REGIONAL BUSINESS DEVELOPMENT AND R&D PRODUCTIVITY CARROUSEL

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Abstract

This paper proposes a practical "Baltic Brains Exchange" vehicle to a) stimulate regional business development, b) improve R&D productivity, and c) connect regional SME's and training schools with emerging Baltic energy and transport clusters and projects. A proposal is presented for a polycentric 'carrousel exchange' training and R&D programme, to connect groups in Kurzeme, Riga, Tallinn, Sweden, and Klaipeda with the Swedish led 'Baltic Ring of Energy' project and the Chinese deep water port initiative at Klaipeda. This programme includes four longitudinal research projects in geothermal energy, transport, food quality and water quality. Regional experts would present a series of innovation workshops at participating centres. An operational handbook of regional case studies is included. A polycentric rather than monocentric approach is recommended based on findings of Shunfeng Song (1992), MacDonald (2008) and a current empirical study of 'psychological distance' which gives a parametric measure of 'connectivity' relevant to polycentric logistics. Current empirical data show people in Riga see Moscow and Kiev as being closer than Berlin despite these three cities being equidistant in kilometres. Russians in Riga rate Moscow as closer than Kiev. Latvians see Kiev as closer. Perceived distance ratings correlate with trade volumes, freight movements, tourism, business travel & teledensity. They also reflect decentralisation processes and have ramifications for polycentric density functions and commuting patterns. Regional development and Latvia's labour migration to the west are discussed in relation to monocentric planning and overburdening. Results of these findings are discussed in the context of Edward Hall's monochronic and polychronic cultures, Bertalanffy's open and closed systems, Chomsky's surface structure / deep structure concepts and Huntington's dynamics of fault lines, tribalism and globalism in the nation states.

Keywords: R&D productivity, SME clusters, polycentric planning, psychological distance

Introduction: R&D productivity Tools for Kurzeme

This study proposes three operational productivity tools to link Kurzeme R&D groups directly with:

The Baltic Ring of Energy Project, b) a Geo-Thermal Energy Project, and c) a Chinese deep water port initiative at Klaipeda. The tools are: a training carrousel, an innovation index, and a case study handbook.

Latvia: the EU and the Nordic Archipelago

At the dawning of the Asian Century, as the world turns, and as Europe 'implodes', Latvia emerges on the perimeter of the EU, as a fledgling market economy. Clever geo-political positioning will be critical for Latvia's survival. Its location is marvellous, on the Baltic Sea lanes, between Russia and the EU, and lying in proximity to an 'Archipelago Nordique' a group of small, rich northern cultures including Celtic and Nordic Lands. This archipelago extends from Celtic lands to the Baltic. It includes half of the world's richest dozen countries as measured by per capita GDP. Member countries have a broad diversity of industrial structures, political identities, cultures and languages. But they share a common and ancient culture of egalitarian social structures, group decision making, and teamwork. Latvia can draw inspiration and pragmatic best-practices from these Celtic and Nordic countries.

Perestroika postponed: The incomplete process of regional decentralisation

Two decades after Perestroika, Latvia remains umbilical connected with the Kremlin, and Ventspils remains umbilical connected with the Saeima. Energy, big business, and some banking still fall under the guiding command structures of the former Soviet system. Latvia has not been successful at organising fundamental stable institutions in government, in banking and finance and in land ownership and property prices. Indeed, the control structures in Latvia have not changed much since Soviet days. Governments, hospitals and schools alike are mired in monopolies and oligopolies, centralised, cumbersome, hierarchical, and slow to react, and lack flat organisational structures and responsiveness.

The Soviet system was (and still is), based on hierarchical, vertically controlled, top-down value chains and command structures, which have proved stable and robust since the days of the Roman Empire.

They are found in the Church, in military systems, hospitals, big business and in schools. These hierarchical control structures transcend the cultural 'fault lines' of Huntington's (1993) civilisations.

They run deep. They are pervasive, ubiquitous and have resisted change for more than two millennia.

The rules for survival are changing.

Strategies which have worked in the past may be largely irrelevant in the future. Entire industries and entire regions are catapulting through a sustained technological and service industry revolution. Latvia must find a new growth engine to supplant the transhipment corridor, and the construction industry.

Now, with the IT industry, the internet, e-mail, Skype, Facebook and Myspace etc., traditional vertical value chains and control structures of hierarchy-based systems are being de-constructed and supplanted by a new form of lateral connectivity between groups and individuals who previously worked in relative isolation or outside the formal boundaries of traditional institutions.

