Examining the Role of Global Value Chains in the Context of Smart Specialisation Strategies (S3)

Louis Brennan[1], Ruslan Rakhmatullin[2]
1 Trinity College, University of Dublin, School of Business, Dublin Ireland
2 European Commission, DG JRC, IPTS, Seville Spain

Abstract

This paper examines the EU's policy of Smart Specialisation in the context of Global Value Chains. Technology upgrading is highly dependent on whether countries and regions use global value chains and international R&D networks as levers, linkages and mechanisms of learning. The key challenge for S3 which is still very much unexplored is how can the local production stage of GVC become a building block of regional innovation strategy? There are policy views which argue that GVCs are key to technology upgrading. Linking is everything and there are suggestions that countries or regions should link up only when they are able to benefit i.e. they need first build endogenous technological capability and only then link up. In the past a dominant feature of earlier regional and national research strategies has been an excessive inward orientation or domestic led modernization but starting with S3, there is a requirement to provide evidence that each S3 strategy is sufficiently outward looking. While outward looking can mean inward oriented SSS which has taken into account the global context, within the EU context it also means taking account of what other regions are doing and where complementarities arise, engaging with those other regions. On the other hand, there are limits of only GVC led upgrading. This paper explores how to transationalize S3 and offers insight into the key elements that need to be incorporated into a policy tool box that can help policy makers achieve such an objective.

What is Smart Specialisation?

S3 - the policy concept

- Promote inclusive and sustainable growth
- Place-based policy:
  - Valorise existing assets and local specificities
  - Mobilize local economic players as the main actors of economic change
- Based on selection of economic activities with high transformative potential for the economy

RIS3 - the strategy

- National or regional agenda for economic transformation
- Coordinate financial and entrepreneurial resources to support the selected economic activities
- Define governance and monitoring mechanisms

Design Principles for RIS3

1. ANALYSIS: discovery of the socio-economic and innovation engines of regional growth, competitive advantages & weaknesses
2. MAKE CHOICES: identify a limited set of priorities for development where to concentrate investment
3. STAKEHOLDERS' INVOLVEMENT: setting priorities should be an inclusive and interactive process centred on entrepreneurial discovery
4. BROAD VIEW OF INNOVATION: support technological as well as practice-based and social innovation
5. MONITORING AND EVALUATION: feeding back information into the policy cycle and allowing strategy revision

Source:
RIS3 Guide of the European Commission

http://s3platform.jrc.ec.europa.eu

Smart Specialisation in Europe

REGULATION (EU) 1303/2013
Applies to the European Regional Development Fund (ERDF)

Ex-ante conditionality
"…
A national or regional smart specialisation strategy is in place that:

- is based on a SWOT or similar analysis to concentrate resources on a limited set of research and innovation priorities
- outlines measures to stimulate private RTD investment
- contains a monitoring mechanism

…"

What's New in the Smart Specialisation Approach?

Not a "Neutral" Policy

- S3 does not act only through horizontal measures that cut across the whole economy
- It requires policy makers to take the risk associated with selection of a limited number of activities to support

Choices Based on Entrepreneurial Knowledge

- No central and omniscient planner
- Policy makers will rely on and exploit the fundamental knowledge of the local entrepreneurs
- Interactive process of knowledge exchange and creation: the entrepreneurial discovery process

Smart Specialisation: Is the glass half-full or half-empty?

- Promising uptake in the policy-making processes
- Growing community
- Developing interest in the methodology (policy framework)
- **But** …
- Final delivery of changes still questionable (concrete impact on policy acts: calls, administrative behaviour, etc.)
- Inefficient cross-policy coordination and cross-departmental communication at EU, national, regional and local levels
- Low trans-regional learning and market opportunities
- Lack of coordination among existing resources, including public and private resources at EU, national, regional and local levels

About this paper

- This paper explores the role of global value chains in the context of smart specialisation policy supported by the European Commission since 2012.
- Technology upgrading is highly dependent on whether countries and regions use global value chains and international R&D networks as levers, linkages and mechanisms of learning (*Mathews, 2002*).
- The key challenge for S3 which is still very much unexplored is how can the local production stage of GVC become a building block of regional innovation strategy?
- Linking is everything and there are suggestions that countries or regions should link up only when they are able to benefit i.e. they need first build endogenous technological capability and only then link up.

