of global markets. Their industrial policies include an **ideological mission of H-O-advantage**. China, India and also many other developing countries follow **the maximal mobilization of a nation's resources to provide profitable sites for MNCs' FDIs in the commodity production.**

This is the mixed economy policy model[167] that the Nordic countries applied after the war to move from the factor-driven economies to the innovation-driven ones, like in Porter's model.

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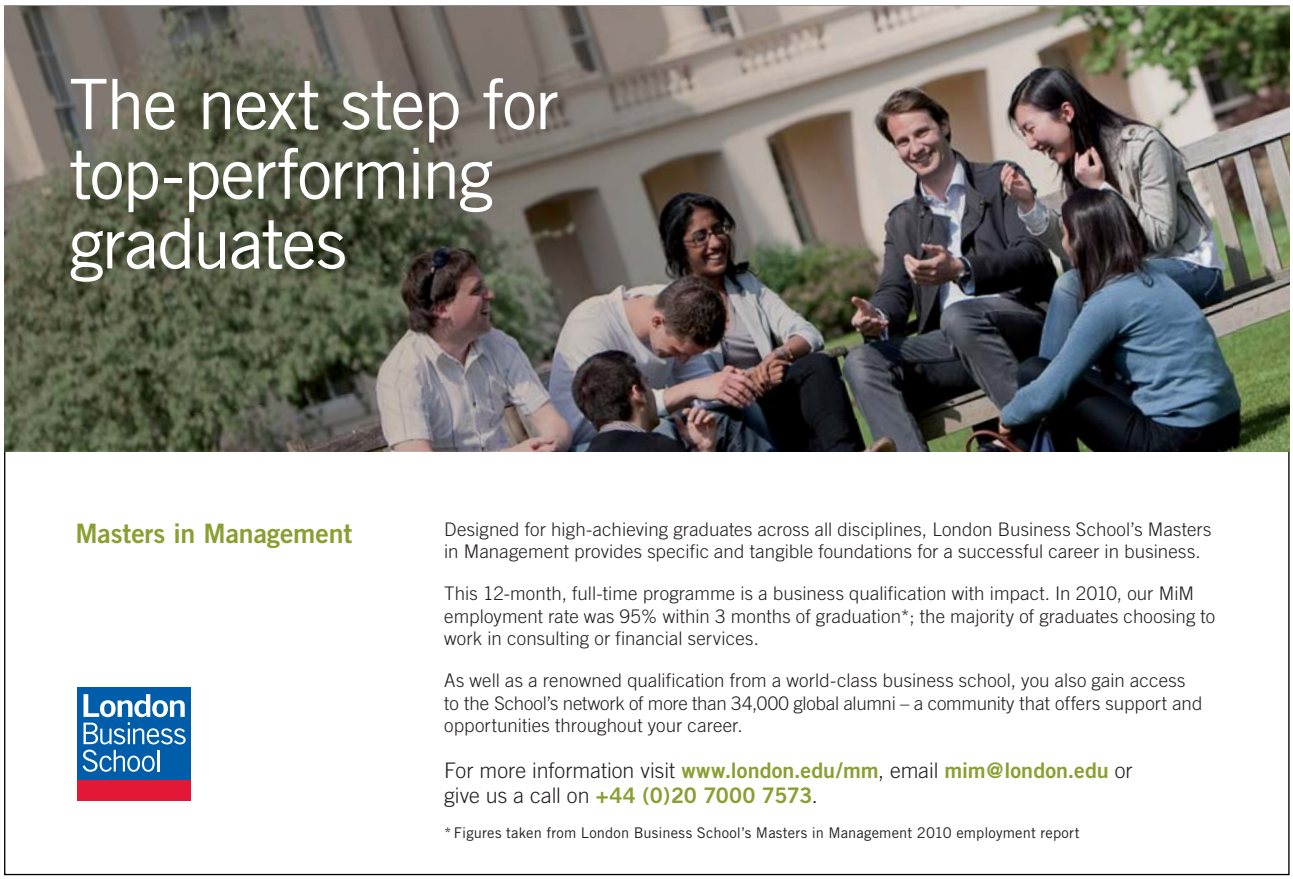
Kenechi Ohmae's new regional division of labour gives the triad of the core region states (the U.S, the EU and NICs) the mandate of rule-making in the global economy. But unfortunately, a whole continent, Africa, is almost totally out of the the triad and to some extent South-America.

Relying on the market mechanism, the U.S and the EU have allowed a massive relocation of industrial production to high-growth and low-cost countries in Asia such as India and China. The winners of that politics are MNCs and some states like China. The losers are the U.S., the EU and many of African countries. Ohmae's book **The End of the Nation State**[168] refers the losses of Western countries. From the western welfare state's point of view, the massive relocation of industrial production to China and India has been a hazard. The risk is the **collapse of the cluster-based innovation systems** that are assumed to be the major competitive advantage of both the EU and the U.S. The geographical proximity seems to matter after all[169]. When MNCs relocate their manufacturing, they maintain ownership, but the home-base regions of the clusters loose their proximity adantages, the learning ability and, even the innovativeness[170]. The huge growth of global trade, especially intra-industry trade, can provide compensations the losses of industrial production. In the EU the four factors to be counted are:



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1. **The widening of the EU** to the East and Central European countries that, perhaps, increase the EU's economic-political power in the mid of the global Triad.
2. **Socio-cultural stability and tolerance** are something unique in the EU, as Ohmae has noticed.
3. The **civil crises management initiative** is an example of EU's political role globally. Because the EU has tightly anchored its common foreign and security policy to the UN's principles of human rights and sustainable development, the EU is the most wanted partner of the UN.
4. **EU's infrastructure, transport connections and flexibility** provide good options to any of global actors in the sea, air and information logistics to operate.

The U.S. has been more worried about its role than the EU. Gary Hamel[171] has claimed that the **hollowing-out process** of the US industrial firms, the reallocation of activities can lead to the loss of skills and competitiveness of the US economy. Hamel believes that a short-term strategic horizon may mislead firms to cut down their jobs to better their competitiveness on the expense of developing the people-embodied skills needed for a long-term product leadership. A short-term relocation of activities may hide the costs of outsourcing and raise barriers to the future technology leadership. The US senate, which even in normal circumstances is ready to intervene in the imbalances of the international trade, has reacted to the hollowing-out process of US industry by working on bills to restrict the U.S. government contractors from outsourcing work overseas[172]. Does the U.S., the global super power, have the legitimacy to intervene in international trade? From economic theory point of view, Paul Krugman[173] claims that **nation states are not the subjects of global competition.**

The global economy is challenging. Substituting labor with capital and technology, along with shifting production to lower-cost regions has resulted in waves of firm downsizing throughout the EU, the US and Japan[174]. An example is the ICT. Finland, Ireland and Sweden are the most specialized in the ICT, with respect the share of ICT in the manufacturing exports, in gross value added, and in R&D[175]. In the 90s, these countries got advantages of the divergence, the tendency of an industry to grow where it is already over-represented, and concentration**,** clustering the ICT production in a certain places[176]. However, changes in the ICT are radical as the case Finland demonstrates. The divergent growth of the ITC clusters in China and India can also end in random shocks.

The impact of relocation of industrial activities out of the home-base is called Wintelism[177]. A parallel trend is the decreasing importance of mastering manufacturing[178]. The formerly critical skills of the regional cluster become commodities, available by contract from producers that try to relocate the production capacity globally[179].

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3.3 The TRIPS, IPRs and mobility barriers

Douglass North[180] has claimed that institutions which protect property rights and which lower transaction costs are the decisive factors in the history of economic growth. In North's thinking, the state can never be treated as an exogenous actor in development policy, since the state have the mandate to set of property rights. Property rights matter because they influence a firm's competitive environment. The major part of property rights is assigned to firms, MNCs. Therefore, costs and rewards associated with the use of property rights and, notably the use of IPRs do accrue to the firms. The **intellectual property rights** have a respectable connotation of **property**, instead of the more unpleasant **monopoly privilege**[181]. The WIPO treaties facilitate international harmonization, but not protection for IPRs[182]. The WTO **TRIPS**[183] Agreement[184] established standards of protection as well as rules on enforcement, and most significantly, brought the IPR regimes of WTO member countries under the jurisdiction of the new dispute settlement system of the WTO.

The TRIPS is an institutional innovation. It introduces IPRs into the GATT[185] framework and thereby shifts the emphasis of procedural uniformity, as promoted by the WIPO, to minimum standards of substantive protection.

John Dunning includes ownership as one of the advantages that a firm possesses. According to Dunning, firms have ownership specific advantages that primarily take the form of intangible assets, which are exclusive to the firm possessing them. Dunning implicitly assumes incompleteness of contracting which is the realistic assumption in understanding the ownership advantage in the global context. In the global markets, an efficient use of asset ownership is crucial[186]. As to Dunning's ownership advantage, ownership per se is not the primary interest of a firm but the allocation of use rights. The argument is that ownership confers residual rights that exist only in incomplete contracting[187]. Ronald Coase[188] discusses the economics of property rights that is the crucial institutional innovation to overcome the problems of externalities. **Coase's point is to conceptually separate the allocation of use rights is from ownership**. In Coase's view, ownership does not provide the owner with exclusive rights to assets, only to certain uses of the assets.

Scientific knowledge as a commercial commodity is the most profound characteristic of globalization[189]. Universities all over the world are actively producing commercial knowledge for business firms, following Stanford University's role model in Silicon Valley. NMCs are actively involved with the universities and research labs in order to get access to the up-to-date scientific knowledge. The **Mega-science themes**, like the human genome project, are global in their basic nature as such since they can only be addressed on a global scale. The TRIPS is a catalyst for the knowledge economy. Besides the TRIPS, the U.S. has innovated new kinds of interactions between universities, MNCs and innovative entrepreneurs.

