

Peer Review

Hajdú-Bihar/Debrecen

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Introduction: Transformation of national cluster policy in Hungary towards sectoral and national concentration

Hungary is going through a period of radical political change. In the area of regional/industrial/innovation policies many changes are underway. Most importantly, the national level is taking a much stronger hold on these policies across the country. After the abolition of the regional administrative structure in Hungary, the County-level government has absorbed the responsibilities for regional development. There is a strong shift in policy towards increased R&D – from “made in Hungary” to “invented in Hungary” – both at national and County-level.

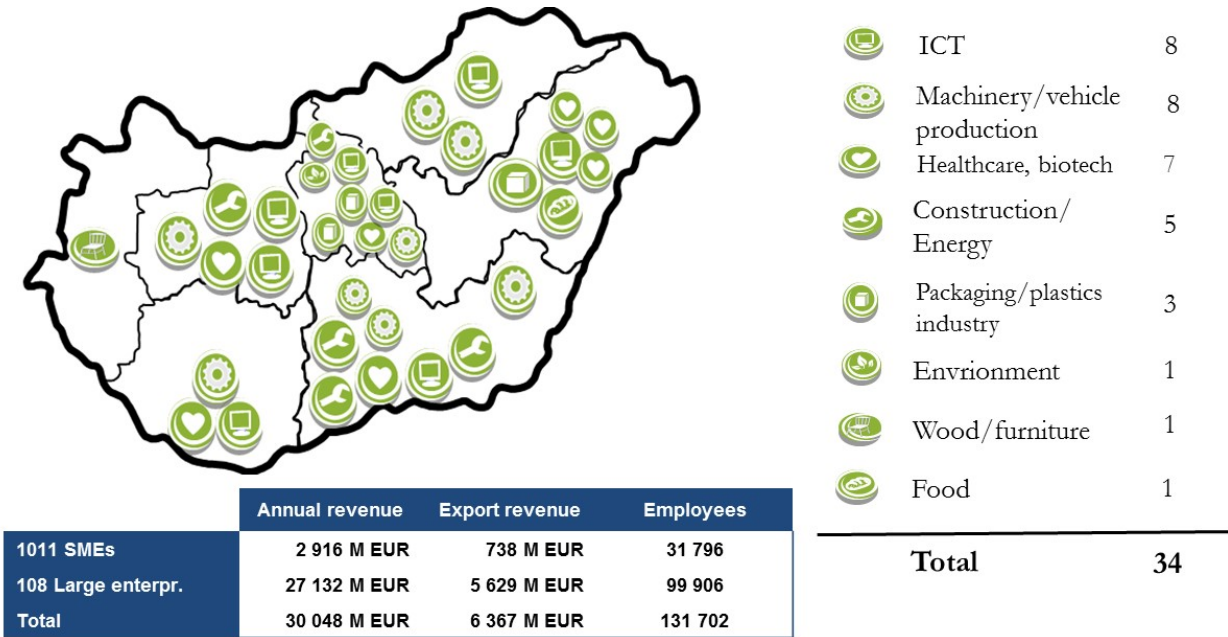
Policies around the concepts of smart specialization and clusters follow different tracks, where cluster policy plays the lead role. Hungary had an early cluster policy, which after a short break was renewed in 2014. Even though both cluster programs have a strong focus on accreditation by the state, the first program (launched in 2000) had a strong subsidy focus, while the second program (approved in 2014) is much more competitive. Both rounds of cluster support in Hungary discriminate between three levels of accreditation: Start-up cooperation, Developing clusters and Accredited clusters. The most recent data indicates that in Hungary there are 34 accredited clusters, 7 active developing and non-accredited clusters, and 42 registered start-up cooperations.

The coming 2-3 years will mean a stronger focus on organized clusters with a national focus, as well as with regional strongholds. Thus, cluster policy will tend to be more of sectoral policy for the nation, with some 15 – 20 large cluster organizations across prioritized sectors (instead of the large number of clusters today). Graph 1 give details of the distribution of accredited clusters in Hungary across priority sectors. The change in policy is expected to drive closure of cluster organizations and more importantly merger of cluster organizations within the sectors. The idea is to gain “critical mass” with around 100 members in each cluster.

One of the challenges in this process is that the past efforts to enhance the professionalization of cluster management have created incentives to limit cluster growth by member firms and hence, constraining cluster dynamics.

There are advantages of large size (global visibility, R&D capacity, avoiding duplication of efforts and so on) but also drawback in terms of the strength of active engagement at the city/regional level. Cluster management (CM) will have to change in many ways: the CM has to coordinate over the national territory, the group of firms will be much larger and more top-down composed which will lower trust, and the least common denominator where every member share the same interests will be much smaller.

Graph 1: Accredited Clusters at the end of 2007-13 period



Source: Peter Keller (2016).

The cluster concept had partly lost in legitimacy with the old program (with firms “stealing” money from the state), but now clusters are seen as good tools for innovation and economic development.

At present the *Cluster Policy Framework* is managed by the Cluster Development Office at the Hungarian Ministry for National Economy.

Under the New economic development plan for Hungary (Széchenyi 2020), there are three Operational Programmes that support the implementation of the Hungarian cluster policy: *Economic Development and Innovation Operational Programme* (EDIOP), *Competitive Central-Hungary Operational Programme*, and *Territorial Operational Programme* (TOP).

The County development concept in Hungary has been introduced since 2012 and the abolition of regional authorities. The smart specialization strategy (S3) has been developed in 2014 with the vision of county development of 19 County micro-regions and a new Managing authority at a national level - the foundation of the National Office for Research, Development and Innovation. The implementation of the S3 is a responsibility of an independent office, which is outside of the Ministry of National

Economy, managing the implementation of the Hungarian Industry Strategy, aiming to reindustrialize the country. As a result of this, the financing of the implementation of Clusters and SME support policies and the implementation of the research and Innovation and S3 policies takes place under two separate arms of the EDI-OP with limited overlap. The co-alignment of S3 strategy with the Operational Programmes is achieved through the horizontal-approach measures concerning research, development and innovation (RDI). The Hungarian government is strengthening the connections between the Horizon 2020 Framework Programme and the National Smart Specialisation Strategy, with clusters playing a limited role.

Key policy documents include: 1) National Smart Specialization Strategy, 2) “Investment in the future” – National research, development and innovation strategy 2020; 3) National Science Policy Strategy 2020; 4) ICT strategy.

Under the S3, Hungary has selected 8 prioritized sectors: Advanced technologies in the vehicle and other machine industries; ICT and information services; Sustainable environment; Agricultural innovation; Clean and renewable energies; Healthy society and wellbeing; Inclusive and sustainable society; and Healthy local food.

