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Subtheme 1.3: **Forging tomorrow's world - what are the "dynamos of the new economy"?**

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Triple helix interactions as a universal institutional matrix of the future world

The paper is devoted to the emergence of network economic order and Triple Helix pattern of social collaboration. Triple Helix is treated as universal institutional matrix for innovation-led growth in post-industrial. From this angle the author analyses ongoing transition of economies to a cluster-based structure, configuration of clusters themselves, design of innovation systems and emanation of new model of economic integration. Underlying complementarity between Triple Helix and Porter's cluster concept, the paper considers Russia's modernization prospects.

Key words:
Triple Helix, network economy, innovation clusters, economic integration, Baltic Sea Region

The ‘secret’ of Silicon Valley is undoubtedly related to its design, based on triple helix (TH) interactions. In the industrial era, they looked anomalous, even unique, but now they are turning into a universal institutional matrix in terms of the emerging social and economic order.

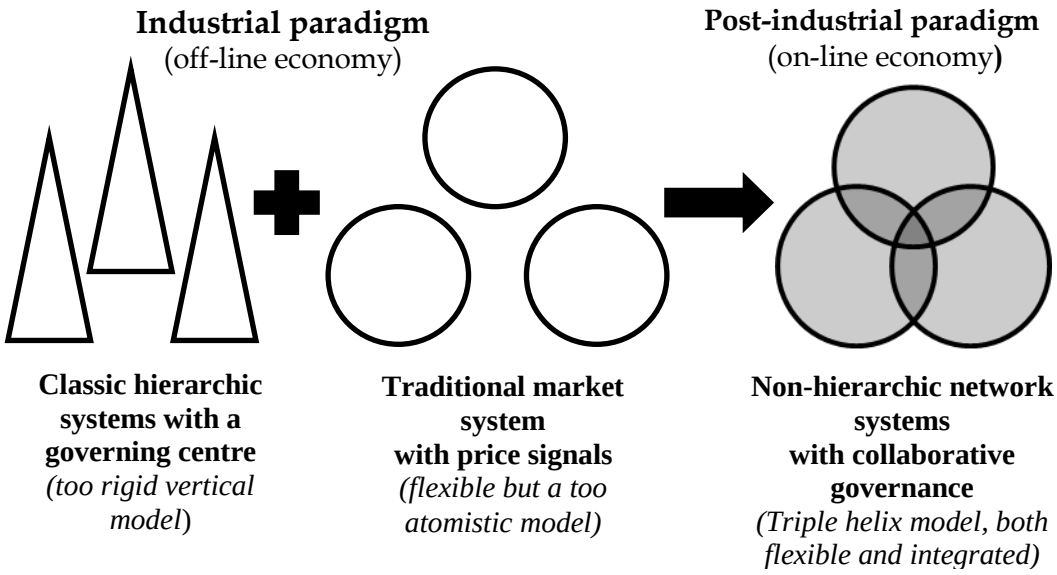
The growing popularity of such interactions across the world is explained, in our opinion, by the fact that they show a new way of consensus-making, which can enable self-development and secure sustainability of sophisticated network-based systems. As meant for innovation-led growth, TH-matrix can effectively harmonize modern economic systems. Therefore, mastering this matrix becomes a ‘must’ for all nations and the world as a whole to answer the challenges of global crisis and adapt to the ongoing paradigm shift.

1. TH-design is the key message of the global crisis

The shift to post-industrial and post-capitalist era, accompanied by the global systemic crisis, has been ultimately triggered by ICT-revolution. Mass online communications have nullified social distances, and are generating never-ending and unpredictable changes, as well as unprecedented rapids and mutual interdependencies. This pressure is often referred to as “tyranny of the moment” (*Eriksen, 2001).* To prepare to it, the world has to radically modify its institutional design. As predicted by M. Castells (*2000),* it is now spontaneously transiting to a network system, organized around “timeless time” and “space of flows”. In all appearances, this restructuring will rapidly advance at all levels and in all directions, finally taking the shape of TH-interactions, with all their advantages revealed by Henry Etzkowitz and Loet Leydesdorff *(1995)* more than 15 years ago.

In fact, since 2000’s the renewal of institutional design of the world economy goes hand in hand with the emanation of the new pattern of social coordination (*Fig.1).*

Fig.1**. Paradigm shift and the emanation of the Triple Helix coordination model**



Source: author’s design based on the institutional theory approach

In industrial era, the world could rest both on the hierarchic systems with administrative governance (classical model of corporation or sovereign state) and on the market system as a flexible departure from vertical subordination. However, at the moment, rigid vertical constructions can’t meet the sharply increased dynamism of life, while atomistic markets can’t respond to the sharply grown level of interdependencies. As a result, the world is developing a third, hybrid system of social coordination, incomparably more flexible and simultaneously more integrated.

In the Western literature, the emerging coordination model in a TH-way has got the name of collaboration, or collaborative governance *(Andersson, 2004*), while in the Asian literature it is

often called ‘collaboration without hierarchy’ *(Hasumi, 2007).* In all versions TH-collaboration generally implies a pattern of social interactions, which is associated with regular open exchange of knowledge, mutual use of assets and interactive coordination of decisions.

What does this transformation towards a new social order imply in practice?

Firstly, as commonly known, the market practices are overwhelmingly taking the online forms. This replaces the traditional system of market price signals by a system of direct contacts between producers and consumers through of Web-sites. The activities of giant Internet companies create a totally new, post-capitalist economic environment and develop coordination platforms to breed up global economic networks.