Global Value Chains (GVCs) in the context of Smart Specialisation

- Each country/region should be able to identify relevant linkages and flows of goods, services and knowledge revealing possible patterns of integration with partner regions.
- This is important in the case of both developed and for less developed countries/ regions that would often require to source know-how and technology from elsewhere. In this context the significance and role of Global Value Chains (GVCs) merit consideration.
- The position of businesses within global value chains in this respect is a crucial element to be considered.
- This type of analysis is particularly important as the S3 concept warns against 'blind' duplication of investments in other European regions

Emphasis on Outward Orientation

- In the past a dominant feature of earlier regional and national research strategies has been an excessive inward orientation or domestic led modernization but starting with S3, there is a requirement to provide evidence that each S3 strategy is sufficiently outward looking. (*European Commission, 2012*).
- While outward looking can mean inward oriented SSS which has taken into account the global context, within the EU context it also means taking account of what other regions are doing and where complementarities arise, engaging with those other regions. On the other hand, there are limits of only GVC led upgrading.
- Smart specialisation, as a rationale for research and innovation policies, aims at promoting the collaboration between the regional and national authorities in charge of taking decisions on the design and implementation of the innovation policies and the relevant stakeholders involved in such a process (i.e., firms, entrepreneurs, universities, research centres, civil society). (*European Commission, 2012*).
- An assessment of existing national/regional assets implies looking 'inside' the country/region; however, this might be insufficient for a smart specialisation strategy.
- A major novelty of the S3 approach is that each country/region has to make its strategic decisions by taking into account their position relative to other regions of Europe. Whereas having done so a region may decide to operate on an autonomously basis ignoring other regions, the S3 approach encourages the quest for learning and synergies from other regions.
- This paper explores how to transationalize S3 and offers insight into the key elements that need to be incorporated into a policy tool box that can help policy makers achieve such an objective.

- The RIS3 approach requires looking beyond the national/regional administrative boundaries.
- In other words, a country/region should be able to identify its competitive advantages through systematic comparisons with other countries/regions, mapping their national and the international context in search of examples to learn from, or to mark a difference with, and performing effective benchmarking.
- Yet effective benchmarking takes account of not only priorities but also the modes of delivery of those priorities. In this respect, the principles of learning, linkage and leverage can usefully be brought to bear.

The Importance of Data

- Moreover, each country/region should be able to identify relevant linkages and flows of goods, services and knowledge revealing possible patterns of integration with partner regions.
- However, this is not a trivial exercise with paucity of extant data and data deficits serving as a major impediment. The issue of data is critical.
- This is important in the case of both developed and for less developed countries/ regions that would often require to source know-how and technology from elsewhere. In this context the significance and role of Global Value Chains (GVCs) merit consideration.
- The position of businesses within global value chains in this respect is a crucial element to be considered.
- This type of analysis is particularly important as the S3 concept warns against 'blind' duplication of investments in other European regions.

Avoiding Duplication

- Any such blind duplication of efforts could lead to excessive fragmentation, loss of synergy potential, and ultimately could hamper the reach of the critical mass required for success.
- On the contrary, interregional collaboration should be pursued whenever similarities or complementarities with other regions are detected.
- In the context of a radically transformed global competitive landscape where competition is increasingly based between the triad of the Americas, East Asia including China and the EU, duplication of investments in the European regions may undermine still further Europe's global competitiveness.
- In this respect, opportunities that can be more beneficial may lie in re-shoring/near-shoring of extant GVC activities whether afforded by the competitive realities underpinning GVCs or the embrace of new technologies and the development of the requisite human capital capabilities and skills to ensure effective implementation of those technologies.
- Engaging with the lead GVC MNE is an essential element if such opportunities are to be realized.

Leading to Region/Country Analysis

- The above considerations led to a focus of this chapter on the development of a methodological approach to analysing a country's (region's) position in GVCs in terms of activities, resources, assets and relationships.
- It is argued that such an analysis can reveal where along the value chain the industry is positioned and the extent of that positioning.
- Thus the analysis can point to opportunities for maintaining/extending/deepening the country's positioning on the GVC.
- Furthermore, by applying a similar analysis to other locations, a location can ascertain who else occupies significant parts of the industry value chain, and how strong their positions are and whether those clusters of GVC activities in these other competing regions/countries are similar/complementary to their own activities.
- Taking account of the previously identified linkages, this can indicate whether there might be opportunities to capitalise on complementarities in other locations and the development of inter-regional/trans-European linkages.
- This can be a very significant exercise as lead GVC MNEs often have cognitive gaps insofar as the potential contribution of the local actors in the region are concerned.