The Territory

The region in question is a mix of a relatively large city, Debrecen, and a hinterland that is mostly rural and based on traditional agricultural production. The city is the second largest city in Hungary and has a proud history of knowledge production and industrial linkages particularly to pharmaceuticals and health sciences (including thermal health/spa). Another area of regional strength is the Food processing industry. The university of Debrecen plays a crucial role in building innovative clusters in the region, around the areas of strength. The university is the organizer of four clusters organizations (see below).

The region is a “moderate innovator” and the ranking is stable. Strengths include: 1) Exports of medium and high tech products, 2) Non-R&D innovation expenditures, and 3) Business R&D expenditures.

Hungary is a rather small country where the Capital city plays a very dominating role. In terms of multi-level governance, after the closure of the Hungarian regional level of government (NUTS 2 level), the County-level government and institutions have absorbed the responsibilities for regional development. Both the County government of Hajdú-Bihar and the Debrecen City government are constituted of elected and appointed professional administrators, and the financing of activities is significantly channeled through national and European development projects, where competitive tenders create competition across levels of government.

The peer review was organized by the County Government of Hajdú-Bihar, and although the city of Debrecen hosts most of the economic activities of the County, the City government was not involved in the peer review. As one of the 19 County governments in Hungary, the Hajdú-Bihar County Government is responsible for:

- planning procedures, implementation and monitoring of regional development
- planning and implementation of the *Territorial and Settlement Development Operational Programme*
- Rural development
- Sports, youth, culture and minority issues
- SME support programme across the county

The County Government has no tradition in innovation policy and limited capabilities and recourses to implement cluster and smart specialization policy. International networks are weak and the web page of the County is only in Hungarian. Still, the few staff working with these programs showed very good capacity, energy and a will for the County Government to develop an important role within this new field of policymaking.

Key Regional Actors include:

- County government
- City government (not involved in Peer Review)
- Regional Innovation Agency (INNOVA)
- Regional Economic Development Agency
- Regional Chamber of Commerce
- Regional Chamber of Agriculture (not involved in Peer Review)
- Cluster Organisations (total of 4)
- Free Entrepreneurial Zones (not involved in Peer Review)
- Industrial and Science and Technology Parks (total of 12, not involved in Peer Review)
- Special organisations such as the DBH Group (physical infrastructure and SME support, not involved in Peer Review) and the Xanga Investment & Development Group (not involved in Peer Review)
- The university of Debrecen

To strengthen the innovative ecosystem of the city and region, we propose that the regional leadership takes on a role of creating bridges (and traffic!) across regional stakeholders. A first group has been set up (around the TCI/Interreg Peer Review process,) and other groups should be formed around various topics. This will help the regional actors (individuals) to get knowledge about other actors in the region, build increased trust across actors, and build networks that can leverage future regional policy initiatives. Today such professional networks, cutting across “silos” in the region, do not exist so they have to be constructed. A starting point can be to leverage the strong existing social networks in the fields of sports, hunting etc. where there is a high level of trust already. The existing cluster organisations also offer a platform, particularly when building bridges between the science world (university and free-standing laboratories) and the business world.

Economic growth context

The Hajdú-Bihar County (HU321 - NUTS level 3) has been previously involved in regional development and territorial cooperation programme (HU-RO CBC 2007-2013), which is extended under Interreg V-for the period 2015-2020. The programme involves the 4 Hungarian and 4 Romanian border regions – as a contribution to the Union

strategy for smart, sustainable and inclusive growth, and to the achievement of economic, social and territorial cohesion. The analysis of the county as part of the first territorial cooperation highlights the following facts:

- Shared minority population across the border (between 0-1% Romanian population in Hungary and between 5-33% of Hungarian minority population in Romania);
- Significant Roma population in both parts of the cooperating regions (with some villages in Hajdú-Bihar that are occupied entirely by Roma);
- The labour market data show a reverse of the negative trend of economically active population, which started to increase since 2013, following a declining trend since 2001;
- The unemployment rate also has improved since 2013 – declining from 11.2% (2012) to 6.2% (2016). Most of the unemployed belong to the age group between 25 and 29 which represents a structural unemployment of low skill and low educated labour force;
- The area is rich in water resources – both surface water and groundwater, including thermal and mineral resources.

The region hosts 5 of the 33 accredited clusters in Hungary, namely:

- MSE Hungarian Sport & lifestyle Development Cluster (established in 2011),
- Pharmapolis Debrecen Innovative Pharmaceutical Cluster (established 2008),
- Pharmapolis Innovative Food Cluster (established 2008),
- Silicon Field regional IT Cluster (established 2008),
- Thermal Health Industrial Cluster (established 2010).

R&D context

The Research Development and Innovation (R&D&I) policy framework is centralised at national level under the National Research, Development and Innovation Office which overlooks the implementation process for both the National Research, Development and Innovation Strategy (2013-2020) and the Smart Specialisation Strategy, both of which are integrated in the *New Széchenyi Plan* (the Hungarian national strategic reference framework).

The National Research, Development and Innovation Office is responsible for the strategy development, public consultation and implementation of these strategic documents. It utilises a network of regional innovation and development agencies across the country, which is currently in transition as the agencies were set at regional level, and now they are transforming activities at county level.

Hajdú-Bihar is represented by the INNOVA Regional Development and Innovation Agency, which was mobilised for the Peer Review. The agency has new staff, but old legacy for managing innovation projects under FP6, FP7, CIP, INTERREG and Visegrad Fund projects. The agency supports the companies located in the region to access funds under Horizon2020. The agency offers a wide range of services for project and programme grant applications.

The territory of Hajdú-Bihar hosts one of the largest higher education providers in the wider region - The University of Debrecen – with 30,000 students and 14 Faculties, and cluster hub for the leading innovation clusters at county level. The county has a large number of R&D personnel employed (2nd in Hungary from all counties in number of FTE researchers (1,886 for totally 3,873 people). It offers an excellent R&D resource to capitalize on. At the same time, the education attainment continues to decline across all levels of primary, secondary and tertiary education, with the sharpest rate of decline for primary schooling.

Hajdú-Bihar is in 3rd place from the 19 counties in Hungary in terms of R&D expenditure, and number of R&D units (217). A number of industrial parks and facilities are underutilised. Facilities around Debrecen are better performing, with high occupancy rate. The currently operating incubators mainly attract start-up enterprises; on the other hand, there is a lack of business incubators that could actually support technology transfer processes and help the technology development of small and medium-sized enterprises (SME). The effect of the active performance of the University of Debrecen as a lead entrepreneurial university, creating innovative clusters and knowledge transfer zones is already visible.