Secondly, under the pressure of the global crisis the world is definitely departing from all kinds of hegemony, hierarchy and rigidity, from the pressure of powerful bureaucracy and the power of giant corporations. Vertical systems with a single governing center are ever more replaced by a variety of cluster-based network systems that rely on horizontal (non-hierarchic) linkages and enjoy the advantages of self-regulation.

Thirdly, the rapid expansion of networking makes clusters the main structuralizing element of economic systems. As any flexible networks, clusters have open borders (to attract new participants) and the ability to quick reconfiguration. Such transformation plasticity is meant to adapt economic actors and systems to the continuously changing environment of the post-industrial society. On the other hand, due to common project initiatives, clusters are well integrated entities which concentrate in TH-way around network platforms that play the role of agents (institutions) for collaboration.

The global crisis (and so is its readjustment mission) will ruin the traditional organizational and cultural codes of economic systems, giving way to TH-vector of new harmonization. This will launch an *overall socialization of governance*, which is now traced at the level of companies, markets, national economies and the whole international community *(Smorodinskaya, 2011b).*

At the microeconomic level powerful transnationals are now challenged by mass self-governed peering-companies. The model of large corporation, which in the era of mass production had replaced small firms typical for the époque of Adam Smith, is now removed, in it’s turn, by the model of even more powerful network entities, associated with mass online cooperation of numerous individual entrepreneurs and civilians on ‘peer-to-peer’ principle *(Tapscott and Williams, 2008).* The energy market, which is considered the driver of post-crisis recovery, is now chamging not just its resource base but the very model of its design: the role of key market players is transiting from large corporations to millions of individual investors (*Moors, 2010*).

At the macroeconomic level networking processes are developed in line with Peter Drucker’s idea of ‘new society of organizations’, where entities of a special type are meant for discontinuous innovations, and where social consensus-making takes the form of ‘new functional pluralism’ (*Drucker, 1992; 2001).* The governments of both the developed and the developing worlds are cutting their budgets and passing their functions to self-organized civic networks, that start to offer those public services, which now are produced by bureaucrats (*Wilcox, 2010*). The brightest example is the British ‘revolutionary’ program with a meaningful name “Big society, not big state” *(Cameron, 2010*).

Meanwhile, the Westphalia order is vanishing under desouvereignization and disaggregation of states (*Slaughter, 2004*). And Arab revolutions are putting end to Western dominance, to make the world more flexible and balanced.

In some 10-15 years traditional economic systems will be transformed into open network systems able for quick reconfiguration. As American experts forecast, the number and power of all kinds of networks will sharply increase by 2015 (*NIC, 2000).* And by 2025, the world will change unrecognizably (*NIC, 2006*). Most likely it will be transformed in *a multidimensional cluster-based space*, networked through numerous agents for collaboration, emerging here and there.

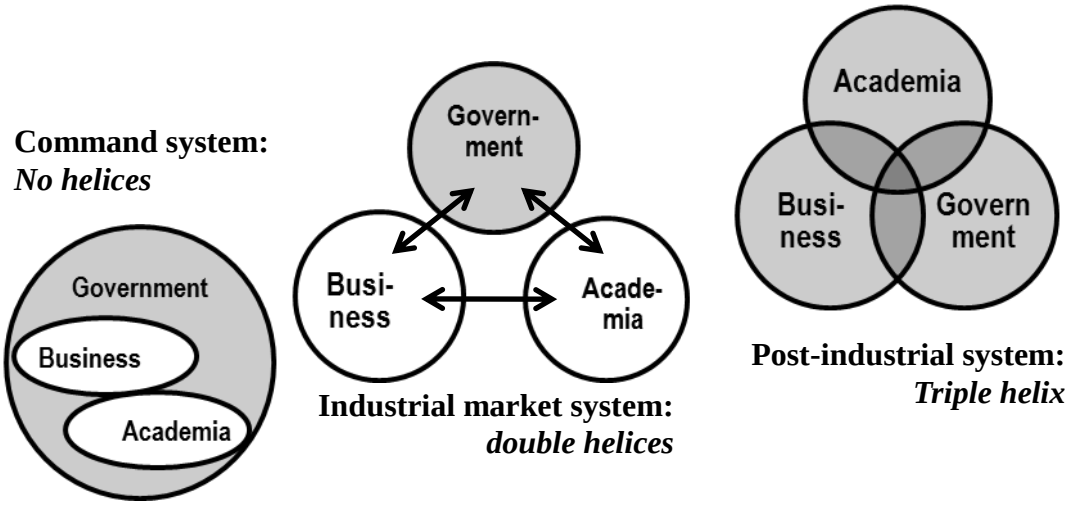
2. TH-matrix is enabler for innovation-led growth

TH may be seen as a non-hierarchic model of coordination, which rests on the principle of collaboration in consensus-making. In our view, it defines the institutional design and the way of development of knowledge-intensive systems. In this sense, TH looks as a universal matrix, or a kind of organizational code of sophisticated systems in the post-industrial society.

Since network organizations rely on coordinated collaboration, they obtain the ability of generating discontinuous innovations. Therefore, *a transition to an innovation-led growth implies a transition to TH-matrix.*

TH-idea has close associations with evolutionary theory that explains transformations in economic systems by a technology development trajectory. In the course of such transformations the forms of interactions between academia, business and government have always faced changes, since at the every next stage of technological progress the independent activity of each of these actors couldn't yet provide an effective outcome for the society *(Etzkowitz, 2008).* The results of such evolution are well known from TH-literature (Fig.2).

