

CHAPTER 5

Superproductivity: The Future of Finland

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The industrial future of the country has been much debated in Finland over the last months and years. Whilst it is evident that the old paradigm of manufacturing industries such as metal and textile and lately, electronics assembly, has faced the same (cost) problems as in any developed high-pay countries, no clear proposals have been presented on what would be the new strategic guidelines for the country's industrial endeavours. In this article, the notions of strategy and superproductivity games are introduced as the most potential sources of sustainable competitive advantage for the Finnish companies in the global industrial economy.

The Common Theses

In public discussion, the Finnish industrial competitiveness is repeatedly covered under such common theses as “we have a lot of good know-how in Finland”, “Finland will lose to e.g. China and India significant number of industrial jobs” and “globalisation is for us a threat and an opportunity”. But rarely, one sees practical discussion, let alone advice, on what should be done at the level of industrial enterprises in order to operate successfully in the global environment thus set up.

In the following, an everyday perspective to industrial company life and decision-making environment is taken to throw light on the factual essence of these claims, to combine them from a company perspective and to deduce the industrial critical success factors that have to be embraced when building competitiveness and promoting long-term welfare in Finland.

Thesis No. 1: “There is a lot of good know-how available in Finland”

What do we mean by good know-how? The claim gets different interpretations depending on whether we mean e.g. engineering knowledge, service-mindedness, handicraft, manufacturing work, marketing skills, patent and IPR (Intellectual Property Rights) know-how or consumer behaviour expertise. When contemplating these know-how disciplines, one notices that in some of them Finns have been traditionally good, in some of them only recently so, in some of them not anymore that brilliant and in some of them not yet world-class.

For the sake of argument, let us choose here as the example engineering knowledge which in one form or another is clearly one of the cornerstones in building global economical success stories. The following questions arise. Do we in Finland have the right-kind of, future-proof engineering know-how available? And, is this a necessary or even sufficient condition for the success of the Finnish industries, going forward?

The answer to the former question is all too often passed by repeating the politically correct utterance that “there is a lot of good and versatile engineering know-how available in Finland”. But the real core of the above questions is what we in a small Western country are aiming at achieving with that know-how and – even more important – how Finland will be positioned in the global competition as regards the know-how relevant for the future industries. A crucial corollary question is, therefore, whether in other parts of the world there would also be “a lot of good know-how” or “less good know-how” or perhaps “more good know-how” than in Finland and, depending on the answer, what would be the consequences for the Finnish enterprises.

Mere availability of good engineering know-how does not guarantee future industrial competitiveness.

A quick look into the matter reveals that the amount of global engineering know-how is growing at record speed. America has produced already for a long time significantly higher annual number of engineers and researchers than the European Union. Now, the centre of acceleration has moved clearly to Asia that yielded last year around one million engineers, of which over 400,000 thousands in China. On top of that Asian number, there are over 200,000 new Russian entrants to this know-how market. Altogether, the number of engineers and researchers grows by over 2,000,000 each year, with disciplines varying from information and computer technology, telecommunications and electronics to mechanics, laser-optics, energy, biotechnology, space technology and nanotechnology.

As Finland can be proud of only around 7,500 new engineers yearly, or 0.4% of the global output, one simply has to face the fact that there is some rather substantial “good know-how” forming in also other parts of the world than Finland, to say the least. This comparison is true for any small country, however advanced in schooling system and sciences. The sheer numbers show that having a lot of good know-how available in the country does not constitute a sufficient global competitive factor but just a necessary foundation for building competing power. The future of the Finnish industry is not secured by proposing simply more investments in education, as there will likely be global overcapacity in many know-how fields. As a consequence, one is lead to ask whether the *know-how game* is really the game we want to play.