Cluster Policy

Design and deployment of cluster policy

The Hungarian cluster initiatives are dated back to 2000 – when the first cluster was established in Hungary – the Pannon Automotive Cluster (PANAC) – with the involvement of the three major Hungarian-based car manufacturers (Suzuki, GM, Audi) and more than 50 SMEs. During the first three years the Hungarian Ministry of the Economy distributed grants from domestic funds for the set-up and operation of cluster management organizations as part of the Széchenyi Plan. The same process continued during the period of 2004-2006 with grants from Structural Funds for the set-up of clusters and for cluster activities. As a result of these initiatives, by 2007 there were 50 clusters or cluster initiatives recognised in Hungary.

Cluster concept definition

During the EU programming period of 2007-2013 a more clear cluster policy framework was developed with a clear cluster concept definition and a cluster accreditation 3-stage development model. This established the foundations of a long-term and consistent cluster policy framework.

Cluster diagnosis / re-mapping

During the 2007-2013 EU programming period there were two rounds of call for cluster proposals, which resulted in the formal registration of 177 cluster partnerships receiving start-up financial support, 41 of which reached a Developing cluster status and 34 received a formal accreditation.

Due to the significant number of inactive clusters, the Government launched a second cluster initiative as part of the Operational programme for 2014-2020. According to the

new cluster policy framework, financial support is given only to professional clusters (Developing and Accredited clusters), whereas start-ups may receive a limited mentoring support. Developing clusters receive financial support for management activities, while the Accredited clusters receive financial support for management, SME development, joint R&D&I projects, ICT development, and internationalisation projects.

The revised call for the award of the accreditation title is open from August 2016 and contains 16 criteria, including: *Cooperation inside the cluster; Cluster management and the composition of the cluster; International focus of the cluster; Innovation potential and performance; and Cluster strategy.*

Currently there are no initiatives for re-mapping, but there are discussions towards mergers and sectoral consolidation across the number of clusters with the purpose to reinforce industrial strengths.

Implementation of cluster policy through specific support instruments and programmes

The new cluster policy framework aims to achieve a concentration of accredited clusters by assisting sectoral mergers of cluster, increasing the average number of cluster members (40 → 100), supporting further professionalisation of cluster management through high levels of value-added services, such as incubation and mentoring, and enhancing clusters by including the most relevant players of the value chain.

The operational programme that supports cluster development is focused on implementing market oriented projects, supporting higher international visibility and using the launch of the Industry 4.0 thematic priority to enhance solutions by cluster members, and to facilitate an increasing number of participation in successful international partnerships (Horizon2020, COSME, or INTERREG EUROPE).

Identified weaknesses include:

- Lack of national framework: cluster policy/strategy is missing
- Expectations of decision makers are not clearly defined
- SMEs have limited participation in the innovation chain
- Lack of professional workforce in innovation sectors
- Lack of trust between business actors as well as across to policymakers
- Lack of engagement

There is also a recognised need to develop new tools and policy instruments for measuring the intensity of co-operation inside the cluster, for the internationalization of clusters and for enhanced value added from cluster management.

We see a quite clear strategy regarding clusters moving towards fewer and larger organizations with a sector-wide and nation-wide mandate.

Cluster Organization Ecosystem

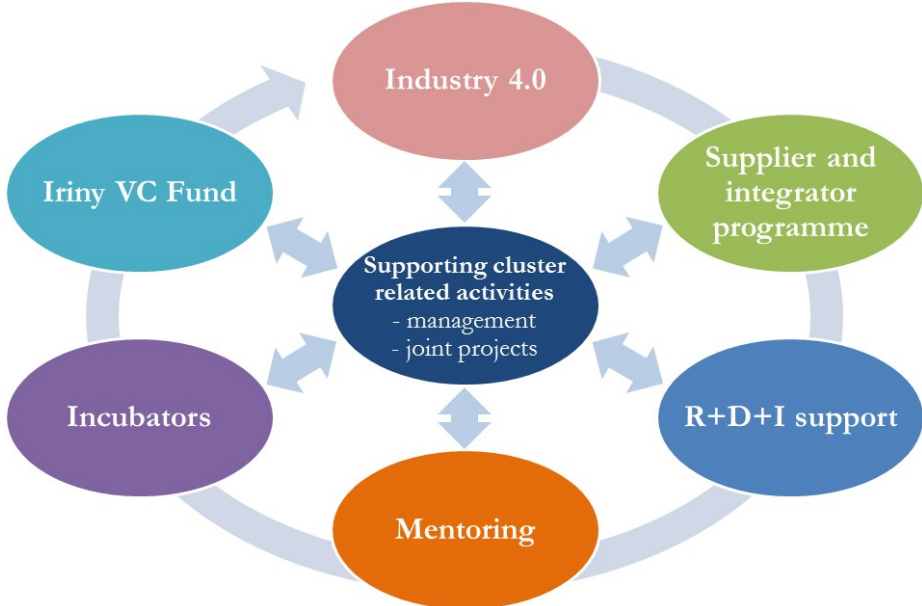
The cluster ecosystem is very much under the leadership of the Ministry for National Economy and linked to the implementation of their *Industry Strategy for Hungary*. Five clusters in Hajdú-Bihar were included in the European Cluster Excellence Initiative (ECEI) between 2014-2016, in partnership with the Regional Financial and Development Agency of Piedmont Region (Italy), the Regional Development Agency of La Rioja Region (Spain) and the Slovak Innovation and Energy Agency (Slovak Republic). These are:

- Pharmapolis Debrecen Innovative Pharmaceutical Cluster, established by the University of Debrecen in 2008 and awarded a Bronze label from ESCA;
- MSE Hungarian Sport & Lifestyle Development Cluster, established by the University of Debrecen in 2011, awarded a Bronze label from ESCA;
- Pharmapolis Innovative Food Cluster, established in 2008 with 77 members 2008 and awarded a Bronze label from ESCA;
- Silicon Field Regional IT Cluster, established in 2008 with 40 members;
- Thermal- Health Industrial Cluster, established in 2010 with 45 members.

These clusters are internationally recognised and demonstrate cross-sector cluster cooperation with effective professional cluster associations.

All clusters have access to a variety of cluster support instruments, operational at national level.

Graph 2: Supporting Cluster Related Activities and its Ecosystem



Source: Peter Keller (2016).