Fig.2. **Evolution of TH-interactions in Economic Systems**



Source: author's design based on findings of H. Etzkowitz and L. Leydesdorff

In command economy, real helix partnerships between three actors are absent: both the academia and the companies are functioning under a total government control. In industrial market system, these actors enjoy double helix interactions with a feedback (the government-business, the business-academia and the academia-government partnerships). And in post-industrial system double helices are not enough: for effective decision-making the three actors need a full-fledged TH-collaboration.

TH-collaboration radically differs from private-public partnerships of industrial economy. In post-industrial system, three actors not just network their communications but interactively coordinate their decisions and mutually borrow their functions, to become hybrid organizations (Etzkowitz, *2008*). Such functional networking is a key to understand typical TH-design and its synergy effects.

What is then TH-matrix as a tool for discontinuous innovation and discontinuous accumulation of knowledge?

To all appearances, an innovation-led economy can be seen as *an economy of discontinuously changing variety.* Its formalized description is troublesome so far, since traditional mathematical apparatus, used by economists, is not meant for such a variety but rather applies to uniformity of resources in terms of quality and to their certainty (scarcity) in terms of quantity. In other words, this apparatus is unsuitable for depicting TH-collaboration as means to harmonize

sophisticated production systems and to transform economic resources into a discontinuously changing variety of goods. In this situation, economic and social researchers try to disclose the synergy of TH innovation effects by drawing analogy with similarities in other sciences, particularly in biology, physics, and so on. Their findings tell that the appearance of new unique products, ideas or technologies is the result of combining resources in various changing configurations and that such a result requires a resonant tuning of minimum three system elements.

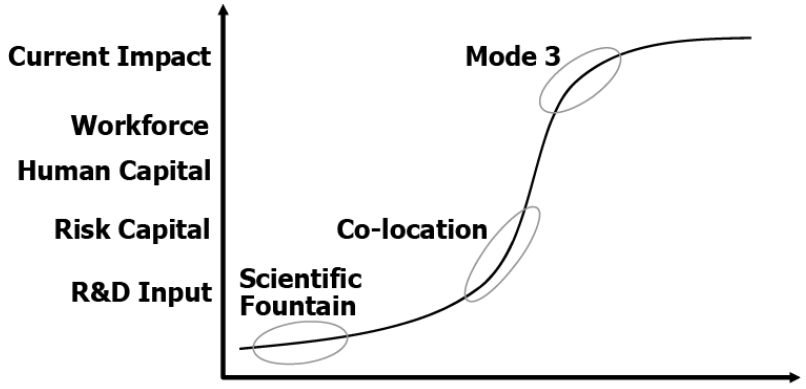
In particular, L. Leydesdorff, one of the authors of TH-concept, analyses its innovation-generating function from the point of communication theory (a section of information theory). He finds that innovations are initiated through network interactions of three or more system participants, each of which has its own set of resources and own development vector. The very course of interactions selects this or that configuration in combining resources, as well as this or that vector in the system movement, which altogether lower the level of uncertainty. In its turn, such selection generates the so called *configurational information*, or simply speaking, new knowledge that emerges under reconfiguration of resources. Discontinuous processes of selection and reconfiguration within a system give birth to discontinuous innovations, which enables the system to accumulate the knowledge base and, in this way, to successfully move ahead. Meanwhile, in order to achieve this ability, the system needs discontinuous coordination among participants, in the first place, among TH-actors, i.e. academia, companies and government (*Leydesdorff, 2008*).

More precisely, *TH-collaboration generates two interrelated economic effects in network-based systems*. On the one hand, it lowers the level of uncertainty, adapting the economic system and its actors to never-ending changes in the post-industrial environment. On the other hand, it enables them to continuously create new goods and knowledge. As a result, both the individual participants and the system as a whole can obtain that special synergy in upgrading competitiveness which is highlighted in M. Porter's cluster concept (*Porter, 2008; Ketels, 2009a).* Thanks to this synergy, countries and regions start to compete for speed in innovations (instead of traditional competition for volumes of resources), while their economies start growing in an innovation-driven manner, or just become really post-industrial.

3. TH-matrix is a driver of innovation clusters and innovation systems

No surprise then that TH-partnership is seen a basis for creating successful innovation clusters *(OECD, 2007).* According to H. Etzkowitz (*2008*), a mature cluster generates the knowledge, the consensus and the innovation spaces. Such spaces are shaped consequently, as an each next faze of knowledge capitalization, and actually they coincide with three stages of a cluster life cycle (Fig.3).