Thesis No. 2: “E.g. China and India will steal significant amount of jobs from Finland”

One sometimes hears desperation in tone when the overwhelming cost benefit and the resulting impact on industrial employment of rising economic superpowers like China and India are discussed. It is inevitably true that e.g. in China, the manufacturing wages and related costs are only about one sixth of the corresponding costs in Finland. With an assumed annual production fixed cost growth of 2% in Finland and 6% in China, China would reach the Finnish cost level only around year 2050. Now, this indeed means tough cost competition times ahead for the Finnish industries.

India, on the other hand, has worked hard to define itself as the new global power economy, particularly in computing services, R&D services and pharmaceutical research, in addition to

heavier industries. Today, one can estimate that the R&D salary costs and related items are 60–70% lower in India than in Finland. Extrapolating the relevant current annual salary costs growth of 3% in Finland and 8% in India, the two countries would match their competitiveness in about 25 years time. This is another not so favourable perspective for the Finnish industries.

In both cases – i.e. regarding manufacturing and R&D services – the labour cost difference is so large that it has to be factored in when laying out Finnish industrial scenarios. The cost difference will not vanish anytime soon, and if it would be the only contributing factor, one would indeed have to expect a serious flight of employment opportunities from Finland to countries like China and India, as part of a permanent shift in global industrial employment power balance.

In order to prevent the cost difference impact from growing even larger, the labour cost increases in Finland must be kept moderate. Still, as there are examples of companies that seem to be able to survive and succeed in spite of the cost disadvantage, one has to ask whether this is a simple cost game, either.

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Thesis No. 3: “The globalisation is both an opportunity and a threat”

The two first theses describe the phenomena of globalisation, from the know-how and labour cost points-of-view. As the labour and know-how have become uniformly measurable and comparable throughout the globe and as the economical boundaries between the states and continents have started to blur, it is no wonder that some can see the globalisation as a threat. But the globalisation has indeed clearly auspicious traits, as well.

The global communications connections have developed amazingly rapidly. Still around 15 years ago, the only practical way to communicate with the majority of the countries in the world was by sending and receiving the utmost clumsy telex messages. Now, almost all the countries have been equipped with ultramodern digital mobile telephone systems, and sizeable broadband network projects are run in all growth spots of the world, irrespective of the gross national product level in the countries is question. Internet has indeed revolutionised the notion of distance and removed the barriers for free search and distribution of information.

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Similarly, the globalisation of the markets can be easily observed. The same trade marks welcome the globetrotter in all corners of the world, be it for consumer goods or industrial goods. The goods distribution has become less expensive thanks to greatly improved transport operating efficiencies and logistics innovations. A stunning example is that the major harbour container areas have barely grown larger during the last ten years though the container traffic has increased threefold. As a remark, the Finnish crane company Konecranes has been amongst the major architects of this productivity jump.

One can obviously criticise the globalisation of the markets from the point of view of deterioration of distinctive national or tribal cultures but, otherwise, one has to point out that the world has developed at an unforeseen speed during the last 15–20 years.

The above communications and market dimensions are examples of the huge potential the globalisation represents to Finland and the countries alike. From a small country's perspective, the fact that an ever declining investment is required to get access to an ever expanding information base and market makes the globalisation industrially an indisputably propitious phenomenon.

The Obvious Connection

How would the above theses help to characterise the industrial future of Finland? What is their connection? The obvious and undeniably logical bond between the three presented theses is that because good know-how will exist everywhere in the world and because the results from good know-how can be spread all over the globe more easily and inexpensively than ever before and because the labour costs are significantly more elevated in Finland than in many growth spots of the world, the industrial future of the country cannot be built solely on "good know-how" or cost competition.

The industrial success of a country like Finland will be decided in the so-called strategy and superproductivity games.

But if we deduce that building the future is neither a pure know-how game nor a labour cost game then what game is it? To answer that, it is not sufficient to refer to constant retraining of the labour force, further intensification of university education or redirecting the broad technology interest towards the new favourite disciplines such as new materials or biotechnology.