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The foundation for **innovation university model** is to be found in two institutional innovations in the U.S.:

1. The **Bay-Dole Act**, enacted in 1981, provided universities the first-right to commercialize patents, and, if they fail, the Federal Government retains the ownership of patents and then can grant non-exclusive licenses to interested third parties.[190]
2. The institutional innovation was the **liberalization of the Federal antitrust laws** to allow collaborating research projects between firms in the same industry[191].

In the institutional development, the EU is lagging behind[192]. A positive example is the co-operation of the Commission and ETSI[193] in the GSM standard, laid down formally on a voluntary basis[194]. Standards[195] perform several important functions. Technical standards are powerful tools for protecting innovations and for establishing practically permanent mobility barriers globally. Technical standards can have three various institutional bases:

1. Some technical standards like the GSM standard are based on public initiative and are referred to as **de jure standards**.
2. The technical standards, like the Microsoft's Windows that market adopts for various reasons, are often referred to as **de facto standards**.
3. **Open standards** are in opposition to proprietary standards both de jure and de facto standards. Open standards are not owned by a limited number of actors. They are basically of public domain, although the term can be misleading[196]. Anyway, open standards are crucial drivers of growth and innovation. They ensure the compatibility of complementary products and economize vertical marketing and production systems.

The GSM standard has had a major impact on the restructuring of consumer segments in telecommunication markets. It is an element of mobility barriers in the global ICT markets. The GSM standard is a technical standard that has been crucial in the growth or even empire-building of Nokia, Motorola and Ericsson at the global level. The GSM standard maintains oligopolistic rivalry and to some extent monopolizing elements in the global ICT markets where a standard is crucial in designing and producing programs that are compatible and interoperable across platforms. **The GSM case provides an example of how the IPR ownership affects market structure and market shares**[197]**.** The GSM market has been dominated by Ericsson, Nokia, Siemens, Motorola and Alcatel that together control 85% of the European GSM market that is the largest in the world.

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Ulf Petrusson[198] visualizes a holistic model of IPRs (figure 35). There are many parallel tools. **Technical control** mechanisms are crucial when the modern internet is used. One major part of them are technical standards that protect the general intellectual property. In the light of BCG, PIMS and Harvard, the **market power** is among the most relevant structural control mechanisms. Firms with a strong market position like MNCs can dominate branches and sectors of the economy, and by doing so, alter their structure. **Rights based properties** in various forms are important because they represent the legal isolation mechanism for protecting the firms' assets. Rights based properties designed to protect the inventor from exploitation of their knowledge embodied in, mainly industrial, product and process innovations mainly take the form of patents. Ideas embodied in symbolic material and creative expression are protected mainly by copyrights and trademarks. Although information technology has increased the scope for trademarks and copyrights, the patent system is still relevant. In knowledge-intensive industries, like biotechnology or ICT industries, the list of mobility barriers should be extended to include **contract based property**. The most important property for growth firms seems to be the **business secret**[199] which is a combination of right and contract based properties.

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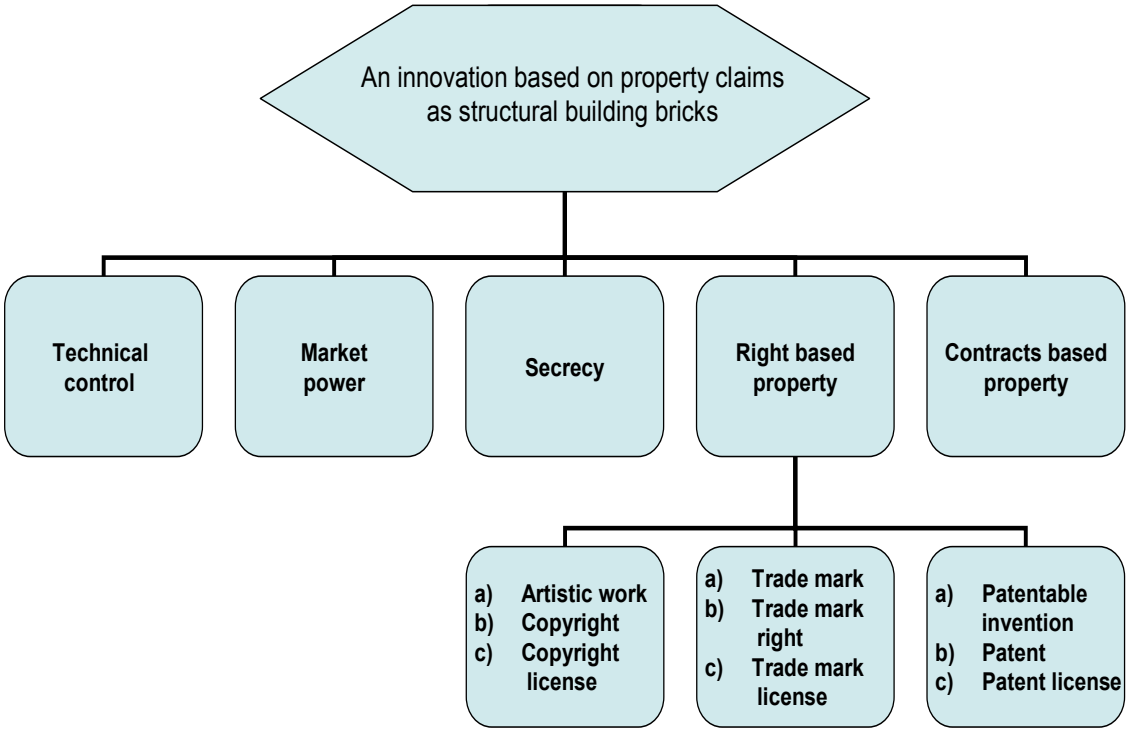

Figure 35: Extended Intellectual Property Rights model

Extended Intellectual Property Rights (IPRs) that include Right based properties and business secrets are vital for ensuring that creative people are rewarded and that the sector is not constrained through lack of incentive. Perhaps, the most debated element of IPRs is always the patent right that can be used to create high mobility barriers. The majority of patents have no value, and the values are difficult to determine ex ante. This is known as the **patent paradox**. During the last two decades the patent intensity, patents obtained per R&D investments, has risen dramatically even as the expected value of individual patents has decreased[200]. The patent intensity has also increased patent 'thickets'[201]. Patent portfolios simultaneously increase both the scale and the diversity of available marketplace protections for innovation. Therefore, firms will typically seek to obtain a large quantity of related patents.

The patent portfolio theory is important for explaining such observable patterns in the modern patenting environment as firm-size differences in patent intensity and litigation rates or the value of patents.[202] Patent litigations become more complex and costly and patents are no more 'gold mines'[203].

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A collection of closely-related patents defining a patent portfolio can operate much like what might be called a 'super patent': in much the same way that the holding of a U.S. patent grants the right to exclude others within the scope of its claims, the holding of a patent portfolio will allow the holder to exclude others from the **collective scope of its claims**. Where such patents are both distinct yet cover coterminous subject matter, the breadth of the right to exclude conferred by a patent portfolio is essentially the sum of the individual patent rights. But the scale advantages of patent portfolios are more than merely additive[204]. The benefits of patent portfolios, however, go well beyond their status as **de facto super-patents**. Patent portfolios are not simply singular items, but rather a constructed array of related-but-distinct individual patents, with each component patent representing a fraction of the total. This diversity – the fact that no single patent determines the value – is a major benefit of patent portfolios. By distributing the importance of the total portfolio across the constituent individual patents, a patent portfolio allows holders to significantly hedge against aspects of risk and uncertainty that are endemic to innovation in the modern economy[205].

The fundamental argument here is that the real value of patents lies not in their individual significance, but instead in their aggregation into a patent portfolio. Thus, a patent portfolio is best understood as a collection of individual patents that share critical technological features.

A global patent portfolio can only be maintained trough continuous and large investments in R&D and patenting. Patent portfolios are the major element of modern mobility barriers model in the global markets[206].

Standards and patent portfolios are IPR-related mobility barriers. Referring to McGee & Thomas' (1986) classification of mobility barriers, 'Market power of patents included into de jure or de facto standards' (category: 'Market-related strategies) is an example of a new element. The second one could be 'The scale-economies of patent portfolios and the diversity of patent portfolios'. If we look at the second category in McGee & Thomas' classification (Industry supply characteristics), potential candidates are: 'The scope of essential patent claims included into a standard' (standard-based) and 'The rules of game of cross-licensing' (Patent-based). In the third category in McGee & Thomas' classification (Characteristics of firms), potential candidates are: 'Aggressiveness of licensing strategy of the group members' (standard-based) and 'The litigation strategy of the leading firms' (Patent-based).

A tentative list of standard-related mobility barriers are listed in table 1 according to the logic of McGee & Thomas (1986).

1. **Market-related strategies**
   - Market power of patents included into a de jure or de facto standard
   - The scale-economies of patent portfolios and the diversity of patent portfolios.