Fig.3. **Stages of an Innovation Cluster Life Cycle**



Source: Blank et al, 2006

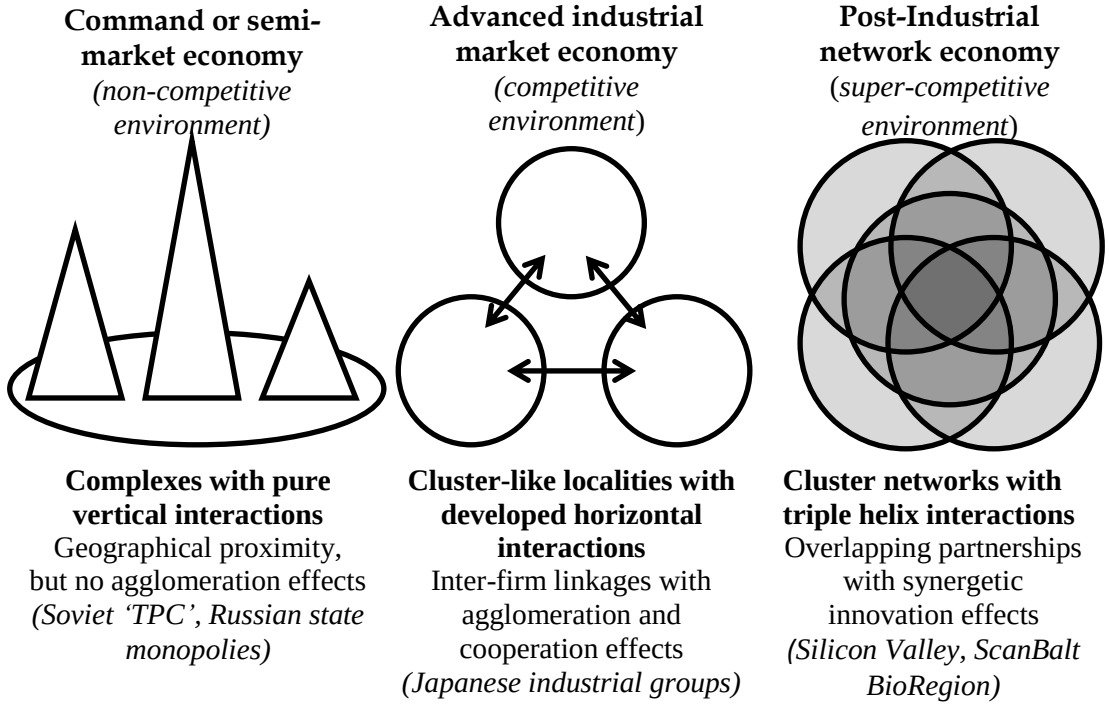
Formation of the knowledge space corresponds with the first stage, when a 'science fountain', or the core of a future cluster is generated. The consensus space is associated with co-location of companies around the core to form a cluster agglomeration. And the innovation space is

crystallized out at the mature stage, when cluster starts enjoying full-fledged TH-effects (in some countries this stage is called 'Mode 3'). As long as cluster is accumulating its maturity, innovation effects grow further, firstly to advance and finally to overweight pure agglomeration effects. At the mature stage all cluster participants achieve equal ability in generating innovations and obtain overlapping or hybrid functions (*Blank et al, 2006*).

Thanks to overlapping functional interactions cluster participants enjoy, both individually and collectively, special *synergy effects of upgrading competitiveness*, which just lay the foundation of M. Porter's *(1998)* cluster concept. While Porter's Diamond model highlights territories with successful clusters through evaluating their performance and level of competitiveness, TH-model, elaborated by Etzkowitz, considers institutional context for reaching this level. Thereby, *both models look complementary***,** describing innovation-led growth from opposite ends.

Let's now take a look at the institutional design of clusters. Fig.4 illustrates a striking difference between three types of agglomerations typical correspondingly for a command system, a developed market economy and a post-industrial system.

Fig. 4. **Agglomerations: reaching innovation synergy through changes in design**



Source: author's design based on institutional and cluster theories

A command system has no economic clusters. The Soviet-type territorial-industrial complexes ('TPC') were based on pure hierarchic interactions. Though they provided territorial proximity, their participants couldn't enjoy even agglomeration effects since the latter were locked-in by the cost-based model of growth and a lack of competition. Roughly a similar mode of functioning is typical for today's Russian state holding companies.

The developed market economy also has no real clusters. Meanwhile it generates cluster-like industrial agglomerations where legitimately independent companies can gain competitive advantages through enjoying cooperation and agglomeration effects. In industrial era, the largest advantages were seemingly obtained by Japanese financial-industrial groups due to their predominantly horizontal interlinkages. As known, it was the matter of design that had helped them to overplay American vertical holdings at the international markets of motor cars and electronics.

Real cluster networks appear just in post-industrial economy. They enjoy not only classical agglomeration effects but to a greater extent, integrated innovation effects. The today's mature

clusters (like, say, Silicon Valley in US or ScanBalt Bioregion in the Northern Europe) correspond to powerful post-industrial meta-regions, designed as 'networks of networks' (*Samuelsson, 2005).*

In our view, all modern economic clusters, regardless of their industrial profile, are institutionally innovation clusters which rely on discontinuous innovation. If such a discontinuity could not be found among the majority of agglomeration participants, the given agglomeration cannot be considered a cluster in a strict economic sense, according to M. Porter (*Porter, 1990).* And as shown in the recent paper by L. Leydesdorff (*2011*), the success of a cluster is provided by collaboration between its three typical participants at the minimum. Therefore, the main distinctive feature of a cluster among other agglomerations refers to *functional interrelationships of its participants* (and not to territorial proximity), as well as to enjoying *innovation effects* (and not just the agglomeration ones).

Noticeably, numerous attempts of different nations to reproduce the unique design of Silicon Valley by means of a development project had turned out a failure, since constructors lacked a clear theory on how to deliberately build successful clusters.[1] In the 00's, such kind of disappointment generated wide criticism of the whole cluster concept as such (see f.e. *Desrochers, 2009*), a situation associated in literature as 'the Porter paradox'.[2]

Simultaneously, the academic discussion on economic growth has faced with a controversy between adherents of Porter's competitiveness school, on one hand, and those ones of the new economic geography school, on the other. The first school focuses on "cluster-specific agglomeration effects", which implies that synergy effects in upgrading competitiveness of a national economy are achieved through its clusterization, or simply speaking, through enabling specialization of the regions and promoting their different economic activity profiles. The second school, associated with Paul Krugman's name, is against the very idea of clusterization (mostly due to policy risks of selective support of single regions) and prioritizes, instead, the promotion of all kinds of regional agglomerations, or 'economy-wide agglomeration affects'. However, as Christian Ketels fairly notes, while the dominance of one of the two effects over the other might depend on the type of a given economic system or on a given development course, there is significant evidence that cluster-wide agglomeration effects are getting more and more important as the knowledge-intensity of economic activities increases (*Ketels,2009b*).