Huntington sees future conflicts between 'civilisations', *i.e.* groups of Nation States having common languages, cultures and religions. Latvia lies on a 'fault line' between the Orthodox civilisation and Western Europe. Huntington also sees Nation States as being torn apart by the combined forces of tribalism and globalism, forces which are quite evident in Latvia.

City-State Ventspils. For a westerner, Ventspils seems to operate as a thinly disguised attempt at a city-state undergoing a Caesarian Section, trying to break-away from 'Mother Latvia's' placenta, in the same way that Singapore was torn from Malaya by Lee Kuan Yew, and the same way Latvia is (slowly) breaking away from the centralised structures of the former Soviet system. But both Ventspils and Latvia are frail attempts at separation, which have triggered the nurturing and protective immune systems of their parent cultures.

Innovation is vital to economic performance

Kydland and Prescott won the 2004 Nobel Prize in Economics partly for substantiating that innovation, specifically fluctuations in technological growth, accounted for 70% of the variability in American post-war business cycles their studies implicated the importance of behavioural economics for innovation. In the end, wealth creation derives ultimately from innovation, human intelligence and good social organisation, not from access to capital resources, gold, computers or oil.

A new world information order

MacDonald posits the emergence of a 'new world information order' mediated by a global convergence or vertical alliance connecting manufacturing, with the media industry, advertising, entertainment , telecoms and the worlds education and training industries. This re-structuring has already fundamentally taken place. It is ubiquitous and irreversible. Education systems are constrained by the demands of industry.

Marshall McLuhan foresaw this global re-structuring in the sixties, when he produced his works: 'The Medium is the Message', 'The Re-tribalisation of Man', 'The Global Village', 'and The Information Explosion', and 'The Bookless Library'. (1968). McLuhan invoked a Malthusian principle to describe change in western education systems, postulating that they generated social problems faster than solutions. He predicted a 'dumbing down' process which would close the gap. Judging from analyses of the Pisa Report on Education, the decline in recent years of student performance on reading, maths and science tests in a number of EU countries, this process appears to be happening. The powers-that-be in this

information driven monolith will eventually supplant the regulatory powers of nation-states, especially smaller ones like Latvia. In this grand alliance of knowledge industries, universities will be drawn to couple with industry to avoid marginalisation. To connect with industry is pragmatic for financial reasons. Aside from the financial crisis, as population's age, governments come under increasing pressure to allocate more funds to medical and pension systems than to education.

What business schools do wrong?

But many business schools are in the process of failing. They teach other people how to make money, but often do not know how to save themselves. Indeed, many business schools are not more than thinly veiled consulting organisations. In general they do not do research, and thereby thus do not either contribute to or keep up with the latest business trends. They tend to deliver broad but superficial MBA courses, rather than developing areas of specialisation. In general they tend to copy rather than create, borrowing soft material from the social sciences, and re-packaging it in business language, presenting it as watered down sociology and psychology concepts to MBA candidates often having financial, accounting or engineering backgrounds. This general business school diet does not and will not deliver the specific tools and skills managers need for corporate survival in an increasingly sophisticated and competitive technocracy. Furthermore, business schools do not behave like businesses, but rather like the traditional, hierarchical universities from which they differentiate. They tend to be product (programme) oriented rather than market oriented, and, like traditional universities, they are slow to make adaptive decisions. They have low academic salaries and do not attract the best people. Also there are few real business experts on staff, captains of industry and millionaires; people who really know how to make money. In America, MBA courses are criticised for being too theoretical. In Europe they are criticised for being too brief and superficial. Business schools tend also to share the constraints of universities, including the rigid government controls, ballooning administrative bureaucracies and worsening staff / student ratios. In a competitive, and often chaotic and hostile operating environment, business Schools, like the SME's they teach about, should strive to be light, flexible, responsive and adaptive. For the most part, they are not. Their operations conjure up images of Pieter Bruegels Renaissance masterpiece portraying 'The Blind Leading the Blind'.

2. Latvia's Dwindling Scientific Workforce

Low R&D expenditure in Latvia

Latvia is not investing in brainpower, but innovation is closely tied to economic performance as Prescott and Kydland showed in their 2004 Nobel Prize winning work. Latvia trails Europe in R&D expenditure, allocating only 0.48% of GDP to R&D compared with the EU average of 1.8%.The EU 's plan is to increase this figure to 3% by 2010, and if successful, Latvia would have to increase its investment six fold to catch up. The Saeima have discussed doubling the R&D budget spends to 1% but, in the wake of structural reforms, R&D remains a lower priority.