Global Value Chains

- Global Value Chains are value chains that can be divided among multiple firms and dispersed across wide swaths of geographic space, hence the term '*global value chain*'. In some instances, activities of the value chain may be embedded in established clusters that specialise in that particular activity.
- Hence cluster analysis that reveals the extent to which a cluster forms part of a global value chain or chains can provide important insights around GVC participation.
- As firms have sought to maximise returns, they have embraced various strategies directed towards value capture including slicing the value chain, outsourcing, off-shoring (either in-house or contracted out), repositioning on the chain and/or collaborating with other parties on the industry value chain.
- Thus firms determine *value chain configurations*, i.e. the way in which the activities of the value chain are spatially arranged within the constraints of product physical and knowledge characteristics.
- GVC analysis concentrates on how different tasks, activities and types of operations positioned in the value-chain are distributed across locations

Engaging with GVCs – what are the possibilities?:

- Countries do not need to develop vertically integrated industries to participate in global trade but rather to develop capacities in specific segments (stages of production, tasks or business functions) of the value chain. In this respect, Baldwin's TOSP (Tasks, Occupations, Stages and Product) framework provides a useful means of identifying the possibilities for global value chain positioning (*Baldwin, 2012*).
- The key consideration is how much value is captured by the country in terms of jobs, income, technology diffusion, sustainable development, etc.
- The ability of a country to participate in global trade and benefit from the transfers that will generate growth and development is now partially linked to its ability to join GVCs.
- *Thus competitiveness is not measured in terms of a country's capacity to develop an integrated industry, but can be related to its capacity to identify its best position in GVCs*.
- A country's competitiveness can be considered at three levels relating to its capacity to join GVCs, remain part of GVCs and move up the value chain within GVCs.
- A further issue is a country's capacity to disrupt GVCs which requires a somewhat different set

Joining GVCs

- *(1) Ensuring cost competitiveness*
- *(2) Improving the connectivity with international markets*
- *(3) Improving business and investment climates*
- *(4) Fostering innovation and building capacity*

Preserving participation in GVCs

- *(1) Identifying the threats and opportunities*
  - SWOT (strengths, weaknesses, opportunities, threats) analyses allow the assessment of a country's endogenous (strengths and weaknesses) and exogenous (opportunities and threats) competitiveness factors, and in the context of a value chain analysis, the ability of a country to join and remain part of GVCs.
- *(2) Responding to business priorities and strategies*
- *(3) Designing long-term strategies*

Moving up the value chain

(1) Upgrading

- "Upgrading" is defined as the dynamic movement within the value chain from one stage of production to another with higher value activities and increased benefits.
- Within the context of GVCs, four different upgrading paths have been identified (*Humphrey and Schmitz, 2002*):
  - Process upgrading – this corresponds to a better organization of production or the introduction of new technologies, and efficiency or sustainability gains;
  - Product upgrading – this corresponds to the production of more sophisticated products;
  - Functional upgrading – this corresponds to an increase in the skill content of the production;
  - Chain or inter-sectoral upgrading – this corresponds to the move from one industry to another.

(2) Task bundling

- upgrading trajectories often consist in performing new tasks that supplement and build upon existing ones. Task bundling is necessary in a context of GVC consolidation, where lead firms reduce the number of intermediates and expect them to provide a more comprehensive package with a higher services-content (*Gereffi and Frederick, 2010*).