Our own vision is that only upon assuming a cluster-based structure and TH-matrix, an economy gets capable of continuous renewal and starts compete for speed in innovations ((instead of traditional competition for resource volumes). Only then it can master an innovation-led growth, or become really post-industrial. Clusterization of a whole economy, be it local, national or global, moves it to a network order and generates *an-economy-wide synergy effect*, thus decreasing risks of external uncertainty and enhancing sustainability under any rapids. Perhaps, the very establishment of TH-institutional design makes 'cluster-specific agglomeration effects' looking more promising than traditional 'economy-wide agglomeration effects'.

An advanced *national innovation system* (NIS), meant for discontinuous innovation in the national economy, is also shaped in line with TH-matrix. Quite a few advanced economies could start to follow this line, while innovation systems of others just reflect the level of their general development. Several years ago the specialists from the Swedish Institute for Knowledge Economy and Development highlighted four different typical models of NIS among the countries of the

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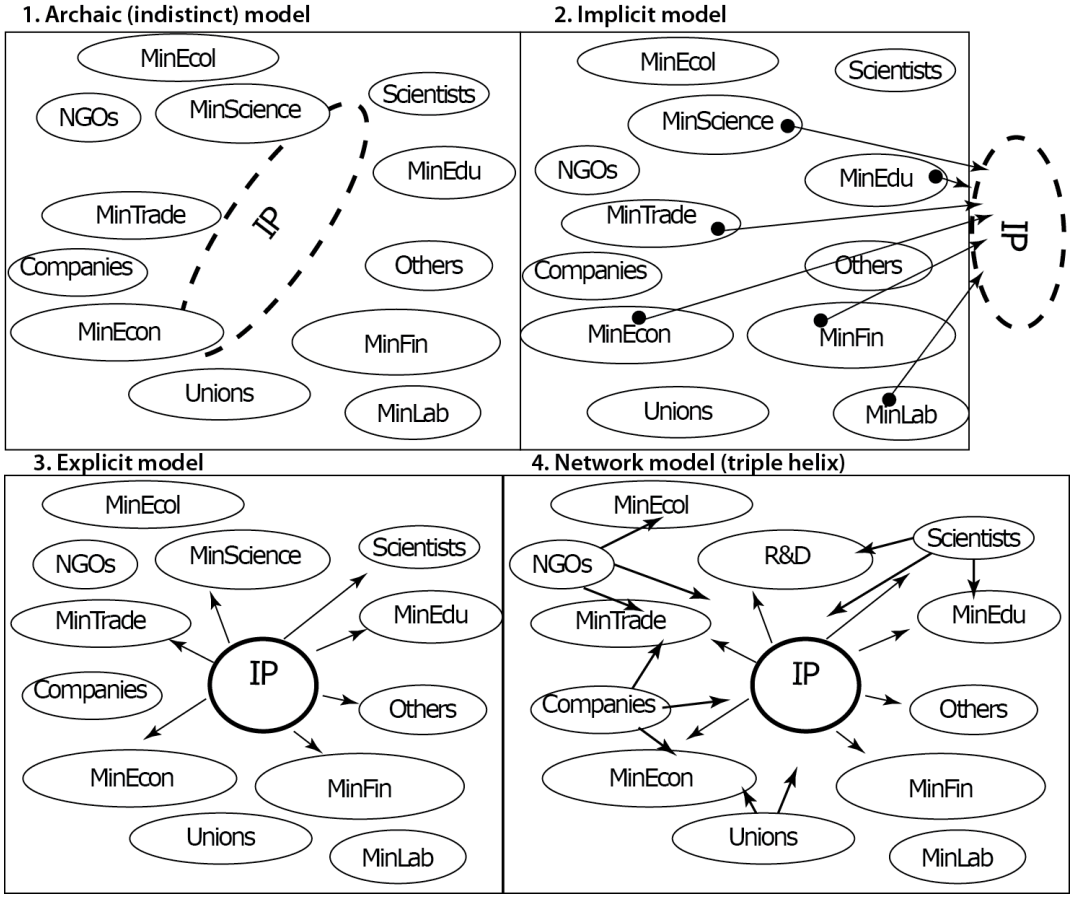
[1] As Professor Etzkowitz underlines, the success of Silicon Valley has been achieved not due to some single development program but thanks to activities of several network platforms that advanced the region's development by means of coordination, just creating a consensus space and realizing TH-idea *(Etzkowitz, 2008).*

[2] While in the 1990's Porter's first book on clusters ("The Competitive Advantage of Nations", 1990) offered them as a tool for scholarly analysis within the frames of the Diamond model, later on, in the 00's, many policymakers took the cluster idea out of this model (since it was better understood by them than the whole model) and made it a tool of practical policy, industrial, regional or innovation one. Meanwhile, the policy of how to construct clusters was not originally thought by Porter (*Solvell, 2009l*).

Baltic Sea Region. In the context of our analysis, this may serve as a good illustration of evolution of innovation systems in world practice towards TH-matrix (*Fig.5).*

Fig. 5. Evolution of National Innovation Systems towards TH-matrix



IP – innovation policy

Source: Andersson et al, 2004

The first model is *archaic*, rooted in industrial era. Here the responsibility for innovation policy is placed somewhere between the two or more ministries in charge of education, research or industry, so that it remains unclear who is responsible and for what. This model is typical for countries with serious economic fragmentation. Innovation policy in such countries, in Russia for instance, is vague and ineffective, and has little in common with discontinuous innovation. Some other countries apply *an implicit, or interdepartmental model*, where responsibilities of ministries are relatively more distributed and where such bodies start share a sense of partnership. However, the promotion of innovations remains an inward matter of concrete bureaucratic bodies which typically face a shortage of coordination.