All clusters are focused on R&D and innovation. However, they need to step up to commercialization of products and services to initiate job creation and economic growth.

Accreditation systems do have a strong effect on what cluster organisations look like and their activities.

Our hosts had identified some issues related to the clusters:

- lack of cluster management experience
- lack of trust – difficulties in cross-cluster collaborations
- bad experience of former supporting mechanism
- accreditation needs renewal

Monitoring and Evaluation

There are 13 evaluation criteria used for monitoring accredited cluster during their application for re-accreditation. These are:

- 1) None of the cluster members has a majority interest in the cluster management organisation (CMO).
- 2) The cluster is managed by the current CMO at least for 1 year.
- 3) The cluster has a multilingual webpage with relevant information on its operation, services, members etc.
- 4) The CMO has no membership in other clusters.
- 5) The CMO should prove that in the past 2 years membership fees have been paid by at least 80% of all cluster members. The amount of the membership fee should reach HUF 25,000 (ca. EUR 80) per month per cluster member.
- 6) Clusters should have a proven track record of 3 years.
- 7) Clusters should have minimum 20 members out of which minimum 15 have its membership at least for 2 years.
- 8) None of any cluster members has a membership in more than 2 different Accredited Clusters.
- 9) Proportion of SME members should exceed 75%.
- 10) The added value per capita* of the SME members should exceed EUR 10,000 in average.
- 11) Minimum one submitted proposal to international programmes since obtaining the last accreditation title.
- 12) Representation of the cluster on at least 1 international exhibition, fair, workshop in the past.
- 13) Realization of at least 1 innovation project by the cluster members which has generated at least EUR 160,000 net revenue since obtaining the last accreditation title.

Territorial RIS3

RIS3 strategic areas

The basis of regional policy in Hungary is formed by the industry and service sectors, which are competitive at an international level, embedded into the regional economic system and the diversified spatial structure.

As there are very large regional differences in respect of the industry and service platforms, with global innovation and technological connections, the regional innovation strategy ensures that there is a spillover effect from more developed regions that generate growth to underdeveloped areas. The current cluster programme does not affect this process.

The process of the design of the Hungarian national smart specialisation strategy involve the following levels of working groups – sectoral, county (NUTS3), regional (NUTS2) and national level steering board – co-aligned with the RDI strategy. The Hungarian government has classified all counties in three categories – according to the structure of their economy and their capacity to innovate. Hajdú-Bihar is categorised as a knowledge intensive region with strong industrial production zones and a high potential for growth. It is one of the top 5 knowledge regions alongside Budapest, Baranya, Csongrád County and Veszprém County.

Hajdú-Bihar has capabilities in four of the five national priority sectors that are embedded in the RIS3: Healthy society and wellbeing, Clean and renewable energies, Sustainable environment and Healthy local food, and Agricultural innovation, including the horizontal priority of ICT services. The Hajdú-Bihar county hosts the following smart technologies – photonics and laser technology, special materials, advanced materials, modern materials technologies and electronics and semiconductor technology. With its strong agro-farming background the region is suitable for accelerating into a high-tech farming sector.

RIS3 implementation governance

The administrative bodies responsible for the implementation of the S3 strategy include the Prime Minister's Office, the Ministry for the National Economy and the Ministry of Human Capacities, as well as the Managing Authorities of 5 distinctive Operational Programmes.

Funding

The implementation of S3 is funded by the following Operational Programmes:

- Economic Development and Innovation Operational Programme (EDIOP)
- Competitive Central Hungary Operational Programme (CCHOP)
- Human Resources Development Operational Programme (HRDOP)
- Rural Development Programme (RDP)
- Hungarian Fisheries Operational Programme (HFOP)

The intersection between the implementation of the Hungarian Cluster policy and their S3 strategy is only through a small segment of the Economic Development and Innovation Operational Programme (EDIOP) and Competitive Central Hungary Operational Programme (CCHOP) – responsible for the support to clusters and SMEs – for enhanced competitiveness and internationalisation.

Cluster associations in RIS3

Currently Cluster associations and cluster managers in Hajdú-Bihar are not focused on the implementation of any national policies and strategies. The strategic operations of clusters are driven primarily by the accreditation system and their lead founding institutions.

Development of cluster policy and alignment with RIS3

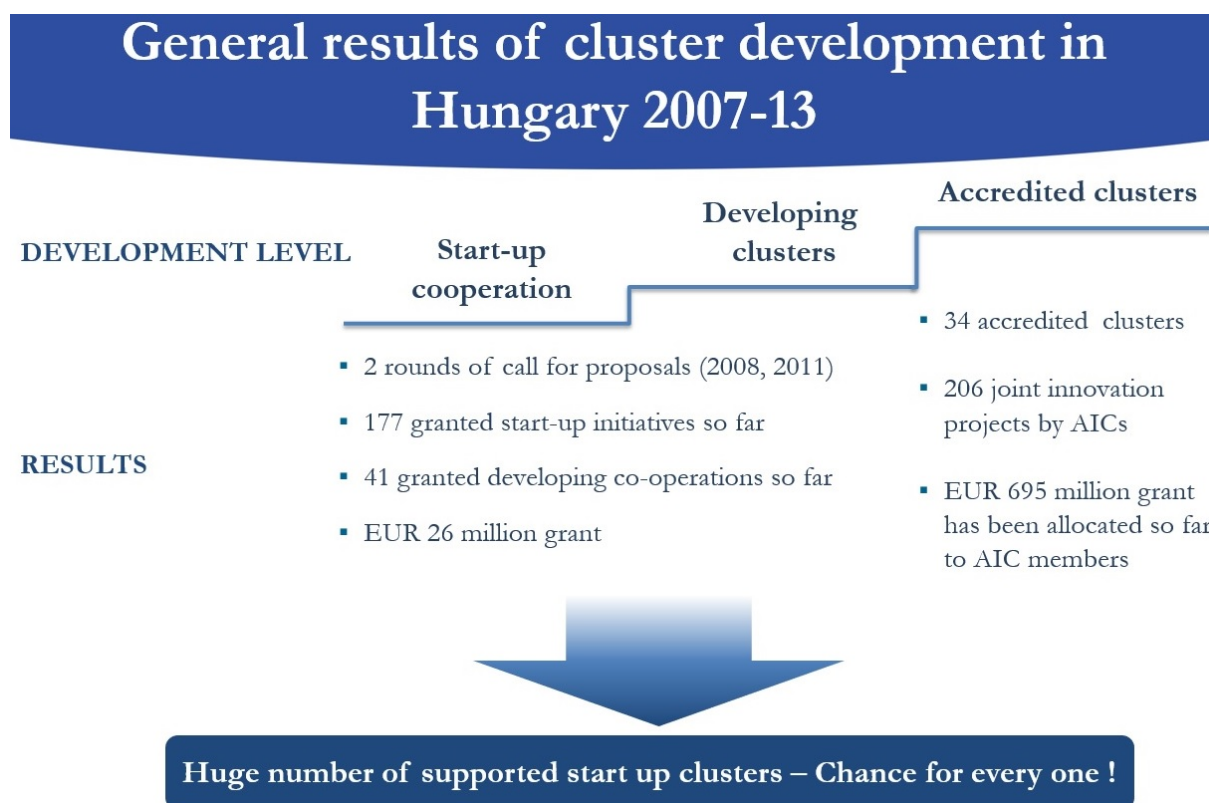
There are significant institutional boundaries for the co-alignment of cluster policies and RIS3, and the local actors are following primarily project and programme funding initiatives. Companies cannot connect directly but through the regional organization.