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2. **Industry supply characteristics**
   - The scope of essential patent claims included into a standard
   - The rules of game of cross-licensing

3. **Characteristics of firms**
   - Aggressiveness of IPR strategy of the group members
   - The litigation strategy of the leading firms

Table 1: A tentative list of IPR-specific mobility barriers

3.4 The (new) Organization Economics

In his book, **Scale and Scope**[207], Chandler compared the history of corporate capitalism in the U.S., Britain, and Germany. The large vertically integrated corporations emerged in the U.S. to replace what had been a fragmented structure of production and distribution. Britain's corporations and their institutes were seriously lagging behind the U.S. managerial revolution. As Chandler has claimed, the large-scale production technology of the 19th century **required vertical integration and conscious managerial attention**. The transformation from functional to product organizations was the means to enhance control and coordination[208]. For most of the 20th century, the vertically integrated managerial hierarchies persisted because it was the appropriate solution for the capital-intensive industries to maintain the minimum efficient scale of operations[209].

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One important practical implication in Chandler' writings is that he is convinced that the hated U.S. trusts of the late 19 century were the ones that succeeded to increase output, lower costs, and compete vigorously. This is an example of the fact that the evolutions of organization economics and economic institutions are parallel.

Globalization and the digital economy have challenged the doctrine of vertical integration. Middle-management has lost its position in industrial firms because of automation of firm's production processes. The transformation from the **vertically integrated organizations** to **networking**[210] has enhanced flexibility without loosing control. The economic disaster of middle-management has led to the restructuring of the industrialized societies, especially in the U.S.[211]. The process model experimented in Japanese industrial firms, notably in Toyota, has been superior in productivity (like process and product quality). It is possible to speak about an organizational revolution. The transition towards networking can be described in figure 36.

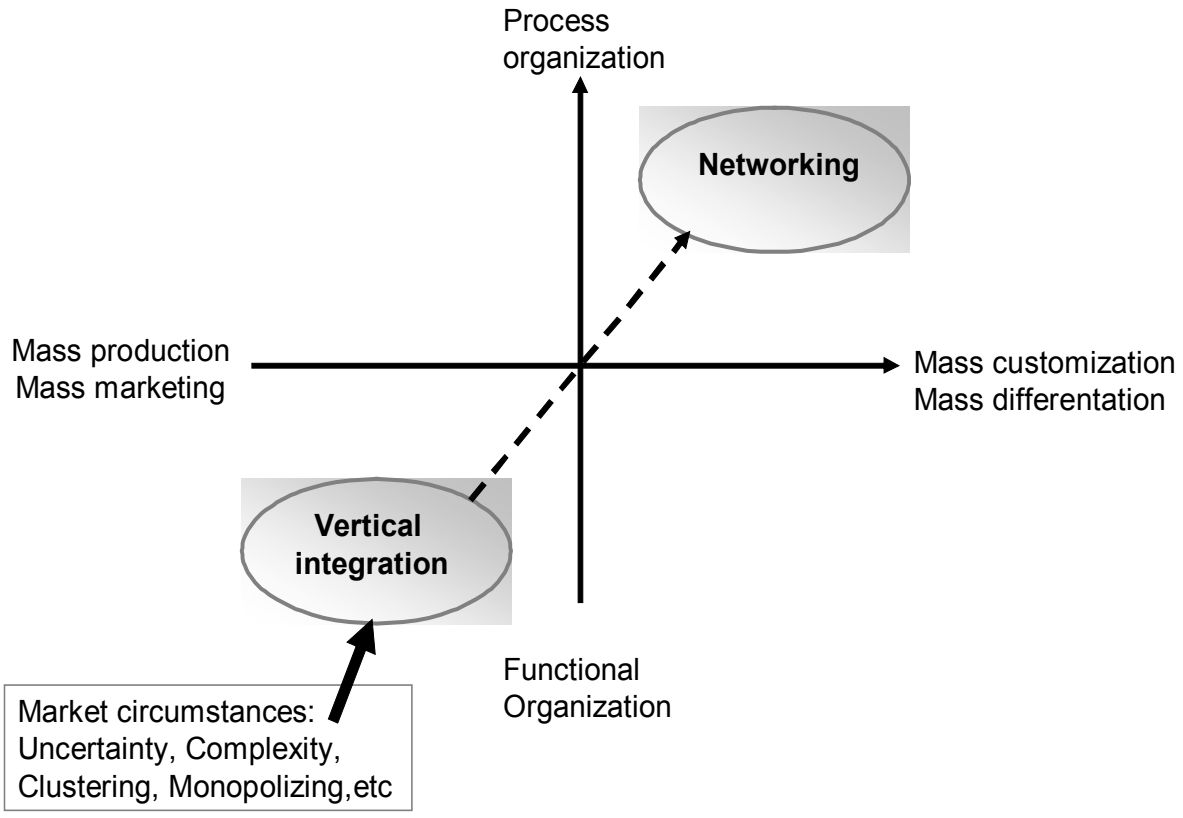

Figure 36: The transition towards network organization

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We are in the midst of transition from the industrial society to the information society[212]. Market circumstances in the global markets can be highlighted by uncertainty, complexity etc that are the major reasons to the de-integration of the vertically integrated production. In the industries where knowledge is replacing labor and capital as the key value driver an extreme de-integration and outsourcing of the production into projects is most prominent. This is because the increased flexibility by a project organization, as the response to market (demand) uncertainty, provides more economies of scope than a functional organization. An example is a **modern film studio** that is highly dependent on a scare resource provided by a third party; well-known actors. In the past, a film studio was able to appropriate much of the value from its creative talents by utilizing long-term contracts. A project organization constructing on a film-by-film basis allows knowledge to accrue to individuals who are able to sell their services to the highest bidder.[213]

Peter Drucker[214], a management advisor of many decades in the 20th century, has claimed that replacing managerial hierarchies with networking has been the greatest organization and industry structure shifts of the 20th century.

According to Gary Gereffi[215], the **era of digital globalization** has replaced the era of trade based-globalization. Digitalization is revolutionary because it has increased the importance of space or scope to glue together productive processes. The political, economic and technological forces of the digital era promote a firms' ability to transfer productive processes to low cost countries, to transform the industrial organization structures, and to increase the applications of **modularized production chains** in the global context. The modularity of manufacturing creates new norms for the coordination and co-alignment of processes[216]. The rate of global diffusion of the Internet technology has been far faster than of any previous technology. This has made it possible to decrease transaction costs of globally transferring the digital contents of industrial products.

In the modern deconstructive model of manufacturing, the information-rich part, like industrial services, is often integrated to the headquarters of MNCs when the commodity parts are relocated globally[217].

There is an important institutional instrument that has a facilitating role in the growth of modularization. It is question of the **rise of standards** as a consequence of globalization and their effect on transaction costs. Instead of using proprietary standards in the production of commodity types of industrial components or systems, MNCs have moved towards common de facto or de jure standards. Following the business model developed first in the car industry, most of globally acting industries have only a limited number of suppliers for industrial components or systems. MNCs have transferred their mutual competition to final products and brands instead of competing with manufacturing. Common standards are the prerequisites for modularization and, thereby, for fast ramp-ups or pilot productions of industrial commodities.

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The modularization and standardization of industrial commodities makes relocation much easier because the core competence is no more the mastery of production activities but organization of logistics.

A product's physical and digital elements have separate logistics. Digital processes are as such global and net-based and can replace physical activities[218]. This does not only relate to the nature of the product but on their business models. The share of the total value added, leading up to the manufacture of a specific product, is increasingly digital in its nature; the importance of physical location becomes less obvious[219]. One major reason for the de-integration of integrated production is demand uncertainty in the global markets. Especially small and medium sized suppliers of industrial services such as the contract manufacturers have innovated new business models[220]. Industries reliant on the collection, processing and distribution of information like the music industry have until now undergone massive changes. The industrial subcontracting is in the move towards flexible structures. Finnish firms like Elcoteq or Elektrobit that provide contract manufacturing or R&D to Nokia and other global MNCs are a glorious example of the new organization economics.

New business models, which focus on knowledge rather than technology management, are appearing, with an explicit focus on the development of network positions, knowledge management and global configuration of activities[221].

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As pointed out by Dicken[222], an increasingly important challenge for achieving entrepreneurial benefits for any operator in the global production network is the ability to govern interorganisational relationships, i.e. to master the process of configuring, linking and coordinating these activities with the wider global production network. This is elsewhere referred to as bridging activities, i.e. those coordinating activities and corresponding transfer of knowledge among actors, that link together transformation processes in production activities carried out in global networks. For understanding the impact of relocation of production processing as well as on facilitating and follow-up activities on the region, the crucial question here is, whether the linkages between the production processing activities and the production facilitating and follow-up tasks are important for maintaining the innovative capabilities, and if so; whether these linkages function more significantly efficiently within the region than among globally dispersed actors.

In the context of global markets, networking combined with digitalization, have made relocation possible as well as restructuring of production by changing the value of time[223].

Networking as such has been though as the advantage of SMEs and entrepreneurs[224]. **The paradox is that global networking has been the advantage of MNCs** that have been efficient in building networks in production, sales and service capable of penetrating markets all around the world. NMCs have strong technological and managerial competences and access to global markets. Their emphasis is on the continuous building of new core competences. With the enhanced value and cost of knowledge in the global knowledge economy, the major drivers of temporary monopoly profits are protection, allocation and use of the intellectual property rights. NMCs utilize the strategic group's mutual learning mechanisms to apply the best practices of global business. NMCs have modern governance models, like options, in their use for ensuring that creativeness and profit-making are rewarding. MNCs collaborate with the best universities and research labs to get access to the latest technology and knowledge.