A newer and generally more successful approach, which better answers post-industrial demands, is the third case, *an explicit model*. In this case innovation policy becomes a joint outward matter of several government entities, which implies their contacts with some other economic actors. This is still very far from coordination in a TH-way. But government bodies can participate on equal terms, exchange information openly, and coordinate their decisions and initiatives. Such practice may be typical for some advanced transition economies.

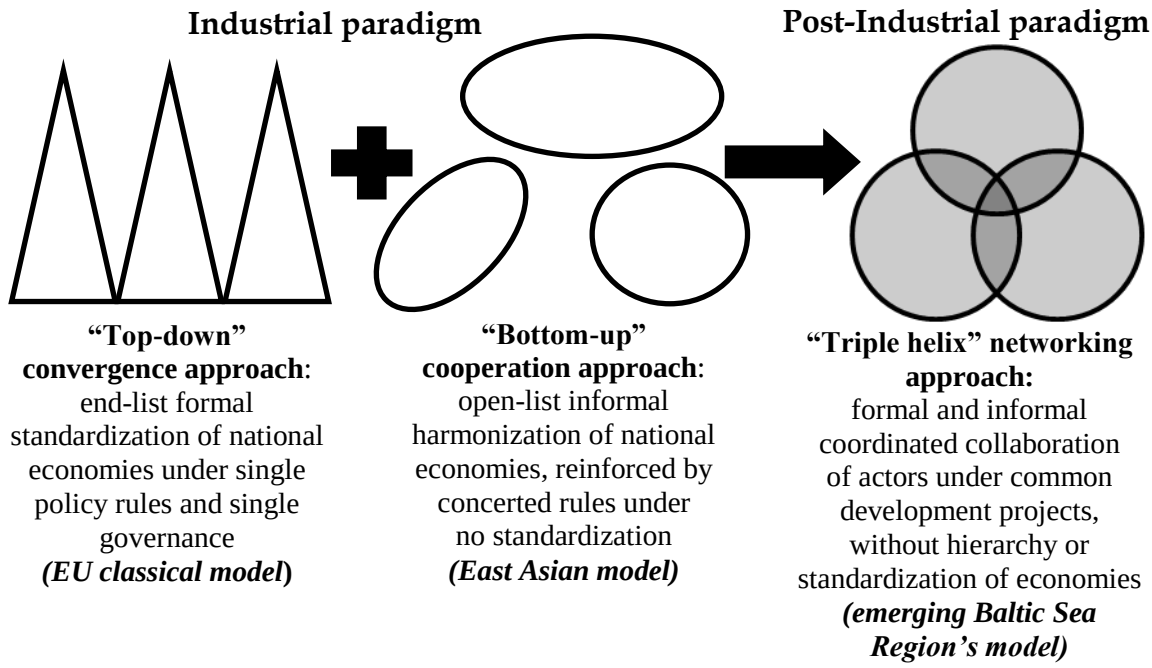
And the fourth variant, the *network model*, shows that contemporary innovation systems must be organized on a wide basis of collaboration between many national actors. This model not only brings together a variety of ministries, but also enables numerous relevant stakeholders function as a coordinated orchestra. This is an illustration of functional pluralism that helps to configure an effective innovation system and manage it in TH-way. This very model is now typical for

Scandinavian countries and is supposed to be spread across the Baltic Sea Region, to take its transition economies on board of advanced innovation policy-making.

4. TH-matrix is an advanced approach to economic integration

The ongoing desouvereignization is accompanied by the emergence of **network-based macroregions**. The brightest example is the Baltic Sea Region (BSR), uniting territories of 11 countries in the Baltic Rim, including four Nordic states, Iceland, three Baltic states, the North of Germany, the North of Poland and the predominant part of the Russian North-West. Upon Porter's advice *(2001*), the BSR has been enhancing competitiveness "via regional coordination" through numerous formal and informal platforms in a TH-manner, to generate the most advanced integration model in the world (*Smorodinskaya, 2010b*). Fig.6 illustrates a vivid discrepancy between the Region's innovation-oriented design and two other models of integration built in the EU and in East Asia correspondingly.

Fig.6. **Emanation of the Triple Helix Approach to Transnational Economic Integration**



Source: author's design based on OECD, 2002; Park & Kim, 2005; Dicken, 2007; BDF, 2010

The classical integration model of the EU was designed in industrial era and based on the idea of convergence of national economies through their standardization *(OECD, 2002)*. As well known, Europe has created a common market of 27 sovereign states under single policy rules (four market freedoms) and single supranational governance of European Council and its Commission. The EU relies on euro-centrism as a key consolidating principle, which implies a willingness of member-states to develop open, inclusive and integrating interactions with only those candidates that would accept the proposed common rules *(Emerson, 2005)*. Currently the EU is facing well-known disintegration risks, while its top-down approach to integration looks too rigid and too equalizing for the postindustrial world.