Good Practices

The presentations at the peer review and the shared documents from the Hajdú-Bihar partners illuminate a number of good practices that can be replicated in particular among less developed regions in Europe.

The Cluster Policy Framework in Hungary is well established and mature – run by a specialised agency at the Ministry of the Economy, responsible for international and cluster development. Graph 3 describes the breadth and scope of cluster support for the period 2007-2013.

Graph 3: Cluster Development Support in Hungary (2007-2013)



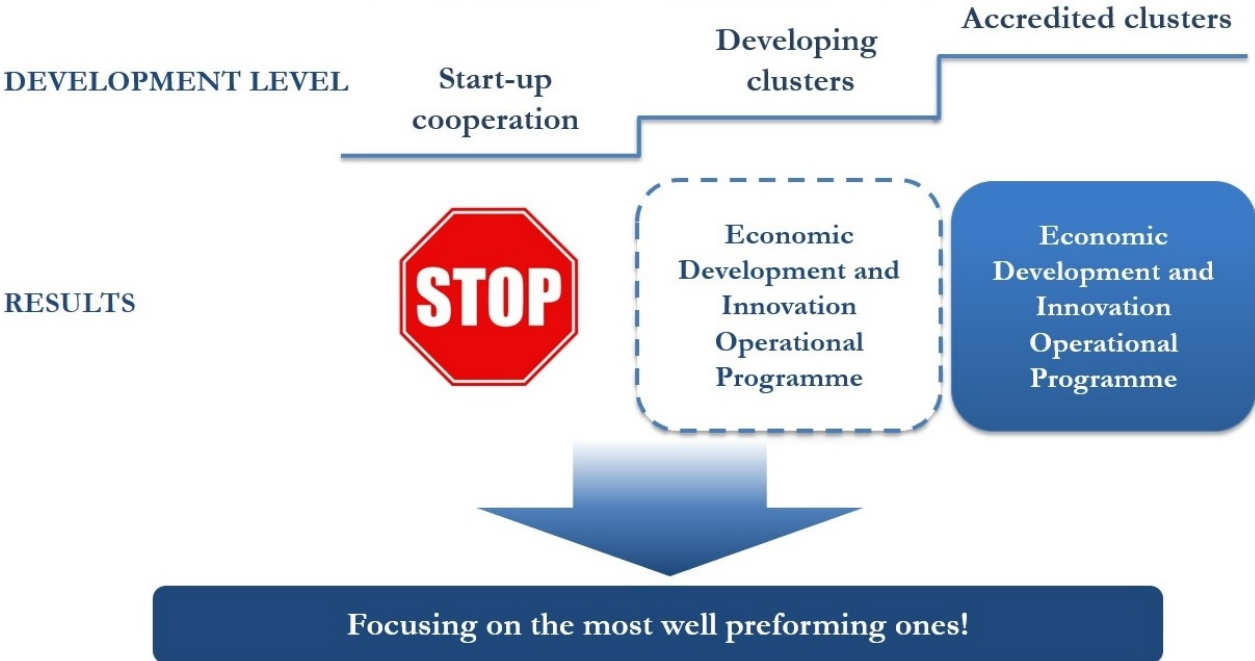
Source: Peter Keller (2016).

The results from the first period of financial support for cluster development have followed **an evolutionary path** that comprises three distinctive stages. In stage one the financial support was focused on start-up cluster cooperation, which involved two rounds of call for proposals and provided equal opportunities for all. The second stage focused on financial support for cluster development, enhancing the foundations of professional cluster management practices – leading to cluster accreditation. The third stage involved financial support for accredited clusters, enhancing their strategic development, innovation orientation and internationalisation (Graph 3).

There is evidence of **institutional learning** from this evolutionary path, and **policy adaptation** to the changing circumstances for cluster activities nationally. Overall the results show **a variety of stakeholders that have initiated cluster organisations** – both at a national and at a regional level. A strong positive effect of the Hungarian cluster accreditation programme is the **institutionalisation of innovation orientation in cluster organisations**, which is expected to strengthen the competitiveness of clusters.

Another good practice at a national level is **the comprehensive system for monitoring of cluster development which is applied for accreditation and re-accreditation of cluster organisations** – providing measurable categories. Further evidence of a good practice is the **change in the cluster policy framework – from support to cluster organisations – towards support for cluster activities** – including the development and implementation of innovation and internationalisation strategies (Graph 4).

Graph 4: The New Cluster Development Programme in Hungary (2014-2020)