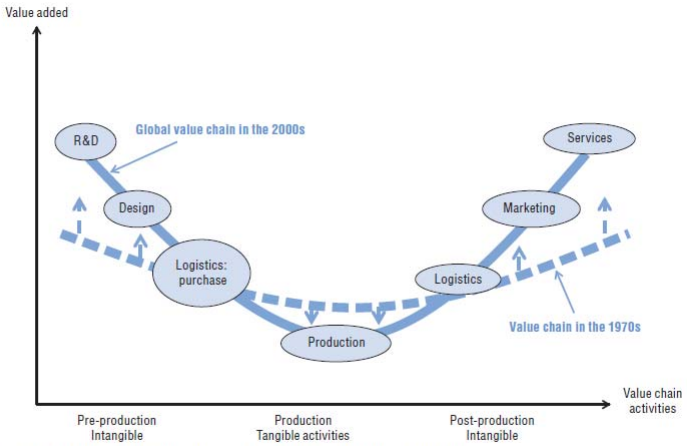
(3) Workforce development and innovation

Upgrading of GVC activity and relevant intangibles

Type of upgrading	Essential knowledge-based capital	Replicability	Value created from upgrading
Chain upgrading	Firm-specific management skill (acquired from entrepreneurial trial and error), Flexible organisational structure	Low	High
Functional upgrading	Sophisticated technology and design, Recognised brand, marketing ability, Retail and collaboration networks		
Product upgrading	Advanced production technology and quality management skill, good design, "Big data" on consumer preference		
Process upgrading	Rich know-how in process management, Efficient procurement network, software and other ICT processing complex tasks	High	Low

Source: Based on Kaplinski and Morris (2002).

The smiling curve: Value added along the GVC



Source: Based on Shih (1992), Dedrick and Kraemer (1999), and Baldwin (2012).

Focus on GVCs

- Analysing a country's (region's) position in GVCs in terms of activities, resources, assets and relationships.
- GVC analysis concentrates on how different tasks, activities and types of operations positioned in the value-chain are distributed across locations
- Such an analysis can reveal where along the value chain the industry is positioned and the extent of that positioning.
- Thus the analysis can point to opportunities for maintaining/extending/deepening the country's positioning on the GVC.
- Furthermore, by applying a similar analysis to other locations, a location can ascertain who else occupies significant parts of the industry value chain, and how strong their positions are and whether those clusters of GVC activities in these other competing regions/countries are similar/complementary to their own activities.
- Taking account of the previously identified linkages, this can indicate whether there might be opportunities to capitalise on complementarities in other locations and the development of inter-regional/trans-European linkages.

The M3DA Process

- Gaining insight into GVCs requires the following five steps of analysis which we refer to as the M3DA process:
- Mapping as in plotting out their various stages across geographies and firms.
- Digging into the each stage in terms of terms of activities, resources, assets, capabilities, relationships and financial and operating data.
- Determining the chain orchestration in terms of actors, linkages and flows.
- Decomposing the activities at each stage into occupations and associated tasks.
- Ascertaining the participation possibilities by considering not only the status quo from *i*) to *iv*) above, but by also anticipating likely future chain trajectories.

What is required from a S3 perspective?

- Some general principles that can be followed:
- Engaging with the Industry and its stakeholders on a continuous basis,
- Anticipating the likely evolution of the Industry globally,
- Assessing the challenges and opportunities that are likely to ensue from future industry trajectories, and
- Responding to those challenges and opportunities in a proactive manner

And…

- The on-going success of Ireland in the changing Pharmaceutical Industry is an instructive example of RIS3 in action from which specific lessons can also be observed:
- ❑ The provision of a compatible and supportive environment via a relevant infrastructure that encompasses a robust regulatory framework, research and technology and education.
- ❑ The upgrading and sustaining of a national innovation system.
- ❑ The development of the requisite human capital pool.
- ❑ The supporting and nurturing of collaboration among all stakeholders.
- ❑ The engagement in upgrading of existing activities in the industry and
- ❑ The anticipating and targeting of areas of growth within the industry.

A SYSTEMATIC APPROACH TO THE TRANSNATIONALISATION OF SMART SPECIALISATION STRATEGY:

Highlighting Data Again!

- In considering a systematic approach, the crucial importance of data needs to be emphasized.
- GVCs are complex and capturing that complexity with a view to appreciating the opportunities that they may offer the region requires better data.
- Thus far, the indicators for measurement of GVCs are very aggregate in nature and can be viewed more as refined trade measures rather than value chain measures.
- To effectively interrogate GVCs, requires “system” level analyses and measures.
- While some regions may have such data available to them, these are likely to be the exception rather than the rule.
- In that respect, the EU should facilitate a dialogue across the regions of the EU to promote learning but also to identify where the paucity in data currently exists that hinders the full exploitation of GVCs and what data deficits need to be addressed.
- Resolving those deficits may require not only Eurostat but also the other pertinent international institutions such as the OECD and the WTO.