Economizing transaction costs of knowledge transfers through various forms of networking is an important growth factor as the Silicon Valley case verifies[225]**. Stringent IPR rules keep relatively more knowledge in the tacit state. More liberal rules favor the exchange of knowledge**[226]**.**

NMCs take advantage of a relatively large amount of tacit knowledge since they are superior in legal processes and, especially in business secret practices that in principle should be a major element of the economies of scope of SMEs[227]**.**

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Networking is not a super highway for SMEs to globalize as the neo-Schumpeterian writers (Toffler, Naisbitt, Peters, etc.) claimed from the 60s to 80s. Networking has been extremely useful for MNCs. The reason is that global business operations are risky[228], because of the complexity of politics, cultures, and markets. The **Uppsala-model** advocates a gradual involvement in foreign markets. When the firm enters a foreign market a low resource commitment mode such as export is desirable. As the firm acquires more experience of the market, it will move to a resource commitment with higher level of risk, like wholly owned subsidiaries[229]. Investments in global networking, to get access to relevant tacit knowledge, are often difficult for SMEs to finance. **The FDIs are the privilege of NMCs** that can operate in global capital markets efficiently. The TRIPS agreement established standards of protection. The decreased transaction costs of the IPR trade have made knowledge spillovers over borderlines[230] possible for the MNCs. MNCs have extended their **global geographical reach**[231] to technologically or legally complex operations like the global outsourcing.

In the industrial markets, the face-to-face interactions are potential economies of scope of SMEs. Global business operations are, however, risky. To be local in the globalizing economy, FDIs are necessary. NMCs seem to dominate even industrial services, a rapidly growing market segment, because NMCs have their global geographical reach.

From the perspective of a nation's welfare, the promotion of SMEs' exporting has long been an important political issue. This is a vital element of the common economic doctrine of the EU countries. There is a paradox: If we look at a Schumpeterian entrepreneur striving for innovations and profits, in many cases importing is more prospective that exporting[232].

However, exporting has been widely studied, while importer's behavior is largely neglected area of study, even though importers are often playing a dominant role in consummating trade transactions[233]. For SMEs, a pattern of going abroad is often an accident like an unsolicited order[234]. A firm with excellent products is likely to receive inquiries from foreign markets because of perceived competence of firm's offerings. In the choice of the international growth model, an important decision to make concerns **the marketing channels** to be used to get global geographical reach. There is a great variety of marketing organizations and channels that make the choice difficult. Relations with channel members and provision for feedback from the channels are often a critical area of networking for a SME. In many industries the overcapacity of commodities is about 30–40% and even increasing. The channel owners like big retail chains have potentially much more suppliers globally than they can never even meet.

Besides the traditional business models, there are disruptive models that utilize the digital media[235]**. In principle, disruptive business models could provide a solution to the information paradox of SMEs in terms of Robert Lucas.**

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From a SME point of view, networking spurs learning through benchmarking and imitation. The network economies are, however, difficult to maintain since a SME has no access to tacit knowledge globally. An unsolicited order is a valuable resource since it carries tacit knowledge.

In many creative or new media industries, new services arise without any coordination of resource suppliers. An excellent example is the meteoric rise of **Linux operating system**, which can be traced to Linus Torvalds, and the subsequent creation of the Linux community. The Linux community of volunteers, like ad hoc programmers, has fostered the rapid development of the Linux software without firm-centric product development budgets. In Linux model, technical knowledge and its sources are not contained within organization boundaries. It is the mobility of human capital and tacit knowledge across the boundaries of community that stimulates collective entrepreneurship, the creation and innovations. The Linux model of production provides greater flexibility but can lead to the costs of dependency (referred to as holdup), as human capital cannot be owned. The problem is how the network organization can accumulate its core competencies, if knowledge-based resources are embodied in highly mobile project participants. Therefore, the benefits of flexibility (economies of scope) must still outweigh the cost of imperfect contracting like holdup cost of critical resource owner.

Douglass North[236] **demonstrated the importance of hybrid institutions that combine private and public activities and in many various forms are the critical national growth factors.**

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Globality is the stimulus to the rise of new virtual villages and communities. But the critical question is: Who has the moral right to commercialize the value-added or human capital of the communities of volunteers?

3.5 A balanced model for SMEs networking

The internationalization paths of SMEs are not straightforward. There are obstacles, barriers in the markets. The existence of a market failure is seen a justification for manipulating or regulating market forces. Market failures are difficult to avoid or correct[237]. MNCs can succeed in the world of market imperfections, because of economies of scale. Sunk costs are parts of their global business strategies[238]. In most cases, SMEs have only one option, to succeed first in the beginning. The first failure in a certain international operation in a certain market can be interpreted as a dead-lock. This interpretation can lead to withdrawal from the market and operation in question. in Finland this type of behavior can be seen in the last decades. In many cases, the reason behind is the so-called involuntary operation, where the foreign market entry is initiated by customer interest or by market forces. In terms of entrepreneurial strategy making, this means the **lack of intrinsic motives for internationalization**[239]. However, a market failure in foreign operations is the only means to gather real experience about the foreign markets. Referring to the **BCG's Experience Curve**, learning by doing can later be beneficially utilized. Thus, although the internationalization process can be regressive, the related learning process is still continuous.

Networking, the cooperative international operations, such as joint ventures or industrial franchising or licensing can be considered as ones that accumulates social or trust capital for entrepreneurs without hazarding the cash flow.

The cash flow dimension of export investments is not new. In the global capital markets, this is still one of the major obstacles of SMEs' exporting[240]**. SMEs do need mutual collaboration to avoid the obstacles of small scale.**

Subcontracting Excellence Club S.E.C ry, SEC[241] is a cooperation network consisting of SMEs which have their special field of expertise in metal based industry, mechanical engineering, technical planning and industrial design. SEC is the basis which the cooperation is built on and where the versatile skills of the members speed up the development of new ideas. SEC was established in 1993 in the situation when Finland's economy was in a severe crisis. SEC has succeeded well through networking[242]. SEC has as a whole versatile expertise and capacity to deliver larger and more complete products and systems. SEC is a source of new ideas that can be provided to big firms through subcontracting so that customers can concentrate in their core businesses. The vitality of SEC is based on the prevailing synergy between the members and on the flexible cooperation of member firms. The ultimate goal of SEC is to create added value for clients by means of networking and achieve competitive advantage for the members. The characteristic features of SEC are **open communication and exchange of information between the members**.

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The utilization of advanced technology and virtual networks among a group of SMEs make it possible to cooperate around activities of mutual benefit such as training, benchmarking, marketing, management, research, etc[243].

In order to create networks, we need a model that includes the model concepts of capital. It's not so important what form of capital is included. There are three basically different kinds of capital:

1. Social (or Trust) capital

The success of innovative firms is critically dependent on institutional and business networks with low transaction costs, common language and trust. **Informal and social relations within a local area are the basis of the networks**. Robert Putnam[244], a political scientist, has studied the relation of civic organizations, good local government and economic development in various regions in the **Third Italy**[245] that is famous of high-fashion, design-intensive goods. In the Third Italy, a whole range of municipal government interventions have been the key to the continued success of innovative design-firms in the region. Cities have bought land and created industrial parks to encourage sector collaboration. One of the intervention mechanisms has been loan consortia. Putnam demonstrated many various means that have been used in the Third Italy to create institutional and business networks with low transaction costs, common language and trust. SEC in Finland demonstrates collaboration between innovative firms with the common customer segment(s). In SEC the boundaries of social capital are much more specific than in the Third Italy. It is a lot easier to cooperate when you know your partner, and when the partner is representing the same values and ethical principles.

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2. Knowledge (and Technology) capital

Knowledge is different from the traditional factors of production, since useful **tacit knowledge** is not possible to exchange without major transaction costs. The rise of internet is credited with lowering the transaction costs for general **codified knowledge**. Intelligent networks and virtual spaces are developing rapidly. Bits are becoming more powerful than atoms. The greatest innovations are likely to occur from the cross-fertilization of professions. In order to convert knowledge into continuous innovations, innovative firms try to recruit people who can think laterally and holistically, not only adaptively and linearly. Networking is closely related to lateral and holistic thinking, to creativeness. Commercialization of new products or services is related to practical management skills, to adaptive and linear thinking. In the Third Italy, there are both creative designers and rational businessmen. Networks of innovative firms are led by marketing organizations located in Milan and Florence. The most talented businessmen appreciate design industries and top positions in the leading design firms. The production of the Italian design is organized by a family SMEs. In most cases, Italian productive SMEs have no skills in foreign languages. These firms are extremely elastic of their structure. They succeed through co-development with marketing organizations[246]. The SEC in Finland follows the same model. Skills, technologies, design, etc are diversified to member firms but there is always one firm that is totally responsible for marketing of a certain customer project.

The famous Italian networking model is very competitive in its nature. Networking, the long-term trustful contracting, can only be built on competitive micro-structure of SMEs. This is the story that the Silicon Valley region verifies. In Finland, the best case is the Nokia cluster. The SEC is an example of SME networks.

A balance between competition and creativeness is a good standpoint for the parallel evolution of institutions (trust, social capital) and business prospects (customer contacts, product innovations).

3. Money capital

Networking is not a substitute for economic and financial skills. In order to understand the commercialization of the value added, created by innovative networking, it is useful to benchmark **venture capitalists, VCs**[247] that have a similar mission as network builders. VCs have also a long-term contract. When net workers seem to rely on trust as the basics of long-term contracting, VCs prefer formal legal contracting. Most VC funds have a fixed life of 10 years and a 3–5 years investing cycle. This is about the same kind of contractual model that most of the MNCs have with their subcontractors. VCs usually have several funds at the same time to avoid the lack of capital prior to the end of fund's life cycle. NMCs systematically utilize the portfolio theory of Henry Markowitz, a Nobel prize-winner. They have a global sourcing strategy to search for new subcontractors. Both VCs and NMCs have specialists engaged in the implementation of existing contracts with SMEs and in search for new prospective SMEs. VCs are very selective in dealing with SMEs, but so are NMCs. Both know that the major source of value added is the intellectual property. Both appreciate solid business plans, good management teams, and a passion for excellence among their partners.