Increasing the educational investments as well as limiting the rise of labour costs are of course absolutely indispensable for setting the ground for future industrial success but they do not change the macro equation that the industrial success of a country like Finland will be decided in the so-called strategy and superproductivity games that will be described in the following.

The Strategy and Superproductivity Games

By the strategy game one means the selections a company has to make concerning its position in the market and against the competition, its targeted value-chain position and customer orientation, earnings logic and margin structures, required competences in leadership, managerial, engineering, marketing and other fields of expertise, target setting in terms of growth and profitability and means to reach those targets. Construing from the rate at which new, sizeable industrial success stories have been emanating from Finland, this is clearly a game in which Finns have a lot to improve.

From the engineering know-how point-of-view, an essential planning dimension in the strategy game for any Finnish company is to decide which part of the product development and production manpower will be based in Finland and which part in other countries and why. It has to be noted that, if the products of a company are advanced and sustainably competitive such that the customer pricing allows a relatively high level of gross margins to be maintained, both product development and manufacturing can be located in high labour cost countries. There are a high number of American companies of various sizes in this category, and a Finnish example could be the weather measurement company Vaisala.

But if the customer prices are under heavy competition and the margins are thus average or on the low side, it may be necessary to transfer a significant part of the product development efforts and perhaps the whole manufacturing operations to lower cost countries. This basic rule is

especially true for smaller and mid-size industrial companies operating in international markets. On the other hand, if the company size is large enough, it can have major long-term research and development operations and even manufacturing resources also in Finland provided that a sufficiently large portion of the work force and cost base is in lower cost countries. Thus, the average labour cost in the company has been adjusted to be competitive. Examples of such companies are the elevator company Kone and, of course, Nokia.

Derived from this quest for the average labour cost equilibrium, a critical component of the strategy game is the size or growth target set for the company. In other words, under the globalisation circumstances, we have to create to Finland also new large enterprises in order to maintain the extensive use of Finnish industrial workforce cost-wise competitive.

Above, the product development work was associated with manufacturing operations when contemplating the average labour cost equilibrium. Wasn't the product development supposed to be creative, unique type of work that would be the industrial saviour of countries like Finland? Certainly, there is also rare kind of product innovation skills but the main point is that, as from productivity point-of-view all product development work is not evenly matched, one has to seek for the average labour cost equilibrium also for a big part of the development work.

The average labour cost equilibrium tells that a critical component of the strategy game is the size or growth target set for the company.

In Seek for Superproductivity

Continuous productivity gains are obviously necessary for any industrial enterprise when planning both revenue stream increases and advances in cost efficiencies. But whenever, through an individual or team innovation, a non-linear productivity gain is reached and a jump to a new development curve occurs, one talks about superproductivity.

As especially the Far Eastern companies have over and over again shown their supremacy in relentless gradual improvements of productivity, and given the significant differences in cost competition starting points between those companies and the Finnish enterprises, it is overwhelmingly clear that the search for superproductivity jumps is the game that the companies willing to remain competitive in Finland must concentrate on.

The innovations and planning results that change company processes, business models, value chain position or indeed products such that new sustainable competitive advantage is yielded are clearly phenomena of superproductivity. Examples of business model and value chain innovations are the new real estate agency Igglo, the furniture giant Ikea and, of course, the sporting goods marketing wizard Nike. Examples of superproductive product innovations are the original machine room-less elevator from Kone Corporation, the by-its-time unbeaten automatic break system (ABS) by Mercedes-Benz and a so simple thing as the red TrackPoint mouse button on an IBM laptop computer. Process innovations include the net working capital wonders of retailer Wal-Mart, computer company Dell and mobile handset manufacturer Nokia.

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A common way to protect and prolong the competitive advantage reached through superproductive innovations is to use patents. The world knows many examples such as the early photocopying machine monopoly by Xerox, the numerous patents filed and exploited by Philips and, most recently, the successful use of intellectual property rights by the American communications technology company Qualcomm. The patents are a way to protect one's superproductivity that the Finns are just about to learn to take advantage of.