Massive decline in the scientific workforce

In 1991, Latvia's scientific workforce of academically trained scientists numbered 30,000. Today it is under 5000 and declining. Most of the remaining scientists are nearing retirement age. There are few young scientists in Latvia and few women scientists. Half of the 25,000 who departed went to better jobs in industry. Half went abroad. Ubelis (2006) estimates that 1000 Latvian scientists are working in America.

Latvia's labour migration

Over the past two decades, structural development in Latvia has been centralised in the Riga region.

Massive demographic changes have occurred. Latvia's population of 2.3 million and workforce of 1 million have seen the departure of an estimated 200,000 young people, fully 20% of the workforce for Western Europe, principally the UK and Ireland. Many have carried university qualifications and the Latvian language with them. Their loss has been partly compensated by the import of 50,000 workers from the Ukraine, Belarus and Poland to work in the building trades. Since the opening of Primorsk port, the population of Ventspils has reduced from 54,000 to fewer than 40,000. Latvia's labour migration has been discussed in relation to monocentric planning and overburdening of the centrally planned economy.

EU brain drain to America the EU Commission (2007) reports that an estimated 400,000 European scientists work in America.

A recent study showed that only 13% currently working abroad intend to return to Europe. Unlike American Universities, European Universities have little freedom to select their students and to pay professors at the market rates. The EU is losing its attractiveness for international R&D investment.

At present about 2/3 of US foreign investment in R&D goes to Europe, but the strong trend is for the US to invest relatively more in Canada, Japan and China and less in Europe.

Brain drains are unidirectional and deplete peripheral areas of intellectual resources.

Typically, they do not involve an exchange or resources, but rather a unilateral transfer of intelligence, a from a perimeter to an epi-centre of intellectual excellence or economic energy.

In the 14th century, scholars gravitated to Florence. Now they go to America.

Latvia's challenge: to mobilise the collective intelligence of the Regions

Despite massive labour migration, Latvia still has a critical mass of human resources talent, enough to facilitate consensus building, alignment and lateral connectivity between diverse firms and groups in all regions and all major industries. The primal challenge in the immediate future is to build a set of specific mechanisms to mobilise the collective intelligence of the regions, combining the forces of intellectual capital and industry resources in the form of a polycentric set of regional R&D facilitation instruments.

Proposal for a polycentric 'carrousel exchange' training and R&D productivity programme

A proposal is made here for the development of a R&D productivity carrousel having the specific objective of connecting R&D groups in Kurzeme, Riga, Sweden, and Klaipeda with:

a) the Swedish led **'Baltic ring of energy' project,**
b) the incipient **Geo-thermal energy project,** and
c) the Chinese **deep water port at Klaipeda.**

Regional experts would present a series of innovation workshops at participating centres. **Longitudinal research projects** would be launched in energy, transport and water quality. **An Operational Handbook of Regional Case Studies** is included.

A polycentric approach is recommended based on findings of Shunfeng Song (1992), which posit that polycentric that density functions fit the actual urban structure much better than the conventional monocentric model. His findings indicate the pre-eminence of accessibility to major employment centres in the choice of location. Our plan would have three functions:

a) it would stimulate the development of regional business
b) it would improve R&D productivity, and
c) it would connect regional SME's and training schools with emerging Baltic energy and transport clusters and projects.

The Carrousel would be entered on the Swedish Ring of Energy programme. It would be behaviourally based, not accounting or economics based. The Scandinaviska Enskilde Bank would be approached to organise an effective payments mechanism for all partners, and to act as funding agents.

The training carrousel and the brain drain

The 'carrousel exchange' provides a conceptually and administratively simple process, providing direct face-to-face interaction to mediate the rich cross flow of ideas between actors working on common themes in different locations without creating a cultural sink or brain drain effect.

Distance education has a limiting function in that up to 80% of the information in a face-to-face situation is transferred non-verbally. Computers have a serious limitation here.

This proposal argues for the need to develop Latvia's regions, and to position Latvia strongly in the epicentre of a large Western energy group, through decentralising national R&D funding and operations.