A Three-tier Approach to Engaging with GVCs

- For regions to profitably engage with GVCs we propose a three-tier approach to upgrading a upgrading a country's/region’s position in a specific RIS3 area (industry-driven). This involves the following:

1. A high level policy/strategy level encompassing the four EAAR principles applied to individual RIS3 niches
2. A focus on cluster related activities
3. Project level activities: supporting emerging value chains

Engaging with the Industry and its stakeholders on a continuous basis.

- Rather than viewing engagement as a once-off or intermittent process, it is necessary for the region and its institutions to engage on a continuous basis with the industry and it stakeholders.
- This includes along with lead MNEs the entire panoply of actors that are already involved in the industry or have the potential to be involved.
- Thus in the case of the bio-pharma sector, these would include academia and research institutes, SMEs and start-ups, health care organisations such as for example hospitals, sources of capital that specialize in the sector such as VCs and industry, professional and trade organisations.

Anticipating the likely evolution of the Industry globally.

- Industries today are in a state of constant flux whether it be from the impact of disruptive technologies, new business models or new discoveries.
- Thus the only certainty is change in the nature, structures and trajectories of industries.
- It is therefore of crucial importance that regions benefit from scoping exercises that are directed towards anticipating the likely evolution of their target industries globally.
- Here the global aspect must be emphasised. Industries tend to be globally connected today. Consequently having insights into the target industry on a global basis is necessary if the region is to be able to anticipate the likely challenges and opportunities that are likely to arise in the future.

Assessing the challenges and opportunities that are likely to ensue from future industry trajectories.

- In the light of the future industry evolution, regions need to engage in an ongoing assessment of the challenges and opportunities that are likely to ensue.
- This process has a two-fold purpose:

1. In the first instance, identifying the challenges can help in ensuring that a region acts to maintain its current positioning in the industry GVC.
2. In the second instance, an assessment of the opportunities can shed light on the possibilities for extending and upgrading of the region's position in the GVC.

Responding to those challenges and opportunities in a proactive manner.

- Responding proactively to the challenges and opportunities identified in the previous step is critical if the region is to address the challenges identified and to capitalise on the opportunities identified.
- This might involve addressing changes to the regulatory environment, developing and implementing initiatives aimed at forming and/or upgrading of pools of human capital and the forging of specific relationships between the lead MNEs and the industry stakeholders.

2. A focus on cluster related activities

- In the first instance, it is also important to note that clusters are not necessarily GVCs and vice versa.
- However clusters by virtue of their constituents and their dynamics offer a useful unit of analysis in which to consider engagement with GVCs.
- In this respect the S3 guidelines provide the basis for initiatives aimed at supporting clusters and their potential engagement with GVCs.
- Here the importance of connecting local SMEs with foreign MNEs is well established.
- Inserting SMEs into GVCs can be the means by which they can engage in exporting.
- SMEs can gain very important advantages from engaging with lead GVC MNEs, gaining a new market for their outputs and gaining the credibility and kudos that can further advance their development and their penetration of GVCs.
- Of course local institutions have a key role to play in acting as facilitators and even enablers of such engagement.

3. Project level activities: supporting emerging value chains

- Once a specific sub-area (such as *3D Printing*) is identified within a specific S3 niche (ex.: *Advanced Manufacturing Systems – Additive Manufacturing*), regional policymakers could provide further assistance by following the M3DA process

Mapping as in plotting out their various stages across geographies and firms.

- *From a regional perspective this could include a definition of a regional innovation eco-system and the mapping of regional stakeholders. When mapping regional knowledge generators, the regional authorities might consider sharing this information through a webpage similar to the one built by the Romanian authorities: http://www.erris.gov.ro/*
- *If a cluster organisation exists in this sub-area, the task will be somewhat lighter, if it does not, then 'regional capabilities' represented by MNEs present in the region should be identified.*
- *Trans-regional/transnational cooperation: at this point, the regional authorities might need to initiate some external contacts with other regions/MS that have either indicated similar RIS3 priorities or have strong capabilities (as indicated by figures from Orbis).*
- *Regional authorities would perhaps need to understand the needs of their regional stakeholders before reaching out to their international partners. Here, a combination of IPA/regional enterprise type of institutions could be used to capture the perspectives of the pertinent actors.*
  - *These regional institutions could then be employed to build:*
    - *A wide network of boundary spanning individuals/organisations*
    - *As well as specific projects (joint calls) could be initiated at this point.*