The East Asian model of integration rests on the opposite, 'bottom-up' approach. As a very inhomogeneous economic system, this region couldn't trace the EU way of standardization. Instead, it elaborated the concept of East Asian Community to shape its own, far less hierarchic model *(Vasiliev, 2010; Hellmann, 2007).* Informal harmonization of national economies (through spontaneous expansion of cluster networks around Japanese-based TNC) is combined here with serial intergovernmental agreements on devising noncontradictory, rather than single rules, which is treated as 'institution-led' integration (*Park & Kim, 2005*). East Asia and particularly the APEC member-states also follow the concept of open regionalism, which by contrast to euro-centrism proclaims open-list cooperation *(Dicken, 2007).* Actually, the region is developing a multifunctional cooperation model *(Munakata, 2006)* that seemingly tends to use advantages of various network interactions at all levels. However, according to Yuh Hasumi (Rissho University, Tokyo), the East Asian integration is currently lacking the demanded formal reinforcement, i.e. it needs some single policy rules and benchmarks which the EU, just to the opposite, applies in excess *(Hasumi, 2010).*

At this background, the Baltic Sea Region now enjoys the emerging of TH-design of integration based on 'coordinated collaboration' of different actors representing various decision levels and various social circles *(SoRR, 2010).* This model avoids any standardization of national economies. Instead, it relies on formal and informal coordination of economic policies in the course of implementing common development projects. Thereby, it looks as a hybrid that synthesizes advantages and eliminates shortcomings of the first two models.

The BSR has never enjoyed any single governance. Meanwhile, its territories have been consolidated over years through networking activities of over a hundred coordination centers, both formal and informal, which mostly have a mixed structure of participants (representing private companies, academy, government bodies and NGO) that share common vision and work as the equal right partners *(Smorodinskaya, 2011b).* This design of multilateral cooperation has been shaped not by the dynamism of local markets but rather by the powerful political drive of local elites towards the Region's integration which is regarded as a single way of its survival under the global competition.[3] The key guiding role in advancing integration is played by the Baltic Development Forum (BDF), the most powerful regional informal network for decision-makers,[4] which concentrates its efforts on towards making the Region a highly integrated postindustrial growth pole of a global level. Remarkably, this goal is planned to be achieved, along with other factors, by strengthening TH-interactions *(SoRR, 2008).*

In November 2009, the EU launched a unique development strategy - *The EU Strategy for the Baltic Sea Region,* which integrates all issues of enhancing the Region's competitiveness into a single Action Plan guided by the European Commission. The Plan is also meant to streamline the Region's multilevel interlinkages, and in this way, to push its integration along the TH-collaboration trajectory. What is of special interest, the Plan itself is structured in TH-logic: the Region is expected to master a fundamentally new kind of common project management, associated with synchronization of different policy measures and even of national economic courses (*Lindholm, 2010).*

In particular, the Plan outlines four thematic development issues of the BSR (ecology, economy, investment attractiveness and security), which cover 15 Priority Areas that are

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[3] In terms of global economic competitiveness, the local elites see the Region's vulnerability factors as relatively small size of its GDP (as compared to other world centers), the lack of its clear political identity, its high dependency on the markets of 'continental' Europe, as well serious divergence of its territories in the level of development *(SoRR, 2008).*

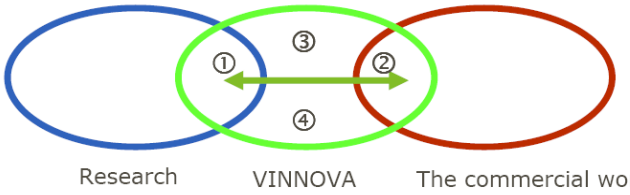
[4] Baltic Development Forum, established in 1992, unites transregional networks of the leading political, business, academic and media circles. Since 1999, it conducts annual summits, a kind of North-European Davos. Since 2004, the summits regularly discuss annual State of the Region reports prepared by Christian Ketels and his colleagues from Harvard Business School.

distributed, in their turn, between 80 large transnational flagman projects dealing with concrete fields of common activity (energy, transport, environment, innovation clusters, research, tourism, etc). All this bulk of overlapping projects, as well as relevant programs and actions of the Strategy, must be operated and interactively harmonized by a large set of coordinating centers that would act as 'agents for collaboration' regarding terms of the projects, their funding, objections and the creation of relevant network partnerships *(SoRR, 2010*). The network of agents includes a wide range of entities from all participating countries at the level of government, municipalities, business, academy and NGOs.

To all appearances, such unique design of implementing the Strategy is a logical extension of the Region's own successful experience of applying TH-approach to managing trans-regional cooperation projects. Particularly, this was done in 2006-2009 within the frames of the joint research project on consolidation of national innovation systems and the development of trans-Baltic innovation clusters. The project called "Baltic Sea Region Innovation Network" (BSR InnoNet) was coordinated by the Nordic Innovation Centre, with all its participants from different countries divided into three interacting working groups – practitioners (innovation companies), government agencies (dealing with innovations) and researchers *(Nordic Innovation Centre, 2008).* Today, the concrete findings and recommendations of the Project have laid the foundation of the flagman project No1 of the EU Strategy for the BSR (on developing innovations, clusters and SME), which is coordinated by Swedish government agency for innovation systems VINNOVA in company with Lithuanian Ministry of Science *(SoRR, 2010).*

Basically, in the Nordic countries, which are the universally recognized technological leaders, government bodies directly connect their contribution to the Region's sustainable development with TH-idea. VINNOVA is a typical case here *(Fig.7).*

Fig.7. **VINNOVA's Mission in the Baltic Sea Region: Sustainable Growth through Research and Innovation**



1. Support the creation of new market-inspired research results
2. Support the adaption of R&D-results for commercial exploitation
3. Support the creation of "bridge heads" on the market for research based innovations
4. Stimulate the creation of **networks between academia, industry and public organizations**

Source: Edlund, 2009.