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VCs and MNCs follow a rational investor behavior. They are ready to invest in a SME only when the investment (tangible or intangible) improves their risk-return of existing portfolio. In the **Capital Market Line** (figure 37), investments in a SME always contains a high risk and therefore, a high return is a necessity.

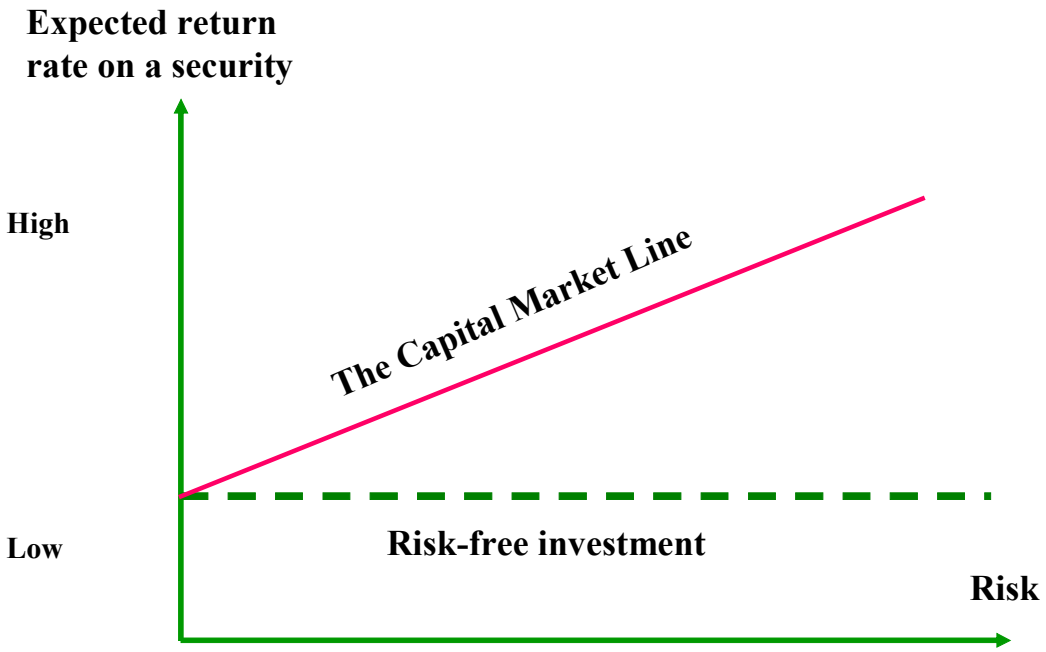

Figure 37: The Capital Market Line

The problem of SMEs in their internationalization operations is how to compensate the small scale in competition against MNCs. **Instead of scale, SMEs have to rely on scope.** What this means in practice is not easy to state. Networking is the best answer we know. The difficulty of economizing the extended scope of resources through networking, networking economies, depends on the fact that the network research[248] has not succeeded to integrate three vital forms of assets (social, knowledge/technology and money) in a model that could be applicable to SMEs. Figure 38 shows a model by professor Lahti where there are three basically different kinds of capital:

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STAGE OF NETWORKING

A. INNOVATION	B. IMPLEMENTATION	C. EXTENTION
A1. Get to know each others	B1. Common analytical framework	C1. Common projcts
A2. Have common targets	B2. Externalities of knowlege	C2. Joint venture
A3. Understand each others	B3. Externalities of technology	C3. Market capitalization
Social capital	Knowledge Capital	Money capital

PROCESS DIRECTION →

Figure 38: Accumulation of intangible and tangible capital

3.6 The firm as a nexus of contracts

Torger Reve[249] makes an effort to combine the transaction theory of Williamson (1985) and the agency theory[250], and some contract ideas from sociology and law. Adopting the Coasian definition of the firm as a nexus of contracts, Reve defines a firm in an elegant way. Referring to the notion of extended competition of Michael Porter (1980), Reve specifies the strategic core and four types of alliances in figure 36. Reve points out decision-maker's ability to identify the **comparative governance costs of markets, alliances and hierarchies**. Reve provides an elegant solution to the crucial problem of the business definition[251], the firm's borderlines in its environment. In Reve's thinking a business (or a firm) can be defined to include two of the Coasian governance modes:

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1. **Strategic core or core competence**
   Some of the competencies of a firm are core competencies and, thereby, belong to the strategic core. Prahalad and Hamel[252] have stated that strategic thinking needs to be a core competency of a firm. In many cases, intellectual property is of that kind.

2. **Strategic alliances**
   Outside the defined business model and outside the firm's borderlines are where, of course, a firm may have many kinds of economies of externalities in terms of Alfred Marshall and his followers. They are called **markets**.

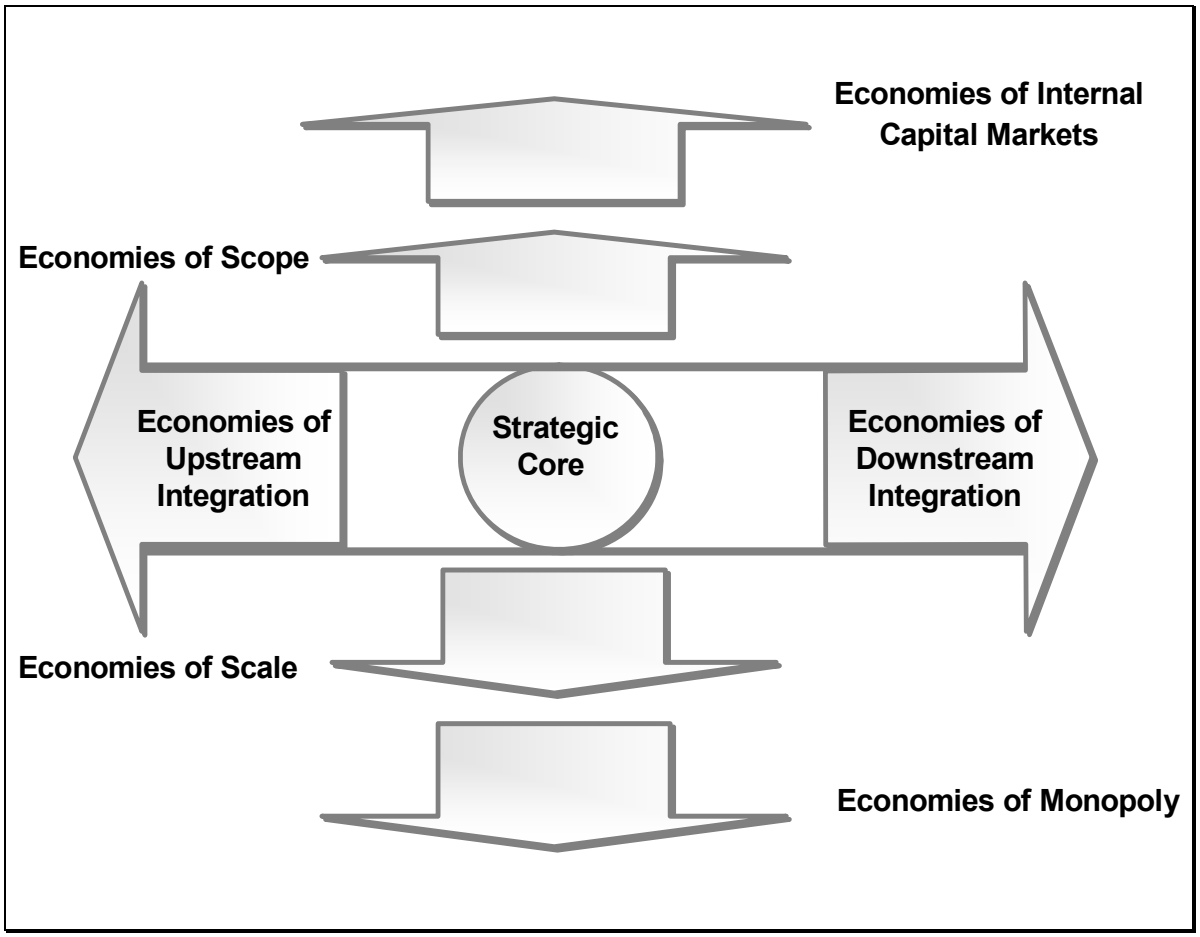

Figure 39: Strategic core and four types of alliances

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A crucial element that is lacking from Reve's model is the financial theory viewpoint, which is especially important to the growth firms, that have no established model of their scale and scope in terms on Reve's model and that have at least three kinds of processes going on parallel. A firms' ability to identify the comparative governance costs of markets, alliances and hierarchies is the key to the success in the market operations. The governance model selected should be in balance with the **contractual function of the firm** in the utilization of strategic alliances, productive externalities. The core concept in Reve's model is a firm's **strategic core**, innovative capability of the firm that can be utilized in and through alliances. **Markets** are out of the firm's control. What is interesting in Reve's model is that the model includes all the three governance models: markets, alliances and hierarchies. They are all relevant. Chandler's question of scale and scope of the firm has an elegant answer:

1. **Economies of scale in the upstream, and downstream integration, is dependent of the alliance policy that the firm follows.**
2. **Economies of scope are partly related to internal capital markets (practically participation in hybrid operations) and partly to the monopoly issues (an important part of them are IPRs).**

According to these premises, Lahti[253] has tried to develop a market-based theory of a firm's core competences. In the model the firm's value is divided into three elements:

1. **Goodwill-value, practically EVA** is the measure of the firm's future profits. Related to figure 37, the focus is more in creation more than in control, since creativeness cannot be commanded. It is the characteristic that people have when they are motivated by their own free will.
2. **Substance value** is the measure of the firm's history profits. The focus is in control, since the economic administration can be commanded. It is a disciplinary function that is oriented to govern the firm's real asset value.
3. **Market value** is the sum of goodwill-value and substance-value, although the goodwill will be fully valuated only in the cases when the firm's shares are sold in the stock markets or by trade sale.