3. Perceived (Psychological) Distance

People judge the distance to different cities with a surprising degree of consistency, and the judgements are relatively stable over time. Further, there are large ethnic differences in the perception of distance to different cities. In Riga, Latvians see Kiev as being closer than Moscow. Russians see Moscow as being closer than Kiev. (MacDonald, 1995) The differences are large and significant. Similar perceptual differences occur in Australia between Australians and Indonesians when judging distances to Singapore, Hong Kong, Kuala Lumpur and Bangkok.

Measures of perceived distance or psychological distance between different cities can be used as a general paradigm for 'cultural connectivity'. The above study also found broad correlations between the perceived distance to different cities and volumes of transport, air travel, ships and car movements, tourism, the physical movement of freight and people and teledensity between these cities.

In the present study, the perception of distances from Riga to Moscow, Kiev, Berlin, Tallinn and Vilnius were assessed. A longitudinal comparison was made with data collected in 1995.

Method: In two studies, 68 Latvian and 69 Russian people estimated the psychological distance of

Moscow and Kiev from Riga using a psychophysical scaling technique. The physical distance in kilometres between Berlin, Moscow and Kiev is roughly equal. Berlin was set as the standard at

100 units distant from Riga, and subjects were asked to estimate the distance to Kiev and Moscow using this standard. Subjects also estimated distances to Stockholm, St. Petersburg, (which are half the distance to Berlin), to Paris and London. (twice the physical distance to Berlin) and to Tallinn and Vilnius.

Subjects: All 137 subjects were residents of Riga, and aged from early twenties to thirties. 60% were male. All were either business professionals or business students the Riga International College of Economics or the Stockholm School of Economics in Riga.

Results: Both Latvians and Russians judged Moscow to be closer than Berlin (fig.1)

Latvians rated Kiev as being closer than Moscow, and Russians rated Moscow as being closer than Kiev.(fig.2). Both groups also rated Kiev as being closer than Berlin. Latvians also saw Stockholm as being closer than St. Petersburg and London as closer than Paris. Russians rated St. Petersburg as closer than Stockholm and Paris as closer than London. No large differences were found in estimations for distances to Vilnius and Tallinn. Both groups overestimated the distance to proximal cities (Stockholm & St. Petersburg) and underestimated the distance to Paris and London. (fig 3) Latvians showed greater variability of response than Russians.

Trends: longitudinal comparison. Table 1 compares data taken in 1999 with current data.

Over the decade, ratings of perceived distance are quite stable and few large differences

emerge. In 2009, 42% of people tested saw Moscow as being closer than Berlin compared with 48% in 1999. 28% saw Berlin as closer compared with 30% in 2009. A growing number, (30% *vs.* 22%) saw the two cities as equidistant which may reflect a learning factor.