Through superproductivity, it is possible to create prosperity clearly over the average labour input-output ratio and thus maintain and develop businesses successfully, even under harsh global competition conditions. But, although we can list tens of examples of industrial superproductivity achievements, it seems difficult to deduce from the examples how exactly superproductive phenomena are created in the companies. It is, therefore, necessary to study how a company works as a system constituted by people contributing to it and yielding an output superior to that of its components. Also, it is pivotal to examine how superproductivity conditions, or a superproductive atmosphere, at a company can be set up.

How to Create Superproductivity – The Company as a System of People

The people interactions within a company follow a system model at its purest. In this model, the people (subsystem) interactions can be either positive or negative. Even a small positive interaction delta in people dealings can have a greatly amplified effect on energy creation, job satisfaction and, more than apparently, on innovation capability.

A key observation is that the energy creation through human interactions follows a multiplying, not an additive formula. In a simplified model, each individual has a capability to either consume or generate mental energy or enthusiasm around him or herself. In this model, a consuming effect can be portrayed by an interaction coefficient having values below 1.0 and a generating effect by a coefficient with values above 1.0. When people with different attitudes and energy levels meet or interact, their coefficients are multiplied with each other.

E.g., a five-people brain storming session can yield a $0.8 \times 0.8 \times 0.8 \times 0.8 \times 0.8 = 0.8^5 = 0.3$ unit mental energy, evened out in the team, if negative behaviour models such as late arrival to the occasion, no listening, simultaneous e-mail checking or numerous small side meetings are prevailing. On the other hand, a similar meeting in a positive enthusiastic atmosphere can produce $1.2^5 = 2.5$ unit mental closing energy that is around ten times higher than in the previous example.

But even if one would not trust the mathematical occupational psychology models, the energy consuming or generating situations as described above repeat themselves in everyday work life, each day and each hour. When the management has recognised the possibility to generate mental energy within the company and when appropriate people skills and educational backgrounds as well as other business critical resources have been confirmed, the conditions for innovation and superproductivity have been established. Though it may be impossible to secure the success of an innovation or a creative planning process, the claim is that it is possible to create circumstances that foster and are likely to generate superproductivity. This induction mechanism has also been called systems intelligence.

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It has to be noted that a company's strategy and the search for superproductivity are inter-linked. The strategic choices such as business idea selections and risk investment decisions made in a company are related to the prevailing productivity level and projections. If the risk investments lead to superproductivity in some operational areas, it may be necessary to adjust the strategy to a more aggressive one. And, correspondingly, if no non-linear productivity jumps are achieved, the strategy may have to be redefined altogether. This reminds us of an important but sometimes surprisingly forgotten aspect of any entrepreneurial endeavour. Leading a successful company requires calculated risk-taking by its owners and management, a company never is a money-making automatic machine. And aiming at superproductivity is clearly a very healthy form of risk-taking.

Building a Superproductivity Atmosphere

The company top management and superiors at all levels that have understood the meaning of the systems intelligence take care of not only the professional training of their subordinates but also ensure explicitly that a superproductivity atmosphere be created in the company. There are certainly many ways and leadership styles to create such an atmosphere but, in the following, a number of guiding principles that have to reign at every management level is listed.

TABLE 1. The Superproductivity Atmosphere: The Leader's Catechism.

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- Show example on how to live (rather than do) one's work, radiate the company values
 - Keep the organisation knowledgeable about the strategy and the progress made
 - Encourage people daily in their endeavours
 - Celebrate even small advances in the plan
 - Allow people to make mistakes and to, therefore, learn from them
 - As the superior, talk about your own mistakes (and the lessons learned)
 - Beg pardon if having hurt somebody, whether unintentionally or without premeditation
 - Listen and give space to other people's opinions
 - Show that you listen through gestures, utterances and brief comments
 - Learn to love other people's (good) ideas
 - Show that you foster diversity by encouraging diverging ideas
 - Cut personal criticism in the absence of the person criticised, mediate quarrels
 - Be pointedly fair, objective and consistent in your leadership approach
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An interesting observable fact related to superproductivity conditions is the associated threshold or hysteresis phenomenon. In an organisation, there can be a number of development ideas floating around but the related productivity jump may be latent until an assembling innovation energy pulse is brought in, typically by someone new to the team(s). Similarly, a superproductive innovation can carry the organisation forward even if general mental energy level be temporarily lowered.