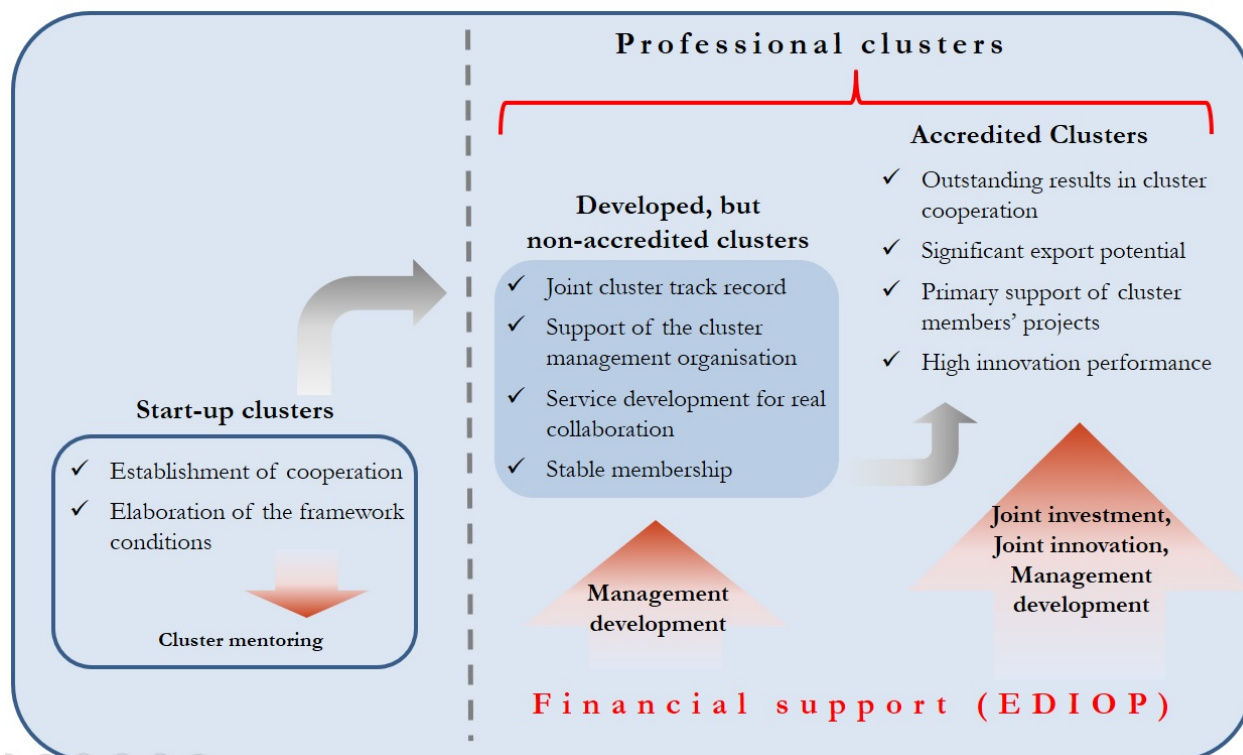


Source: Peter Keller (2016)

The launch of the new cluster development framework under the new Operational Programme period (2014-2020) demonstrates the **long-term public commitment to clusters** and the policy learning that has taken place from previous rounds of financial support (Graph 4). **The new cluster policy framework is focused on the wider implementation of the established national standards** for clusters and cluster organisations. The financial support is shifted towards enhancing the competitiveness of professional and developed clusters, including their management development, joint investment and joint innovation (Graph 5).

The new cluster development programme exhibits also a **shift in the monitoring and evaluation criteria** for accreditation and financial support towards an enhanced policy instrument (Graph 6). In addition to the criteria that measure economic impact of clusters, new categories have been developed to **measure the intensity of cooperation inside clusters, the innovation potential and performance, and the internationalisation strategies**. A novel practice in the policy framework is also to **focus on the cluster composition including value chains and supply relationships**, as well as the **qualitative assessment of emerging cluster strategies** (Graph 7).

Graph 5: 2016 Revised Call for the Award of Cluster Accreditation Title



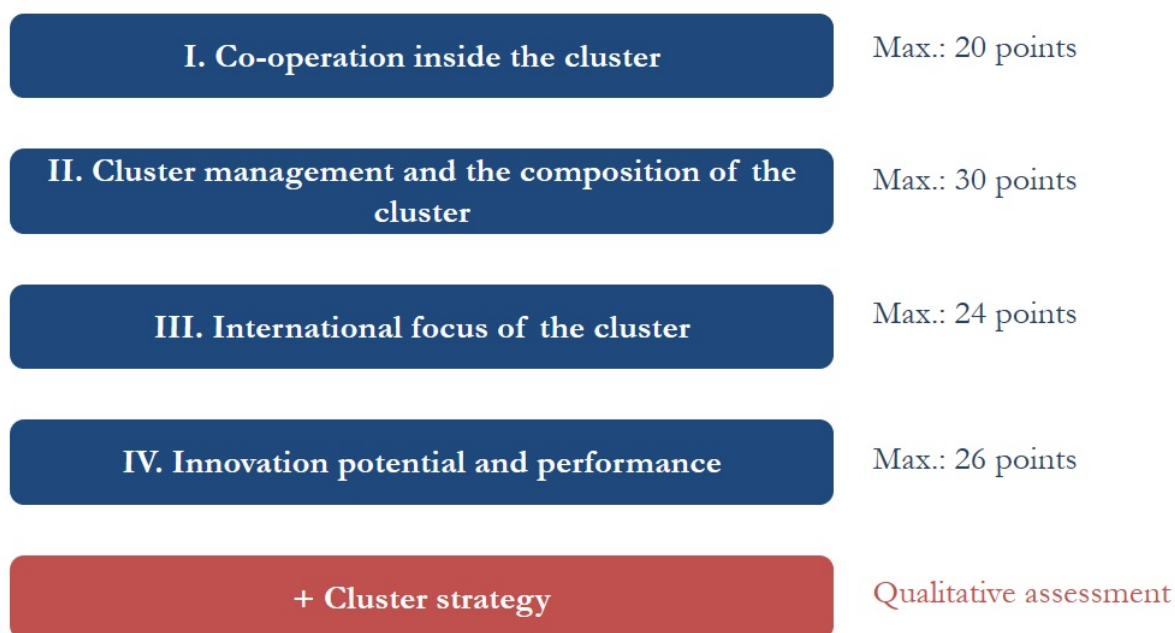
Source: Peter Keller (2016).

Graph 6: Shift in Monitoring and Evaluation for the Hungarian Cluster Accreditation Framework

	Current accreditation call	Previous accreditation call
Entry criteria	Stricter entry criteria	Relatively low entry criteria
Number of criteria	16	14
Focus of the evaluation	Measuring the intensity of co-operation inside the cluster More focus on cluster management Internationalization of clusters	Measuring the economic impact of the clusters
Main group of evaluation criteria	I. Cooperation inside the cluster II. Cluster management and the composition of the cluster III. International focus of the cluster IV. Innovation potential	I. Employment II. SME orientation III. Export orientation IV. Cooperation activities V. Innovation potential
Evaluation of strategy	Yes	Yes
Accreditation Committee	Yes	Yes

Source: Peter Keller (2016).

Graph 7: Hungarian Cluster Accreditation Model and Selection Criteria



Source: Peter Keller (2016)

Overall, **there is a good vertical coordination between national and county level in terms of implementation of cluster policies**, but this is not replicated in the implementation of the RIS3 strategies.