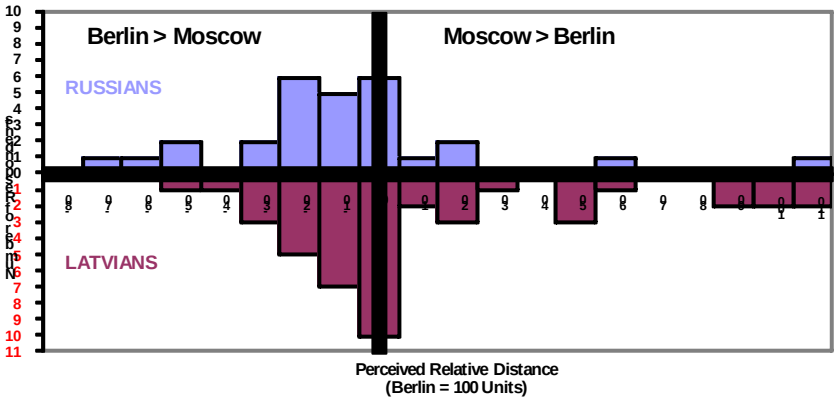


Figure 1: Perceived distance to Moscow and Berlin, Russians and Latvian *(n=71)*

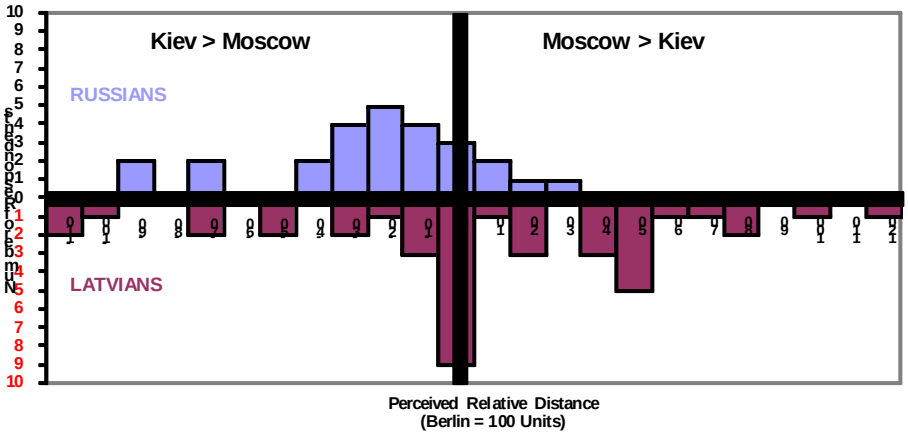


Figure 2: Perceived Distance to Moscow and Kiev, Russians and Latvians *(n=66)*

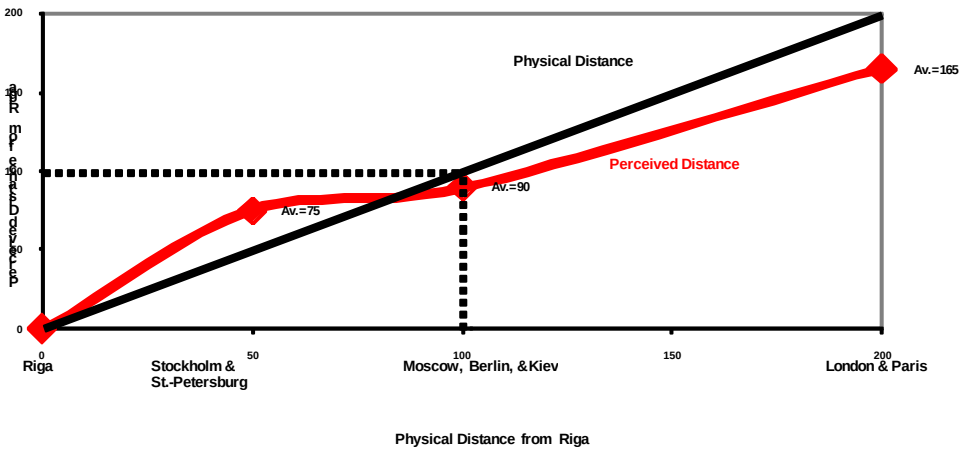


Figure 3: Perceived Distances to Proximal and Distal Cities (n=71)

Discussion:

Implicit in Song's (1992) findings is the importance of psychological distance effects, such as the ones above, for polycentric planning, for optimising commute times and distances, and for deconstructing centralised monocentric systems. Psychological distance is pervasive. It is a consistent and reliable measure of cultural connectivity. For People in Riga, cultural links with Russia remain strong two decades after perestroika. Little change in perceived distance to major trading partner cities has occurred since 1999. 42% of people in Riga still see

Table 1: Longitudinal Comparison of Perceived Distance to Berlin and Moscow 1999, 2009

	1995 test	2009 test
Total subjects (n)	71	66
% People Seeing Moscow Closer	48%	42%
People seeing Berlin Closer	30%	28%
People seeing Berlin & Moscow as equal	22%	30%
Lats see Berlin Closer	37%*	28%*
Russians Seeing Berlin Closer	18%*	24%*

* weighted

Moscow as closer than Berlin. Psychological distance measures form a paradigm for predicting connectivity between two societies, including patterns of trade, tourism, travel and teledensity. Hofstede (1980,84) believed that intercultural differences would be stable over time and referred to this phenomenon as the "collective mental programming of the mind". There is a wide body of research on this topic in the psychological literature. Swedenborg (1979) found similar patterns for FDI following cultural or informational lines where the pathways informational and cultural resistance are least. MacDonald (1988) found a curious phenomenon: that Volvo's market share in different countries declined in close correlation with the perceived distance of those countries from Sweden, as measured on the psychophysical scale of Lundberg and Ekman (1971). The correlation was almost r =1. The effects were strong enough to implicate psych. distance as an instrument for international market segmentation and promotional procedures.

Lash and Urry in their book "Theory, Culture and Society- Economies of Signs and Space", (1994) present an approach to the study of social change which takes as its main unit analysis, social and cultural flows through time across space. They focus on post-industrial economies examining social inequality and the changing experiences of time, space, culture, travel and globalisation. They argue that today's economies are increasingly economies of signs, symbols and of space where actors become mobile over ever greater distances. As a process of socialisation, the institution of business education is predicated on the simple issues of nature vs. nurture: that societies can be changed through education and training; that not all is innate; and those ultimately different ethnic groups can work effectively together for the common good of the entire society.