The Future Industrial Winners – Why the Finns Will Make It

The simple assertion is that the industrial future of Finland will have to be based on mastery of the strategy and superproductivity games. In addition, one has to guarantee top performance regarding operational and quality improvement and the resulting continuous productivity gains, thus complying fully with the rules of the know-how and labour cost games. The future industrial winners are the companies having understood deeply these premises and acting accordingly.

Different cultural backgrounds are differently suited for practicing consistently the guidelines for creating superproductivity atmosphere.

It was concluded that from a small country's perspective, an ever smaller investment is required to get access to an ever extending information base and market. This makes the opportunities big and tangible. Under the strategy game, a company must make constantly selections on market, competitive and long-term operational goals and move swiftly about decisions concerning the average labour cost equilibrium.

Outsourcing and continuous cost-optimisation shall be strived at whenever operational tasks become repeated and therefore eventually better performed by specialised service companies, with a regional or global scope. But all the other tasks within a company follow the other rule, that of unleashed superproductivity. Therefore, a relentless pursuit of superproductive innovations in key tasks of product conception, strategic marketing, customer relations management, process and people development and logistics, to name a few, is required.

Creating superproductive atmosphere is, as induced earlier, not rocket science. The required leadership skills are entirely learnable but it is clear that different cultural backgrounds are differently suited for practicing consistently the as such simple guidelines. And this is where the Finns should be at their best. Because of the rather egalitarian, fair and unprejudiced Finnish value base, adoption of superproductive atmosphere principles by Finns and by organisations run by Finns seems to happen more smoothly than in many hierarchically orientated environments.

Obviously, superproductivity has been and will be achieved in the hierarchical cultures, as well, but that happens typically through spectacular individual, top-down performance. In contrast, creating a comprehensive superproductive leadership atmosphere unleashes the mental potential of the whole people organisation. The simple claim is that a primary potential source of unique competitiveness for the Finnish industrial companies is systematic fostering of superproductive conditions and, consequently, search for superproductivity phenomena.

Finns with egalitarian and fair values platform are well positioned in unleashing the superproductivity potential of entire organizations.

About Industrial Employment

Even under superproductivity circumstances, one has to observe the possible fact that the industrial enterprises may not be able to employ all trained industrial people in Western countries. One has to remember that availability of good know-how in a country is not sufficient if operational tasks can be and therefore have to be outsourced from lower-cost environments. Thus, a modern growing company that doubles its turnover per headcount and does this through extensive use of partnering and subcontracting can increase its value-added (calculated as profits per salaries) and taxes it pays markedly but will not necessarily employ more people in its home country. The industrial companies will, therefore, very unlikely offer to Finland enough of employment opportunities, no matter how well the strategy and superproductivity games are played. Finland is, along with at least other Nordic countries, beyond the point of return on its way to a society where the services rendered to private people and families will play a major employment role. But, that is an entirely other story.

Summary

The systems intelligence view of company operations, combined with the lessons learned from know-how game, cost game and globalisation of markets, suggests that the future industrial winners are companies mastering both strategy and superproductive games. For educational institutions, this observation means that in addition to teaching technical, commercial and marketing disciplines, systematic tuition of strategic selection patterns as well as superproductivity-enabling leadership skills will have to be introduced. Helsinki University of Technology is one of the forerunners in this quest. And, overall, the Finns being eager to learn and building on a rather egalitarian and fair values platform are well positioned in front of this challenge, unleashing the superproductivity potential of entire organisations.

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