The model is aimed to be comprehensive including the key elements of the goodwill and the substance value. The theoretical market value of a firm can be expressed in the following formula:

$$\mathbf{MV = GV + SV}$$

Formula 2: The theoretical market value of a firm

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According to the formula, this means that the market value of future investments offering above-market returns – called goodwill value (GV) – is something that is out of the frame of the modern financial theories. The relation between goodwill value and substance value is highly dynamic. Goodwill value consumption leads to abnormal earnings growth until the innovation's potentiality or temporary monopoly position has been fully realized. Another critical issue for the innovative firms is that they have difficulties to construct the assets that to some extent measure the relevant substance value.

The relevant model of governance depends on the business prospects available. When there are plenty of market prospects, the focus is in effectiveness and market-based governance. When there are scarities of business prospects, the focus is in efficiency and resource-based governance. Goodwill value is the value concept of strategic market management. Future growth value or EVA is the key value concept of financial theories. Being shareholder value -oriented as financial theories propose, a firm can find the optimal governance mechanism. Schematic diagram of goodwill (EVA) consumption is shown in figure 40.

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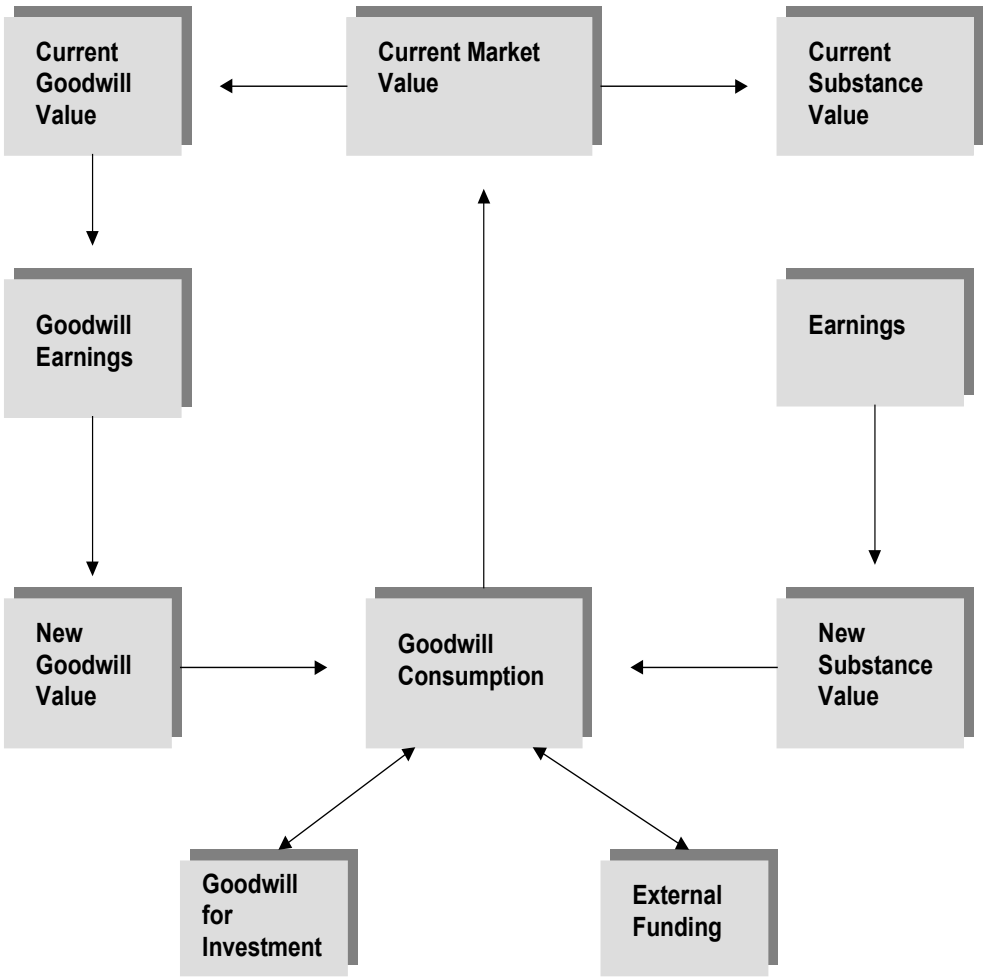

Figure 40: Schematic diagram of goodwill consumption

Figure 40 shows a schematic diagram of goodwill consumption. "Goodwill Earnings" are assumed to be a proxy measure of EVA that accumulates "New Goodwill Value" to be consumed. "Substance Value Earnings" are assumed to be current operations value that accumulates "New Substance Value" to be consumed. The relation to Shumpeter's dynamics is that creative destruction in the markets provides opportunities to innovations and earnings of monopoly profits. However, competition is a self-destructive mechanism; effective competition normalizes the profit level when the innovation effects have been utilized. Therefore, a firm has to create new innovations continuously. Most of business models constructed for firms are static in nature.

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The long-term target is temporary monopoly profits through innovations. In terms of modern finance, the proxy measure of temporary monopoly profits is Economic Value Added (EVA)[254] that can be defined as net operating profit minus an appropriate charge for the opportunity cost of all capital invested. Even so, EVA has some value in that it makes obvious the need to earn returns in relation to the capital employed. The concept that equity capital has a cost – an opportunity cost – and that the return on this is an important determinant of shareholder value – is sensible, though nothing new. The present value of the EVA of a project over its life-time is exactly the same as the net present value (NPV) of the project. Thus, conceptually, EVA is no different from NPV. As long as assumptions made into the calculations are consistent, we would get exactly the same results for both EVA and NPV.

Timothy Luerman[255] criticized the discount-cash-flow (DCF) valuation that is based on the assumption that an entrepreneur follows a predetermined plan, regardless of how events unfold.

For the innovative firms having negative book value of assets, the only means for rising capital is to demonstrate high market value through proxy measures of goodwill. In the software industry, there are proxy measures of goodwill like scientific methods or algorithms used and sometimes even patents. In the consumer industries, the dilemma is that a high valuation has only one goodwill value element to count, namely a brand. The problem lies on the fact that the cash flow method does not match with the creative mind of a freelance entrepreneur. The risk of undervaluation of the creative venture is relevant. One way to theorize the valuation of growth firms is to take the viewpoint of venture capitalists. A professionally-managed venture capital industry was established in the U.S. in the 50s[256]. Generally, venture capital is closely associated with the technologically innovative ventures and in the U.S where the financial regulation framework did not allow supporting any merchant bank other than a public one[257]. In 1980, legislation made it possible for pension funds to invest in alternative assets classes such as venture capital firms.

The late 1990s were a boom time. Large IPOs with high valuation of shares took place. The NASDAQ crash in 2000 cooled markets and some VC funds made losses from overvalued startups. The same happened in the EU a bit later.

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The globally applied model of professionally-managed VC investments was, however, established. The paradox with an innovative growth firms is that they can only temporarily earn high return on their shares. Their market value in the moment of and IPO (Initial Public Offerings) consists almost totally of goodwill. If goodwill is 100% what is the relevance of substance. The traditional assets concept is old fashioned in the valuation of the shares of a growth firm. But if we include major parts of intangibles, IPRs, as the substance, it is possible that the relation between the substance and the market value is reasonable. The measurement problem is relevant since the equity gap is still relevant in countries where we do not have well functioning stock markets for small, innovative firms. Because of low asset value, the lack of reliability is a relevant constraint on these firms ability to rise external funding, and undercapitalization is a potential cause of business failure. These firms cannot rely on the past experiences. They have to learn intensively about the future markets. They have to earn monopoly profits to cover the costs of learning and other transaction costs. One essential source of extra transaction costs is always financing.