Completing the M3DA

- Digging into the each stage in terms of terms of activities, resources, assets, capabilities, relationships and financial and operating data.
  - *Ideally this could be done via a database of possible resources/services/etc. available in this specific sub-area (such as 3D Printing) in each region (country).*
- Determining the chain orchestration in terms of actors, linkages and flows.
- Decomposing the activities at each stage into occupations and associated tasks.
- Ascertaining the participation possibilities by considering not only the status quo from the digging stages through the decomposition stage above, but by also anticipating likely future chain trajectories.

And concurrently

- At the same time, there are some specific actions points that were earlier derived from our analysis of the success of the Irish Bio-Pharma sector (*Brennan and Rakhmatullin 2015*):

a) The provision of a compatible and supportive environment via a relevant infrastructure that encompasses a robust regulatory framework, research and technology and education.

- Among the key learnings from our study of the Irish Bio-Parma sector has been the importance of the provision of a compatible and supportive environment via a relevant infrastructure that encompasses a robust regulatory framework, research and technology and education.

Being proactive in this aspect can give the region an advantage insofar as securing/maintaining and extending its position in the industry GVC.

b) The upgrading and sustaining of a national innovation system.

- Having in place a vibrant regional/national innovation system provides a means for industry stakeholders especially start-ups and SMEs to develop and to have the capabilities to develop linkages into the GVC.

c) The development of the requisite human capital pool.

- Likewise having in place the requisite human capital pool is vital to joining/maintaining/ extending and upgrading in the GVC. The more the requisite capital pool is anticipated and steps put in place to develop the requisite labour and knowledge capabilities, the better positioned the region is in relation to the GVC.

d) The supporting and nurturing of collaboration among all stakeholders.

- In a world where the centrality of collaboration to success is well established, the supporting and nurturing of collaboration among all stakeholders is key to ensuring that region is well positioned to meet challenges and tale advantages of the opportunities arising.

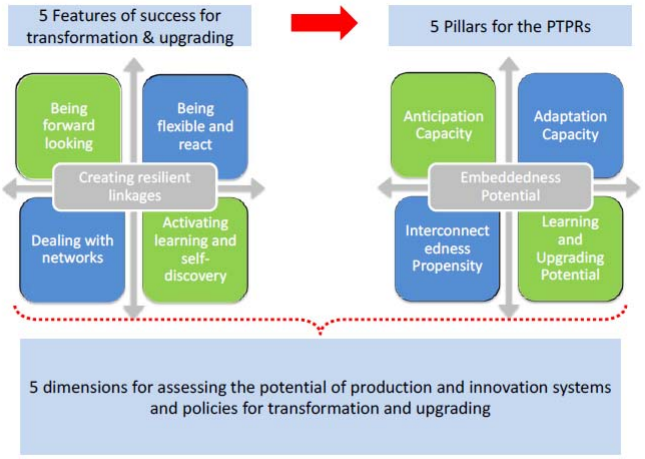
e) The engagement in upgrading of existing activities in the industry

- In an evolving, dynamic and fast paced changing industry context, it is not possible for the region in terms of its positioning on the industry GVC to stand still. Standing still guarantees the erosion of the region's position on the GVC and its likely exit. Thus engagement in extension/upgrading of existing activities needs to be pursued. Otherwise a vicious circle of decline is likely to ensure

f) The anticipating and targeting of areas of growth within the industry

- As well as defending its position in the GVC, the region can benefit from anticipating and targeting areas of growth within the industry. Doing so can help to embed the region more firmly in the GVC and can help to drive a virtuous circle with the region's role becoming more critical within the GVC. This helps to embed the region even more in the GVC which is turn makes region's contribution to the GVC more significant.

PTPRs' interpretative framework



Source: Primi (2014), "*Production Transformation Policy Reviews (PTPRs): a proposal for a new policy assessment and guidance tool for policy dialogue and knowledge sharing*", Background document prepared for the 3rd Plenary Meeting of the OECD Initiative for Policy Dialogue on GVCs, Production Transformation and Development.

