Impact factors and models of positioning in global value chains. Case of electronics : Estonia compared with Korea.

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RIIK, OMAVALITSUS, TULEVIK

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Teha mõtestatumalt ja efektiivsemalt!

- Visioonide ja arengukavade, ka pikaajaliste tegemine on Eestis viimasel ajal kaunis hoogsalt käima läinud
- Seda nii riigi kui terviku kui linnade ja regioonide tasandil
- Kuidas me aga taolisi ettevõtmisi aga eesmärgistame, mida saavutada tahame ja kas me korraldame neid protsesse ikka mõistlikult
- Aktsepteerides seda, et avalikus sektoris on anergukavandamisel oma eripära julgen ikkagi väita, et visioneerimise ja arengukavandamise osas on avalikul sektoril erasektorist veel kaunis palju õppida

Probleeme ja tüüpvigu arengukavandamisel avalikus sektoris

- Milliseid probleeme lahendame: praeguseid või tulevikus oluliseks muutuvaid
- Millisesse keskkonda me end sätime. Praegusesse või sellesse, mis tõenäoliselt kujuneb tulevikus
- Kavandamishorisondi mõtestamine. Milliseid probleeme saab lahendada millise horisondi puhul ja mida see veel eeldab
- Visiooni kandja ja „vedaja“ küsimus.
- Prioriteetide ja valikute teema. „Igaühele midagi“ põhimõte ei anna pikemas perspektiivis resultaate

Probleeme ja tüüpvigu

- Kinniolemine olemasolevates struktuurides
- Ruumi ja tegevuse vahekord
- Vajadus arengukavandamisele eelnevate analüüside ja prognooside järele. Ka arenguanaloogiad
- Kaasamine on oluline, aga milleks me kedagi kaasame. Kaks erinevat ülesannet kaasamisel, erinevad tehnoloogiad
- Narratiivide ja numbrite ühendamine
- „Nunnutamisjutu “ohtlikkusest

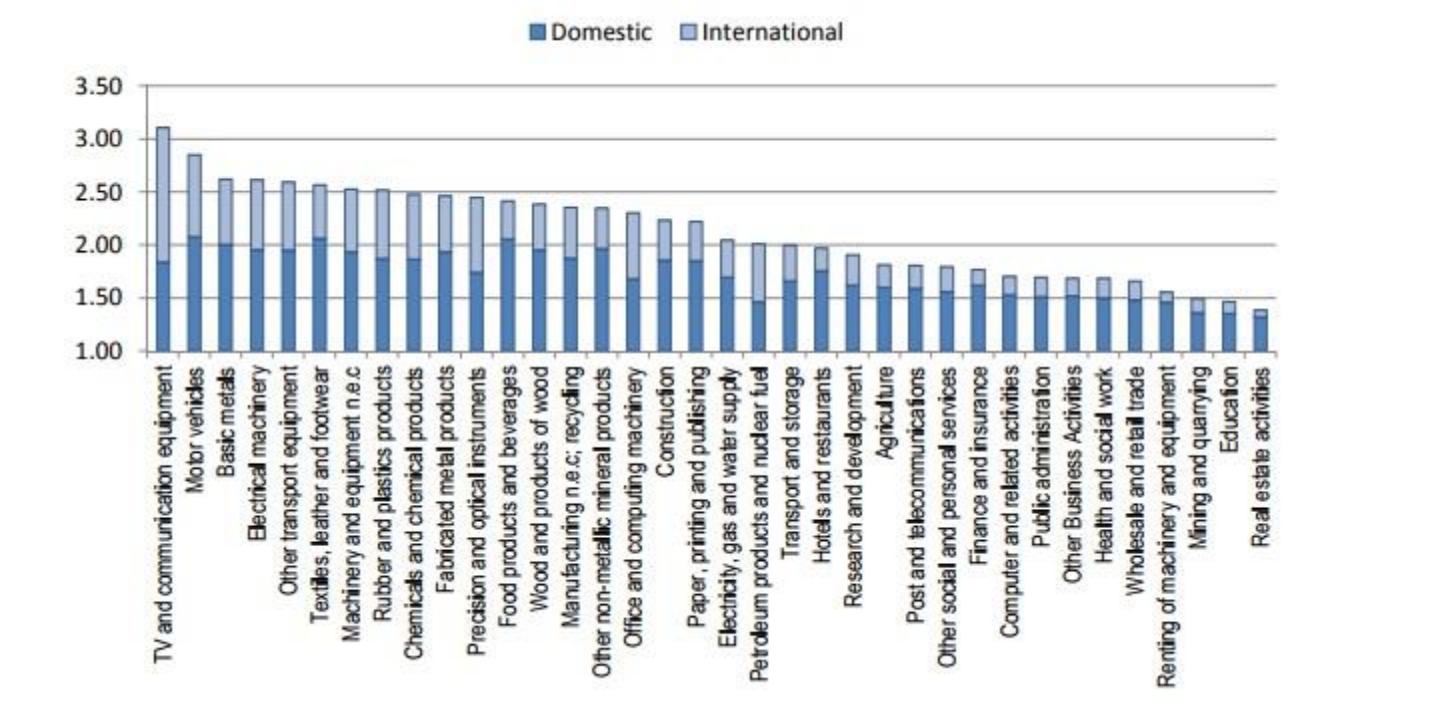
Two initial questions:

- Why electronics as example?
- What about comparing rabbit with elephant? Whats the idea?