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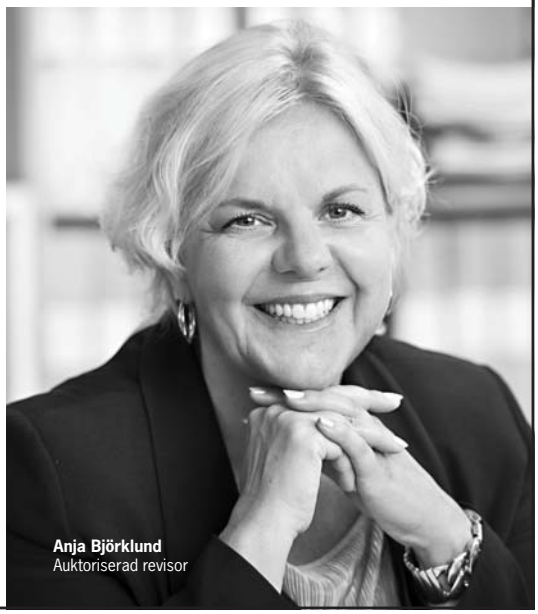

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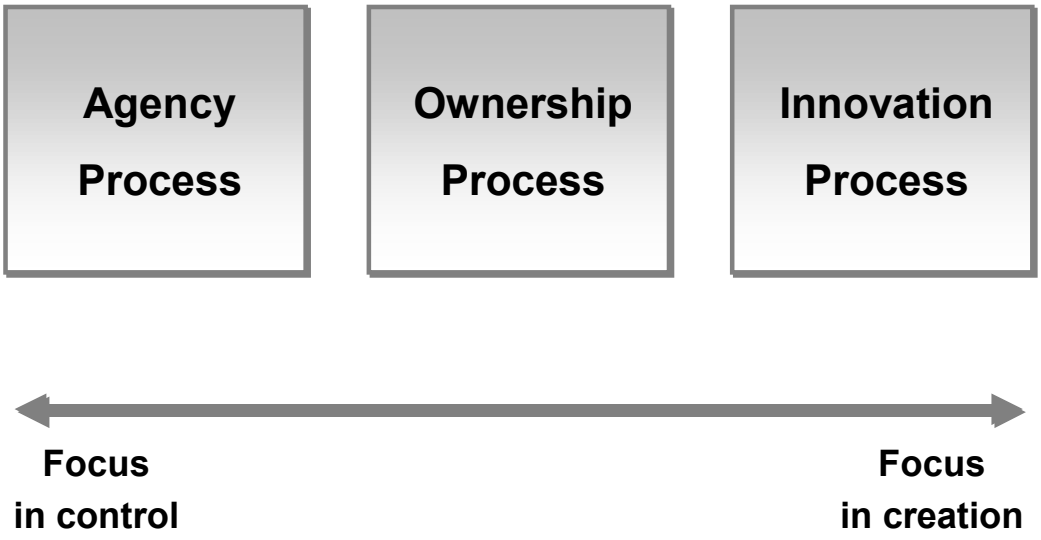

Figure 41: The three processes of governance

The definitions of the processes are:

1. **Agency process** has its focus in control of a firm's operative contracts and activities. Agency refers to the fact that the collection of management or entrepreneurial contracts is the most important element of a firm's core competence, and thereby, of profit-making and maintenance of the present asset values. In SMEs, the key agency relations that determine the major part of profit-making are trustful relations to key customers, bankers, and knowledgeable personnel.
2. **Ownership process** contains all activities that are targeted to commit personnel or outside interest groups to shareholder value of a firm's shares. Ownership process has the short term focus to earn extra profits through involvement of interest groups. In SMEs, the major catalyst of the future growth value (EVA) is the partner involvement, 'internal partners' as the most important ones. The major ingredient of ownership in SMEs is the autonomy to define the work content so, that at best, an SME allows energetic and entrepreneurial persons function totally independently on their formal position as the owner of shares.
3. **Innovation process** has the long term focus to earn 'temporary monopoly profits or future growth value (EVA) through innovative teams in order to motivate the 'external capital investors' to invest in the firm. The innovativeness is the soul of entrepreneurship as Schumpeter use to convince us. But innovativeness cannot be the only process that management and entrepreneurs are involved in.

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In the modeling of strategic and operative management of growth firms, we identify three parallel processes (Agency, Ownership and Innovation) that can be interpreted as alternative strategies of organizing management but that are all relevant at the same time in innovative firms. These three processes have different role in a growth firms profit-making. The profit-making pattern of these kinds of firms is highly dynamic. As Schumpeter has claimed, the time dimension is important since there are only temporary time-periods when the firm can earn monopoly profits. Three kinds of time-concepts are all relevant: history, present and future.

In order to include the Shumpterian dynamics, the modern financial theory is useful. The basic is the **modern portfolio theory** that proposes how rational investors will use diversification to optimize their portfolios, and how a risky asset should be priced. The basic concepts of the theory are:

1. **Markowitz's diversification**[258] seeks to lower portfolio risk (variance) without sacrificing return.
2. **The efficient frontier** is a collection of portfolios, each one optimal for a given amount of risk.
3. **Capital Asset Pricing (CAP) model** divides a portfolio risk into two elements:

- Specific risk is the risk associated with individual assets – within a portfolio these risks can be reduced through diversification. Within the market portfolio, asset specific risk will be diversified away to the extent possible.
- Systematic risk, or market risk, refers to the risk common to all securities and cannot be diversified away (within one market). Systematic risk is therefore equated with the risk (standard deviation) of the market portfolio.

CAP-model was originally developed in 1952 by Harry Markowitz, a Nobel price-winner, and fine-tuned by others such as William Sharpe, another Nobel price-winner. William Sharpe[259], has claimed that the market must price individual securities in relation to their asset class. The result is a simple linear relationship known as the Capital Asset Pricing Model:

$$E(R_j) = R_j + (E(R_m) - R_j) B_j$$

Where

$E(R_j)$= the expected return rate on a security,
R_j= the rate of a "risk-free" investment,
$E(R_m)$= the return rate of the appropriate asset class
$E(R_m) - R_j$ = Risk premium
B_j= Systematic risk measured by beta-coefficient

Formula 3: The Capital Asset Pricing Model

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72. Intangible assets include intellectual property such as trademarks and patents as well as brand, networks and databases. The presence of intangible assets account for the significant differences that are observed between the balance sheet valuation and stock market valuation of publicly quoted firms such as in the pharmaceutical sector where patents are critical.
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91. Vernon stresses the degree of standardization as evidence of maturation of the product. A mature product typically may become standardized across international markets.
92. Indeed, it was Adam Smith who emphasized the importance of a natural order of things in the developmental sequence of an economy building in book Wealth of nations in 1776 (Coleman, Donald C. (1980) Mercantilism Revisited, The Historical Journal, 23, 4, pp. 773–791).
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94. Especially paper & pulp industry and metal & engineering industry.

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103. According to Penrose: 'One type, objective knowledge can be taught; the other, experience or experiential knowledge, can only be learned through personal experience.' (Penrose, 1959, p. 53).
104. The importance of experiential knowledge increases with the sophistication of the product handled and with the complexities of the target market, allowing firms to perceive and formulate opportunities (Johanson and Vahlne, 1977).
105. Luostarinen 1979, pp. 95–105.
106. My own notice based on long experience since the beginning of the 70s.
107. Luostarinen 1979, pp. 94–102.
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113. Some of the key questions are: 1. How to define the boundaries of the different stages? 2. Why the process of internationalization is one-directional, outward oriented, but not the practice in average? 3. What is the applicability of the model to different types of product or service? 4. What is the role of multinationals that have both high levels of resources and international experiences and are likely to skip lower commitment stages of the process? (Bridgewater, Susan (2000) The Internationalization Process and Types of Firms, in International Business, Theories, Policies and Practices, Ed. Tayeb, Monir, Harlow, Pearson Education Ltd).
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121. This is an example given by Bain, Joe (1956) Barriers to New Competition, Cambridge MA, Harward University Press.
122. Oligopolistic rivalry refers to rivalry in a market which is shared by a small number of usually large producers or sellers. Each producer is, thereby, obliged in its market behavior to take fully into account the actions and behavior of its current and potential large rivals in the market.
123. The strategic group theory mentioned earlier is a realistic framework to analyze this kind of mutual learning by doing of interdependent firms.
124. William Baumol has found that a perfectly competitive market is necessarily perfectly contestable, but not vice-versa. The reason behind this stipulation is that perfect competition is applicable as a guide only if scale economies are absent, so that many kinds of rival firms can prosper. Perfect contestability also rules out productive inefficiency. (Baumol, William (1982) Contestable Markets: An Uprising in the Theory of Industry Structure, American Economic Review, Vol. 72, No. 1, March 1982, pp. 1–15).
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136. FDIs can be a green field investment, establishing a foreign affiliate starting new production facilities, or merger and acquisition operation that aims at acquiring control of existing entities.

137. Ming Zeng and Peter Williamson have studied the strategies and performance of 50 Chinese companies, warn against such complacency, saying: "Multinational executives who do not perceive China's state-owned and privately-held companies as potential competitors have missed the rise of the new breed of Chinese companies that have already succeeded in capturing some foreign markets." (Zeng, Ming, and Williamson, Peter (2003) The hidden dragons, Harvard Business Review, Vol. 81 No. 10, October, pp. 92–9).

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Williamson, Oliver E. (1985) The Economic Organization Firms, Markets and Policy Control, Harvester Wheatsheaf Books, New York.
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143. These include long-term contracts through more efficient governance structures, R&D to prevent the dissipation of know-how which is unpatentable; tax differentials and foreign exchange controls, which create incentives for, transfer pricing. In addition, internalization allows the firm to control quality by integrating backwards and internalizing the process to maintain required standards.
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151. Loasby, 1999, p. 46.
152. "They constitute a capital stock of other people's reusable knowledge…". (North, Douglass (1993) Institutions, Institutional Change and Economic Performance, Cambridge University Press, Cambridge).
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158. For instance, the complexity of local institutions, like business culture, is possible to perceive only ex post. Awareness of ex post transaction costs is often expressed by the concept of business distance (Luostarinen, 1979), which means grouping the target countries according to the expectations of ex ante and ex post transaction costs.
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160. Examples of hybrid operations are: Licensing, franchising, contract manufacturing, turnkey, and co-production. Luostarinen (1979) calls these sorts of hybrid opeatrions into Non-direct investment production operations (NIPOS).
161. One of the Harvey's conclusions is that the neoliberalism undermines democracy and overempahasizes temporal processes, "here and now" interaction through information exchange over the globe. The global financial market is a good example accelerating speed. (Harvey, David (2005) A Brief History of Neoliberalism, Oxford, Blackwell).
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163. In the U.S., it is called Law and Economics and it is a major part of studies in all of the leading schools of economics.
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Korten, David (1995) When Corporations Rule the World, Koehler Publishers: London.
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169. Proximity reduces cognitive distance, since actors have a common reference frame or a shared technical code (Nooteboom, B. (1999): Innovation, Learning and Industrial Organisation, Cambridge Journal of Economics, 2, pp. 127–150).
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172. The argument is that the relocation is a process of knowledge codification, where knowledge becomes increasingly ripe for imitation by competitors in China and India (Reich, R.E. & Mankin, E.D. (1986) Joint Ventures with Japan give away our Future, Harvard Business Review, Sep–Oct).