The main aims for the cluster policy in Hungary in the next 3 years clearly demonstrate **commitment and increasing coordination between authorities**. The observation of certain level of fragmentation is translated into a strategic aim **towards increasing the concentration of accredited clusters through mergers** that connect the most relevant players of the value chain. Although the sectoral level of clusters is maintained, the policy framework underlies the need for professional cluster management to develop high level of services (incubation, mentoring) and to increase the average number of cluster members (40 → 100) – in order to strengthen the agglomeration effects.

Another strategic aim of the Hungarian cluster policy framework is to encourage the **implementation of market oriented cluster projects**. Among these are: market oriented innovation and the launching Industry 4.0 solutions by cluster members. This is co-aligned with the need for international visibility through support to cluster participation in European programmes such as Horizon2020, COSME, and INTERREG EUROPE.

At a territorial level a good practice is the **formation of clusters in all areas where there is a concentration of capabilities and sectoral dynamics**. This can be described with the category **'Building from strength'**, whereby all 7 clusters registered at the county level in Hajdú-Bihar represent an industry sector where there are drivers for growth – such as large firms, university innovation capabilities, or regional endowments such as arable farm land and mineral spa resources for health, sports and recreation.

A good practice can be considered the fact **that professional cluster managers derive from a diverse background** –academics, entrepreneurs, or experienced industrialists from the local Chambers of Commerce – enhancing the skills sharing opportunities at regional level. The insufficient level of triple helix interactions in the county, however tamper this as they raise barriers to local best practice sharing and learning.

The five cluster organisations that have emerged in the Hajdú-Bihar county demonstrate also an **appropriate strategic response** of the regional stakeholders to **capture the 'low-hanging fruit' of large firms in the region and science and innovation capabilities.**

Another good practice at the county level is the **mobilisation of the Chambers of Commerce.** As an established institutional player in the city of Debrecen and in the county, overseeing industrial policies and implementation over many years, the Chambers of Commerce have harnessed the challenge of adaptation and **leading cluster development** and are **managing** one of the most advanced clusters Debrecen Innovative Pharmaceutical Cluster (Pharmapolis). The Chambers of Commerce are actively **shaping** all clusters, science and technology parks, industrial parks and logistics centres, business incubators, innovation centres, as well as managing directly one of the clusters. They act as an **'honest broker' in the triple helix constellation in the county** – linking the University of Debrecen with the regional authorities and the local industry. They have reinvented themselves and the concept of local Chambers and are actively mobilising local resources through personal and institutional communication channels.

One of the most distinctive good practices in Hajdú-Bihar is the **Entrepreneurial University of Debrecen** which has built a transformative bridge between large firms, university research centres and public authorities responsible for cluster and innovation policies. Although entrepreneurial education is still not part of their portfolio, their strategic role in supporting innovation across all clusters and hosting two cluster organisations on their facilities is a testimonial of outward looking higher education institution.

Recommendations

National Cluster Policy

The main recommendations in relation to the national level of cluster policies and RIS strategies is the co-alignment between different NUTS levels of national, regional, county and city government. The public reform which has eliminated NUTS2 level administration has transformed the power to NUTS3 level of County Government, where a rich city and a relatively poor countryside creates a large discrepancy for the setting of strategic development priorities. Public authority commitment to cluster policy and RIS strategy implementation seems to be contingent on project funding and hence relies on short-term priorities and objectives. Economic development through project funding creates competitive strategies across different NUTS levels, which is potentially a barrier to policy coordination.

The Territory

1. Better integration and co-alignment between the county government and the city government
2. Aiming at City-regional Policy Framework – will help clusters to flourish
3. Build from strength – to continue
4. To encourage spill-over effects from cluster activities through entrepreneurships
5. To encourage long-term and sustainable FDI linked to all clusters, which is expected to produce the spill over effects
6. To enhance business services locally
7. The transition towards a knowledge region should involve more business start-up of innovative firms
8. To support the evolution of clusters for regional development through technological upgrade and related diversification of firms, or service co-specialisation

Cluster Organisation Ecosystem

1. Move towards cluster initiative neutrality to enhance the role as a catalyst (and not siding with one stakeholder)
2. Professional cluster managers with mixed background - strengthening the link with private sector business experience with fine-tuned notion of customers and strategies
3. All clusters to engage with the EU cluster collaboration platform

Monitoring and Evaluation

One of the criteria for monitoring cluster development is to measure cluster growth, where the emphasis is put on stable cluster membership. This creates disincentives and obstacles for cluster growth, which should be removed in order to facilitate the integration of regional capabilities around the strategic priorities of the region and the mobilisation of the SME sector through access to cluster services.

Another recommendation is to pay attention through the process of cluster agglomeration that the newly merged entities avoid narrowly focused sectoral portfolio of firms. Broader cluster agglomerations that contain multiple segments of the value chain are known to exhibit higher dynamics and growth potential.

Territorial RIS3

The first recommendation is related to the implementation of RIS3 and the governance structure put in place at national and county level. It is important that the governance structure incorporates **clear horizontal and vertical pathways that build bridges across different stakeholders and government authorities**. At present, the RIS3 strategy is coaligned with the national innovation strategy and the authorities responsible for the implementation are led by the National Innovation Office (under the direct subordination of the Prime Minister's Office). The investment targets for RIS3 are co-aligned with the target for increased R&D spending up to 1.8% of GDP by 2020.

The Smart Specialization Strategy relies on the resources available from the EU (Structural Funds, European Agricultural Fund for Rural Development (EAFRD) and the European Maritime and Fisheries Fund (EMFF) for innovation), as well as the Hungarian public resources from the Technology Innovation Fund (KTIA) and the National Scientific Research Fund (OTKA)). **This strategic implementation pathway for RIS3 is disconnected from the economic development pathway** under the Ministry of the Economy, which is responsible for the implementation of the Hungarian industrial strategy, and where cluster policies reside.

The governance structure for RIS3 includes a horizontal coordinating agency in the form of an inter-ministerial working group, but **vertically there is no clear implementation pathway**, referring to individual Operational Programmes and funding initiatives. The coordination and governance challenges thus refer to not only horizontal inter-ministerial coordination, but mainly to **vertical inter-government coordination** between different authorities enlisted in the Hungarian RIS3 – National Level Steering Board (NIT), S3 Management team, Ministries and the Inter-ministerial Working Group, National Government Offices, Local Research Prioritisation Working Groups, County governments, County government offices, or Local governments of cities of county rank.

As a result, **the local triple helix are not very functional and there is discontinuity of purpose across city level and county-level action**. A recommendation – hence is to focus on **bringing stakeholders together at a local level**, including **integration across various policy and investment areas** and reaching out to SMEs that are largely disconnected.