Several researchers have studied the dynamics and effects of psychological distance on political attitudes (Lundberg and Ekman, 1971), and on the geographical dispersion of sales and subsidiaries of Swedish companies, (Nordstrom and Vahlne, 1992, Hornell, Vahlne and Wiedersheim-Paul, (1973) studied the spatial distribution of Swedish exports investigating trade creating and trade impeding variables. Psychic distance was defined as "factors preventing or inhibiting the flow of information between potential or actual suppliers and customers".

4. Opportunities for Latvia

In the wake of the global financial crisis and the restructuring of Latvia's alliances with the EU and with the IMF, there has emerged an unprecedented opportunity for regional development in Kurzeme, specifically to form a long-term alliance with the Baltic 'Ring of Energy' project, and the recently announced Sweden-Baltic energy link which will go over

Lithuania. This alliance can take the form of an R&D productivity carrousel centred in Kurzeme, which would consolidate and serve the regional energy cluster and catalyse lateral connectivity between organisations in Estonia, Latvia and Lithuania working on common R&D projects in energy, environment, and transport and water quality. Such a regional centre could not only strengthen Latvian connectivity with Sweden's Baltic Ring of Energy project, but also with China's deep water port initiative and the incipient geothermal energy project in Kurzeme.

Baltic Ring of Energy

The Ventspils R&D Productivity Centre should function as a service provider for Sweden's Baltic Ring of Energy Programme, offering customised training and specialised contract R&D projects. The Baltic-Link Programme is vital to ensure energy security for the Baltic states. It involves opening Baltic energy markets, building power links between Estonia and Finland, Lithuania and Poland and connecting these with the Swedish power link. The project was initiated a decade ago, and is proceeding. It has EU support in the form of an initial € 5b. Latvia and Lithuania have been in competition to host the main link with Sweden. The Prime Ministers of the three Baltic States have met and decided that Lithuania should be the host for this link. Ventspils College can propose the Baltic Brains Exchange initiative as a service provider to the project.

Geothermal energy in Kurzeme

Eihmanis (2000) has written on geothermal energy under Kurzeme, and western Lithuania. He writes of geothermal energy in the Devonian and Cambrian aquifers at Pavilosta, Tukums and Liepaja (40 degrees C at 1400m), and at Palanga, (75 degrees C at 2100 m). Motoren-Gmbh-Greiner a company from Baden-Würtemburg was prepared to invest, and conduct exploration, but was unable to get drilling rights.

Again, it is proposed here that Ventspils College pursue an alliance with EU, offering the Latvian and Lithuanian government's management and shared ownership of the Baltic Brains Exchange programme in exchange for drilling rights (incl. sub-surface and mineral rights) for a project estimated to supply 25% of local regional needs. Planned initial EU direct investment is €4.3 m**.** The geographical scope of this incipient geothermal energy project could be: Kurzeme, Klaipeda, Jelgava, Kaunus, and the Baltic Sea.

Deep water port at Klaipeda

Chinese sources have talked about a deep-water port at Klaipeda with a view to making a Baltic trade corridor with Moscow. The logistics and strategy of this would be similar to the Chinese deep water port at Gwadar in Pakistan. Ventspils has been overlooked in these talks, and nothing has come to the attention of the media yet. MacDonald sees the strategy at Gwadar as analogous to encapsulation in a global game of Go.

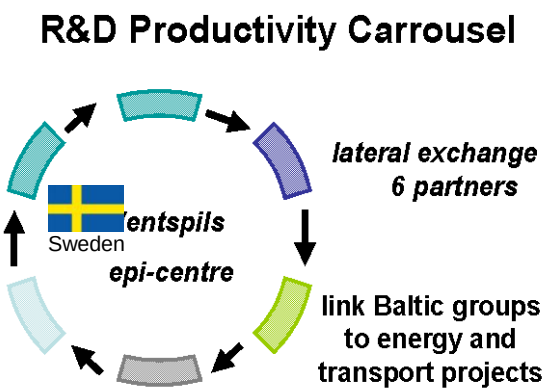
Mechanisms of connectivity

a) 'Baltic Brains Exchange'

A proposal is presented here for a small, properly funded R&D productivity and SME training school that can be the driving force of regional economic development, job creation and wealth creation. Specifically this school would have three functions: 1) to run an R&D productivity carrousel,

2) to plan longitudinal research projects and 3) to produce an Operational Handbook of Case Studies.