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Krugman, Paul (1994) Competitiveness: A Dangerous Obsession, Foreign Affairs.

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178. Ramaswamy, R. & Rowthorn, R. (2000): Does Manufacturing Matter, Harvard Business Review, November-December, p. 32.

179. The contract manufacturing firms of Finnish-origin like Elcoteq and Perlos that serve Nokia are examples of that.

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181. Machlup, Fritz and Penrose, Edith (1950) The Patent Controversy in the Nineteenth Century, Journal of Economic History, X (1), May, pp. 1–29.
182. The Paris Convention for the protection of industrial property established in 1883, and the Berne Convention for the protection of literary and artistic works established in 1886 provided the internationally agreed frameworks for IPRs. The World Intellectual Property Organisation (WIPO) was established in the 1970s to govern these Conventions. WIPOs reliance on voluntary accession of countries, made it an unsuitable vehicle for achieving and policing minimum standards.
183. Trade-Related Aspects of Intellectual Property Rights
184. The Uruguay Round negotiations resulted in the TRIPs Agreement which came into effect with the WTO on 1 January 1995.
185. General Agreement on Tariffs and Trade
186. For instance, a major part of economies of patent right ownership is a well-functioning cross-licensing system of certain firms and public organizations. The GSM standard system is an example of that.
187. Compare Lahti, Tom (2002).
188. Coase, Ronald (1960) The Problem of Social Cost, Journal of Law and Economics, Vol. 3, No 1, pp. 1–44.
189. The WTO TRIPS Agreement introduces IPRs into the GATT (General Agreement on Tariffs and Trade) framework, thereby, shifting the emphasis on procedural uniformity, as promoted by WIPO, to minimum standards of substantive protection.
190. Universities filed more than 2.000 patents in 1998. The University of California was the top earner of royalty income in 2000, with 261 million dollars. These revenues are invested in new research facilities and filing new patents. (Haour, Georges (2004) Resolving the innovation paradox: enhancing growth in technology companies, p. 85).
191. Haour, 2004, p. 75.
192. The common EU patent law is a 'mission impossible'. The copyright law is practically difficult to apply since it is to complex. Business secret in terms of the TRIPS has only partly been including in the legislation.
193. The European Telecommunications Standards Institute
194. The GSM market is dominated by five major firms in the late 1990s: Ericsson, Nokia, Siemens, Motorola and Alcatel that control more than 85% of the European GSM market, the largest in the world. (Bekkers, Rudi, Duysters, Geert and Verspagen, Bart (2002) "Intellectual Property rights, strategic technology agreements and market structure: The Case of GSM", Research Policy, September 2002, vol. 31, p. 1146/ table 1. Collected from Schumpeters economics and entrepreneurship
195. Economists call standards "impure public goods", which have traits of both private and public goods. The production and creation of standard share a similar element with law making, in that they have significant social meaning.
196. As a general rule, most works enter the public domain because of old age. Sometimes a non-profit people has mission to protect and enhance the public domain in matters concerning intellectual property. Sometimes people use the term "public domain" in a loose fashion to mean "free".

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197. In June 1998, the ETSI, The European Telecommunications Standards Institute , published a list of essential patents in GSM that contains 380 entries, the large majority of which are individual patents. By focusing on the three most important patent systems in the world generally, and for GSM in particular, the list of 140 patents we have is a fair representation of essential IPRs in GSM. Of the 140 patents in our database, 107 are identified by an EP number (European patents), 20 are US patents, and 13 are under PCT. The 140 patents are held by 23 firms. In terms of sheer numbers, Motorola is the largest, with 27 patents. Nokia (19), Alcatel (14), Philips (13) and Telia (10) are the next largest holders of essential IPRs in GSM. Bekkers, Rudi, Duysters, Geert and Verspagen, Bart (2002) "Intellectual Property rights, strategic technology agreements and market structure: The Case of GSM", Research Policy, September 2002, vol. 31, p. 1146/ table 1. Collected from http://www.sciencedirect.com
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203. In the USA the mean patent value at $4,313 for pharmaceutical patents, $4,969 for chemical patents, $15,120 for mechanical patents and $19,837 for electronics patents, but the distribution of patent values is highly skewed on the account of highly valuable patents. Parchomovsky and Wagner, 2004, pp. 13-14/ references.
204. Parchomovsky and Wagner, 2004, pp. 30–35/ references.
205. Parchomovsky and Wagner, 2004, pp. 35–38/ references).
206. A portfolio might be focused on a specific problem in a particular industry, such as techniques for using 90-nanometer and smaller conductors in semiconductor manufacturing. It might be more process-based; for example, a bio-pharmaceutical patent portfolio might be targeted at the treatment of a specific disease in a specific way, such as the use of statins to address human cholesterol levels. A portfolio might be more simply targeted at a specific individual product, such as a genetically-modified agricultural product, or a consumer electronics product. Whether process-based, problem-based, or product based, the unifying concept of patent portfolios is their aggregation of related patentable inventions in a way that is coherently designed and directed. (Parchomovsky and Wagner, 2004, pp. 27–28/ references).
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246. Source: My own field research travels in the Third Italy in the end of 1980s and in the beginning of 1990s, when I analyzed some thirty firms and collaborated with the leading entrepreneurs in the region.
247. Venture capital is a type of private equity capital typically provided by professional, institutionally-backed outside investors to new, growth businesses.
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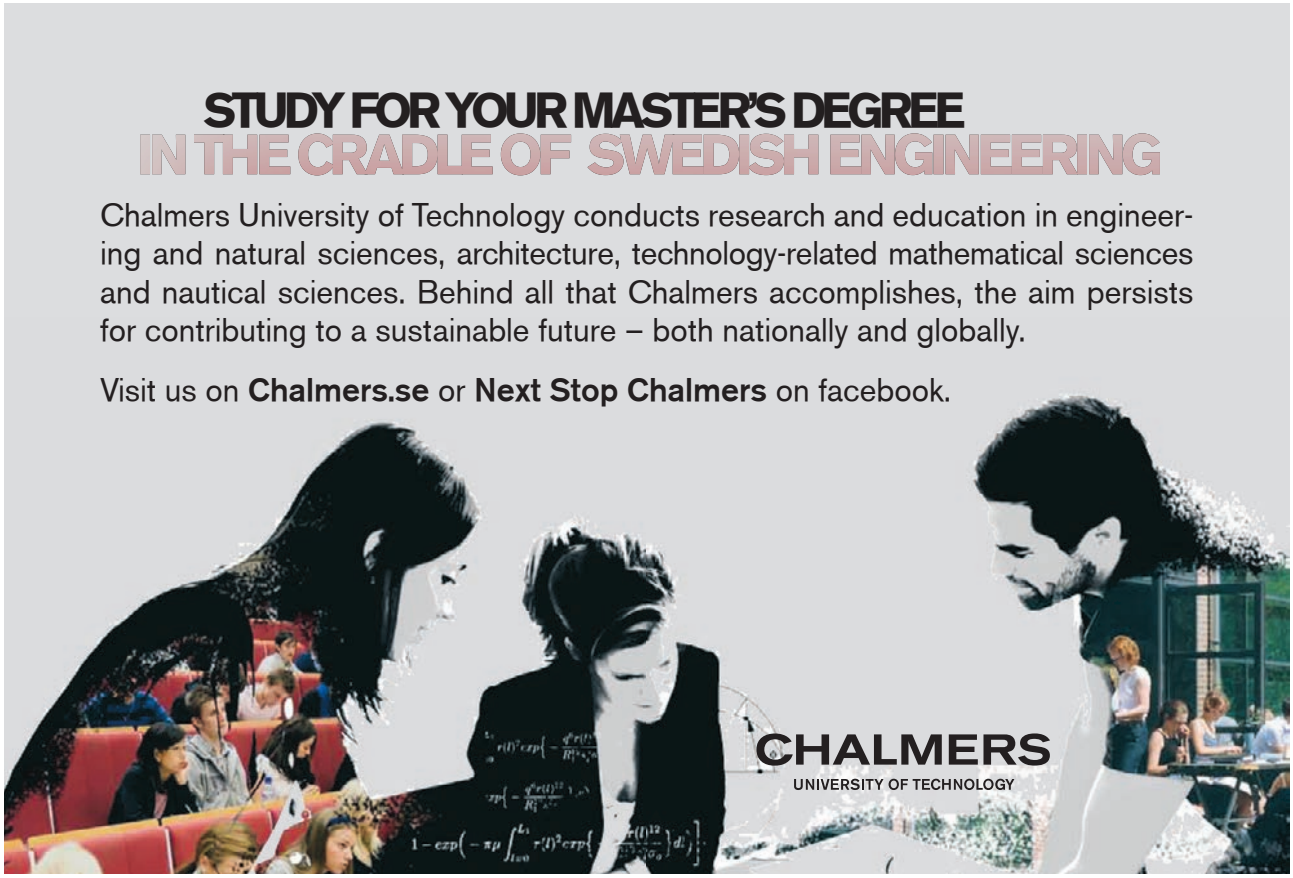

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