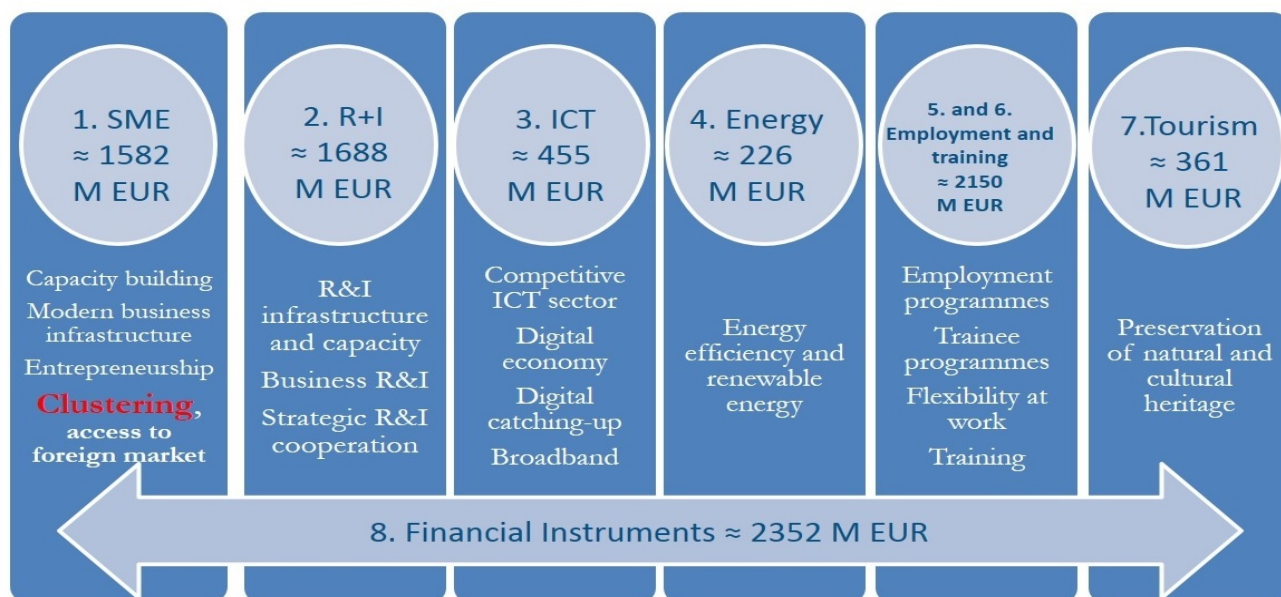
The interviews confirmed the observation of the **need to enhance the entrepreneurial culture across the county, including through university education and training for SMEs**. There is also a need to encourage SMEs and start-ups as spill-over from the university education, supporting entrepreneurial activity across all potentially complementary sectors. The lack of entrepreneurial culture and sufficient entrepreneurial support services needs to be addressed at a city and county level.

There is a need to mobilise the technology transfer facilities such as science and technology parks, incubators, demonstrator centres and utilise their capacity. This can be linked to numerous policy areas, such as cluster development, SME support, innovation and internationalisation support – among others.

Further, **there is a need to co-align strategically cluster policies with RIS at an institutional level** – with an authority responsible to oversee complementarities in investment and outcomes. Both cluster policies and RIS could be effective instruments towards regional innovation and growth.

The co-alignment between cluster policies and RIS3 can be achieved also at the level of Operational programmes and Managing Authorities. The details on Graph 8 demonstrate that the two policy frameworks for ‘Innovation strategy’ and ‘Industrial strategy/cluster policy’ have only one overlapping area for potential complementarity. This is the financial support for SMEs. Outside of this area, cluster policies are driven by the industrial strategy for Hungary under the New Szechenyi Plan for 2020, while the RIS3 policy framework is entirely shaped by the R&I strategy (Graph 8).

Graph 8: Operational Programmes – Priorities for Economic Development and Innovation



Source: Peter Keller (2016).

Conclusion

Our conclusion is that the Hajdú-Bihar region is still in an emerging phase of implementing effective RIS3 and Cluster policies.

The region has a strong presence in Pharma/Life Science, which is in line with the national aims of becoming a more R&D intensive and competitive country.

On the strong side we find the very active role of the university in constructing a more dynamic innovation system in the region, involving cluster development. Furthermore, cluster processes seem to include a very healthy bottom-up process with genuine participation of private industry. A third strength is a somewhat developed culture of cooperation (in spite of the tradition of lack of trust in many Eastern European region).

We see it as a strength that the RIS3 and cluster programs focus on areas where there is regional traditional skills and industrial strengths (food, pharma, health) according to the Cluster Observatory (i.e. show location quotients of over 2.0)¹.

Economic institutions (norms, culture, regulations) seem to create weak incentives to grow SMEs. This also spills over to how clusters are viewed – which is more about developing what resources you have in the region rather than making the clusters grow through attraction of new firms (inward foreign direct investment, FDI, by multinational firms) or attracting new capital and technology. Cluster organisations as closed “clubs”

¹ See www.clusterobservatory.eu

are negative for growth and dynamics; the leadership must ensure a spirit of openness to engage in cluster activities.

Who, and what, will put “Hajdú-Bihar and Debrecen on the global map”? It is not easy for us, after a two-day peer review process, to come with very sharp recipes. However, we think that regional (city) leadership with enhanced triple helix consortium of the university, industry and public authorities is badly needed to build self-confidence, so that the region can build on its strengths and take a visible role in global markets and value chains. The strong commitment to cluster activities, based on a spirit of innovation (and involvement of science) is a good start.

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Web-links and On-line Resources

Cluster Organisations Mapping Tool - <https://www.clustercollaboration.eu/cluster-mapping>

ESIF-viewer, visualising planned investments using European Structural and Investment Funds - <http://s3platform.jrc.ec.europa.eu/esif-viewer>

EU Knowledge Centre for Territorial Policies - <https://ec.europa.eu/jrc/en/territorial-policies/geographic-dimension/regions>

EU Regional Policy - http://ec.europa.eu/regional_policy/en/information/maps/

EYE@RIS3 search tool - <http://s3platform.jrc.ec.europa.eu/eye-ris3>

R&I Regional Viewer - <http://s3platform.jrc.ec.europa.eu/synergies-tool>

Regional Benchmarking - <http://s3platform.jrc.ec.europa.eu/regional-benchmarking>

Registered countries and regions in the S3 Platform-

<http://s3platform.jrc.ec.europa.eu/s3-platform-registered-regions>