Reflection….

- Both the PTPRs approach and the approach described above share explicitly the principle of anticipation.
- Arguably much of the focus of regions can be overly tilted to the past and the present with too little attention paid to anticipating change and putting in place on a proactive basis policies that address the challenges and opportunities that emerge from such an anticipatory process.
- Thus there is a need to balance the trade-off between evidence-based policy with policies which are capable of embracing change and addressing the future.

Looking Ahead….

- Among the issues that remain to be grappled with and addressed in the chapter are the learning dimension and how activating learning dynamics can benefit from linkages with GVCs. Can other factors beyond top-down strategies play a role here?
- The importance of the region having a clear vision linked to S3 as the foundation for engaging in the process of seeking to benefit from and indeed potentially shape GVCs also needs to be emphasized.
- There remains the challenge of the functional region dimension. Interacting with production systems can entail a greater need for planning at a functional rather than at an administrative level.
- Finally in terms of policy recommendations, private/public dialogue can be crucial. Consideration needs to be given as to how such dialogue works in the context of mixed actors (local, national and multinationals). What are the factors which are not too ad-hoc that matter in engaging in a positive dialogue? What does this mean at the level of policies? What are some institutional implications?

References

[1] Anonymous. (15 January). Available: www.globalvaluechains.org

[2] R. Baldwin, "Trade and Industrialisation after Globalisation's 2nd Unbundling: How Building and Joining a Supply Chain are Different and Why it Matters" 2011.

[3] R. Baldwin, "Global Supply Chains: Why They Emerged, Why They Matter, and Where They Are Going," 2012.

[4] R. Baldwin, "Global Supply Chains: Why They Emerged, Why They Matter, and Where They Are Going," Fung Global Institute, 2012.

[5] L. Brennan and R. Rakhmatullin, "Global Value Chains and Smart Specialisation Strategy. Thematic Work on the Understanding of Global Value Chains and their Analysis within the Context of Smart Specialisation" 2015.

[6] O. Cattaneo, G. Gereffi, S. Miroudot, and D. Taglioni, "Joining, upgrading and being competitive in global value chains: a strategic framework," The World Bank, 2013.

[7] J. D. Daniels, L. H. Radebaugh, and D. P. Sulivan, International Business: Environments and Operations: Pearson, 2013.

[8] European Commission, "Guide to Research and Innovation Strategies for Smart Specialisations (RIS3)," ed. Luxembourg: Publications Office of the European Union, 2012.

[9] M. Kaczmarski. (10 September). Are IPAs the missing link in the SME supply chain? . Available: www.fdiintelligence.com

[10] E. Karo and K. Rainer, "Economic development and evolving state capacities in Central and Eastern Europe: can "smart specialization" make a difference?," Journal of Economic Policy Reform, vol. 18, pp. 172-187, 2015.

References

[11] P. Lamy, "Emerging economies: 'shapers and makers' in changing landscape," in WTO News: Speech by DG Pascal Lamy, ed. Bigli University, Istanbul, 2013.

[12] J. A. Mathews, "Competitive Advantage of the Latecomer Firm: A resource-based account of industrial catch-up strategies," Asia Pacifica Journal of Management, vol. 19, pp. 467-488, 2002.

[13] A. Primi, "Production Transformation Policy Reviews (PTPRs): A Policy Assessment and Guidance Tool to Improve the Effectiveness of Production Transformation Strategies"," OECD Development Centre, 2015.

[14] S. Radosevic and K. Ciampi Stancova, European Commission, 2015.

[15] T. Sturgeon and M. Kawakami, "Global Value Chains in the Electronics Industry: Was the Crisis a Window of Opportunity for Developing Countries?," The World Bank, 2010.

[16] T. Sturgeon, O. Memedovic, J. Van Biesebroek, and G. Gereffi, "Globalization of the Automotive Industry: Main Features and Trends," International Journal of Technological Learning, Innovation and Development, vol. 2, pp. 7-24, 2009.

[17] G. Suder, P. W. Liesch, S. Inomata, I. Mihailova, and B. Meng, "The evolving geography of production hubs and regional value chains across East Asia: Trade in value-added," Journal of World Business, 2014.

[18] UNCTAD, "Global Value Chains and Development" 2013.