The overall purpose would be to link regional companies and organisations with the three projects mentioned above: (Ring of energy, geothermal energy and deepwater port). The concept and infrastructure for this project have already been seeded in Ubelis's (2006) NBCC SME project.



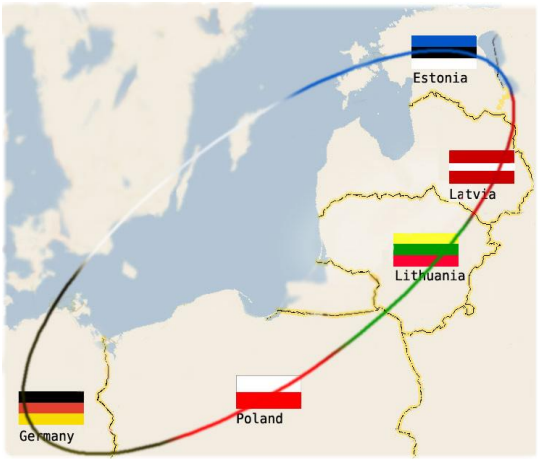


Figure 4: Ubelis's NBCC Project

Figure 5:IDL R&D productivity Carrousel

b) R&D Productivity Carrousel

The 'Brains Exchange Carrousel' would link research teams working on common energy and transport themes in different Baltic locations. The objective would be to improve S&T productivity and to mediate connections with larger Baltic energy and transport programmes. The carrousel would also assist in the formation of clusters. The theme would be: 'Productivity in Innovation: to bring new products to the market, quicker, safer and cheaper'.

The concept is based on low administrative overheads, low capital investment in buildings and land, a small central administrative staff of four equivalent full time jobs, and local expert teachers, paid on contract. Students would serve as agents for their companies, linking them to clusters.

The carrousel would mediate a rich lateral cross-flow of ideas, and exchange of information between actors in diverse cultural and geographical settings - a process which can effectively link relatively isolated groups, without creating a 'cultural sink' or brain drain effect. (see Fig. 5)

The carrousel would involve 12 participating groups and science parks in 6 Baltic countries, Sweden, Finland, Estonia, Latvia, Lithuania and Poland. Each group would promote one 'guru' R&D expert in a designated complementary field, to prepare and deliver one high quality interactive 16 hour workshop to each of the 12 participating groups on alternate Fridays and Saturdays, on a fortnightly basis.

The programme would take 24 weeks to complete. The presentations would comprise 192 contact hours, about half the total of a first year MBA based on Wharton School figures. Each participating group would promote and deliver one expert and receive 11 others during the programme. The total cost of this programme would be about two western professors' salaries, simply the cost of one top professor, shared 12 ways, plus travel, accommodation and administrative costs. This system is based on guidelines from the Wharton School, and the Scandinavian International Management Institute in Copenhagen.

The programme is delivered on Friday and Saturday. Companies promote their top level candidates as students for this course, and retain them to work for the company from Monday to Thursday.

Business: The Carrousel operator would contract to the operators of large projects, manage the R&D and training processes, and sit on the board of any new J-V companies formed between contractors and licensees. Contractors would retain IP rights to the information at all stages including final delivery. The Carrousel operator would own the Portal, central A-V, IT, and teleconferencing equipment.

c) R&D Safelaunch

The carrousel programme would deliver operational testing procedures, business tools and marketing tools to assist new product and new process development. Participants would get a toolbox of practical, operational skills, and direct access to other Baltic R&D groups.

Training sessions would be open, creative, interactive and applied, not theoretical.

The programme is based on the classical Booz, Allen, Hamilton study of 1982, which traced

13000 new product launches out of 700 companies over 15 years. This study implicated that

85% of total R&D money spent in the US was lost, and essentially, only 1 of 7 new products under development in laboratories would ever successfully reach the marketplace. Safelaunch carrousel identifies five critical junctures in R&D processes where effort is wasted, and leads participants through basic steps of new product development, including conceptualisation, screening, business plans, product design, market receptivity testing, development and testing phases, commercialisation processes, IP rights, licensing, and production contracts.