Upon adopting the Strategy, the European Commission has implicitly recognized the political identity of the BSR through offering it the official status of a 'macroregion'. This status helps the Region to better rely on synergy effects in an attempt to consolidate its highly segmented economic space. TH-interactions, as stipulated by the Action Plan, are expected to generate such effects, and thereby, to open a more rapid way of removing disbalances between the Region's national economies in terms of development level and industrial structure.

Basically, the idea of synergism, in its different versions, is now becoming more and more popular among the EU integration policies (*Emerson, 2009).* No wonder that the Strategy directly treats the BSR as a test-case for applying a new, *macroregional approach to euro-integration,*

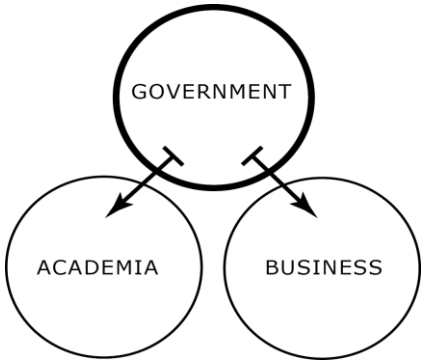
which could become a promising alternative to rigid euro-centrism. If 'coordinated collaboration' in the BSR advances successfully, the European Commission will regard the case as a sample of the best integration practice to be applied in the sequel by the countries of the Danube basin, the Mediterranean countries and other similar macroregions within the EU *(Lindholm, 2010).* In much the same way, the Commission sees the BSR a testing ground for the whole of Europe in terms of developing transnational innovation clusters and creating a single European knowledge market (*Lindholm, 2009).*

The first-year results of implementing the EU Strategy for the BSR look promising (*Hahn, 2010).* The very interconnection of numerous concrete projects encourages actors of different nations and of various strata to busily go on with networking for a coordinated action. And this powerful drive for intensive cooperation has seemingly 'overplayed' the downturns brought to the Region by the global recession and in a way, cushioned the crisis blows. Neither the recession itself, nor the related financial constrains could stop or slow the implementation of the Action Plan. On the contrary, the regional actors have revealed a growing interest to participate in its projects (*SoRR, 2010).* Overall, the countries in the BSR have managed to better oppose the crisis and at least to start a more rapid economic recovery than other nations are now doing.[5] In our opinion, the Region's networking climate has much contributed to that outcome.

6. TH-matrix is a difficult challenge for Russia

Mastering TH-interactions is a common challenge for all types of economic systems, which demands them for comprehensive restructuring, making a kind of 'transition economies' *(Etzkowitz, 2008).* For Russia this challenge is especially difficult since she still relies on vertical interactions and lacks a systemic approach to modernization. By the moment, Russia hasn't yet developed full-fledged double helices with a necessary feedback *(Fig.8).*

Fig.8. **Russia's diversity with full-fledged Triple Helix matrix**



Source: Designed from Dejina & Kiseleva, 2008

In terms of internal social coordination the Russian economy still remains a quasi-market system with predominantly one-with-one interactions, where government bodies are an indispensable participant. Academia and companies are not interacting directly but only through intermediary of bureaucrats. And the latter, while formulating important policy decisions in the field of innovation development, are not responsible to those for whom they are assigned (*Dejina & Kiseleva, 2008).* In most cases the nature of interactions resembles vertical subordination. Though

[5] In 2009, BSR had experienced a quick return of business activity to the pre-crisis level of mid-2008, and some BSR's states, Sweden for instance, were even enjoying record growth rates, considerably higher than the EU as a whole could achieve *(Kiander, 2010).* In the nearest future, the BSR's economies are expected to rapidly recover to pre-crisis levels and grow at rates that would be again significantly above those in North America (NAFTA) or in Western Europe (EU-15) *(SoRR, 2010).*

some bottom-up drive towards self-organization and developing informal institutions could be traced in Russian society *(Dolgin, 2011)*

Anyway, Russia suffers from high social dissociation and low level of trust, a situation which institutionally locks-in any innovations and any attempts to diversify the economy. The same factor hampers the advance of even vital social reforms (in the sphere of medical care, HCS, pensions, etc.). No wonder then that official efforts to launch cluster initiatives in Russia (*MED, 2010*) just repeat the sad story with special economic zones in this country, instead of enabling TH-collaboration *(Smorodinskaya, 2011c).*

However, the global transition to a cluster-based economy and a network society is not only a challenge but also a chance. It moves economies to *fractal-type mode of growth*, which permits them to develop in leaps omitting previous evolution stages. Nowadays, any lagging economy may in discrete steps update not just the vector but also the level of development if it only succeeds *to resonate the new network order*. We mean Schumpeter's imitation effect and the idea of 'institutional embeddedness' *(Beerkens, 2004)*. Particularly, if Russia could start following the global transition logic and tuning its policies to TH-matrix, she would get a promising opportunity for economic breakthrough even under the unaccomplished industrialization and market modernization fazes *(Smorodinskaya, 2011a).* Global recession opens a wide cyclical window to realize this chance.

Instead of prioritizing concrete technologies, industries and companies, Russia should follow Porter's advice of adopting a cluster-based approach to economic development *(Porter, 2003).* In practice, this could be close to what Japan or South Korea are now doing, upon adopting a bottom-up version of industrial policy (structural reforms are elaborated and implemented at the level of liberalized regions through their unleashed initiatives and TH-partnerships), which makes a contrast to its traditional top-down version, successfully implemented by both countries several decades ago.

Another recommendation for Russia relates to the concept of 'institutionally learning economy' (*Lundvall, 1998).* We find the best way of its realization in developing *multilevel cooperation with the Baltic Sea Region* as the emerging post-industrial growth pole and a model network region for Europe (*Smorodinskaya, 2010b).*

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