Proposed Courses

a) an **R&D Toolbox** of technical skills and information courses including: Product Inception, Screening, Business Plans and Market Testing, Development and Testing Methodologies, Commercialisation, and
b) **Skills Courses,** including: The Learning Organisation, Franchising, Governance and Corporate Law, Licensing Contracts, The Effective Project Team, Leadership and Teamwork, Import / Export Tariffs, Documentation, Transportation, Effective Alliances, Joint-Ventures, Taxation, Accounting, Marketing, Strategic Planning, Supply Chain Linkages and International Financing.

Cost

The total cost of the programme would be € 312800, about two western professors salaries (incl. admin. support) split 12 ways, and paid for in total by the participants and their companies. This amounts to € 26066 per school or € 2172 per student (x12). Figures are based on 12 schools, 12 sessions, (144 two-day events), over 24 weeks, 192 contact hours comprising a semi MBA. Figures include: presenters fees, travel, hotels, *per diem*, course materials, lunches & coffee for participants and all administrative costs. Figures for each event would be € 2100 and include: Presenters fees (€1400, two days), Flight /Travel (€100), Hotel (3 days €150), *per diem*(x 2 €50), Materials (€50), Lunch (12x2 €200) Local Admin (€150).

Thus all 144 events would cost € 302,400 and 8000 ft+2400 pt for Central Admin: (∑ €312,800).

d) The NBCC Baltic SME Cluster Linkage Project

Ubelis started this Baltic SME Portal in 2006 (fig. 4) forming an electronic infrastructure to connect SME's working on common R&D themes in five Baltic countries. (www.zinatne.lv/NBCC).

Sweden is added here as Latvia's largest FDI partner and centre of the Ring of Energy project.

Ventspils can ally with NBCC and access this portal to connect with Baltic SME's offering R&D training and J-V projects. The infrastructure is set up and 52 companies have joined.

Traditional universities *vs.* 'centripetal' information delivery systems

Traditional universities have heavy capital investment in land, buildings, and tenured professors and large, growing administrative bureaucracies. They are also built on classical hierarchical principles, having vertical authority structures, which help to stabilise socialisation processes, but militate against change. In these times when the operating

environment is hostile, it behooves any organisation to remain flexible. Success of the carrousel model is predicated on 'centripetal' information delivery processes rather than 'centrifugal' processes.

e) Habitat: Longitudinal Research

Habitat proposes10 year longitudinal R&D programme to reduce the need for energy, to develop alternative energy sources, to insulate exiting homes better, and to improve food, air and water quality. Longitudinal research projects account for only about 1% of current published scientific papers in the life sciences and biological sciences, but they carry enormous power, not only for the quality and amount of scientific information they produce, but also because they can mediate the formation of long-term strategic alliances between key industry partners. It is proposed to coordinate development of longitudinal programmes with the three main projects, and to interlock them with trade and FDI programmes, both at the policy level and at the operational project and programme level.

f) Sherpa: Operational Handbook of Regional Case Studies

MacDonald proposed that RISEBA publish an Operational Handbook of 12 Regional Case Studies of successfully launched products and technical processes from partner SME's and training groups working on joint projects. The handbook can serve as a 'how to do it' training guide for S&T research groups and as a promotional vehicle for Baltic Brains Exchange. It is proposed that cases be generated through a J-V competition with Ventspils College. SME, names, products and industries etc. would be changed in cases where companies request anonymity. The college would retain IP rights as per usual academic practices. Guidelines for Sherpa are available from the author based on previous projects in Ireland and Kazakhstan.

Conclusion: Symphonies for Survival

Success and economic performance derive ultimately from human endeavour and social intelligence, not from access to capital, computers or natural resources. Innovation and wealth creation go hand in hand. Size, clusters and connectivity are important to achieve critical mass in R&D productivity.

Formal hierarchical systems lie at the basis of all military systems, governments, educational institutions and hospitals developed since the days of the Roman Empire. Now with the internet, we are experiencing de-composition of vertical value chains. In the process of devolution and decentralisation, the vertical command structure of hierarchies remains strong and mitigates against lateral connectivity, but step by step, our modern technological 'intelligence' races ahead of our social intelligence. We are becoming committed to a technocracy bound by the assumptions of physical efficiency rather than social or human efficiency.

No simple and sovereign solutions there are any 'quick fix' solutions to the myriad of complexities and challenges facing Latvia. No simple transferral of models from other cultures will provide the precise answers Latvia requires. Latvia must grow its own strategy. But the global trading environment is hostile. Latvia should reduce its dependence on the EU and the IMF. I am convinced that Latvia can take courage and inspiration looking at SME performance in North America, where small businesses not MNE's are considered to be the driving force of the economy.

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