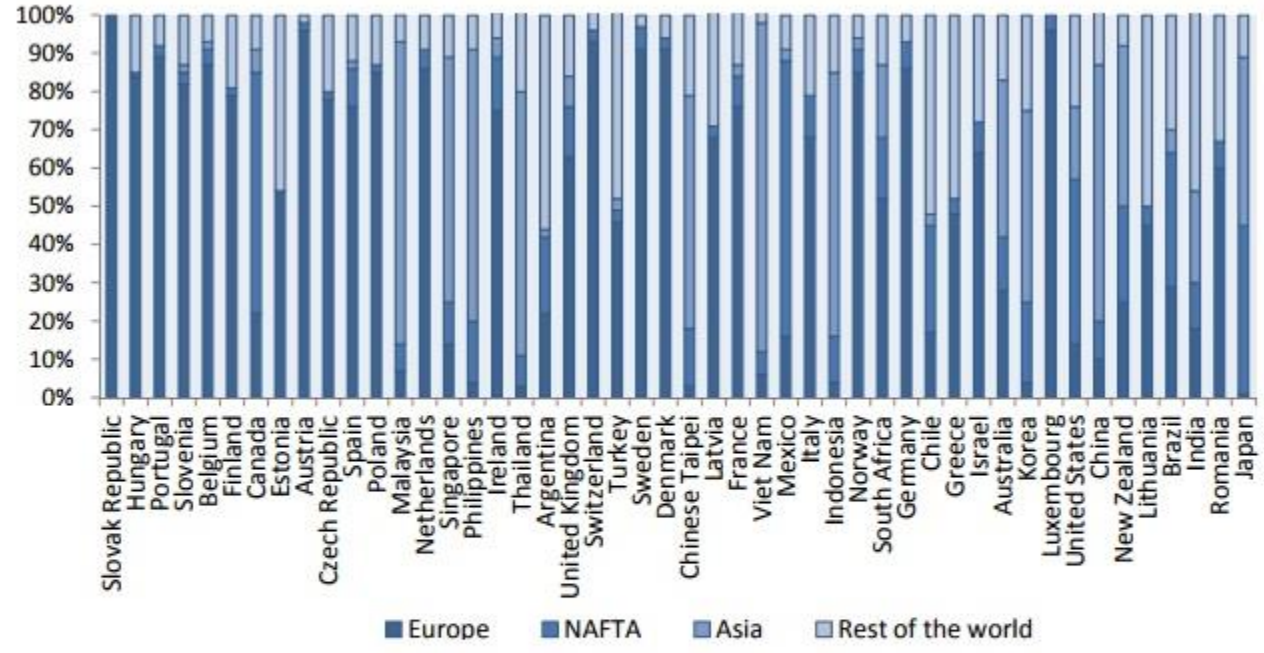
Why electronics?

- One of the leading industries globally, especially its synthesis with IT.
- Typical are long and complicated value chains. Upstream ja downstream. May be dividend into 3 or even 4 „slices“, located in the diferent countries.
- There is the general trend, GVCs shifting towards East (in the sense of both: East-Asia and CEE). It is very interesting to watch this trend in electronics

Lenght of the GVCs by industry



Lenght of the GVCs by country



Source: Authors' calculations based on the OECD STAN I/O database.

Why electronics?

- Electronics is important industry and export sector in both, in Korea and in Estonia. Around 25% of industrial export in Korea and only a little bit less in Estonia.

- Both countries say, that electronics is show case of their industry. But the extent of success is very different. In the case of Korea it is the real global success.

- Estonians are not so happy. Not very much value added in Estonian electronics.

Empirical information

- About Estonia we have fresh empirical interviews-based material from late 2017 about business models and perspectives of these companies , who improved their position in value chains at recent years (rising export volumes and moving towards more value added) . Based on joint research project of researchers from Tartu University, Tallinn University of Technology and Tallinn University.
- There are rather goods overviews about value chain of Korean companies available.
- Why not to try to compare the models in two countries.

Rabbit and elephant …

- The idea is not to copy, but to understand
- Comparison of not similar systems my be sometimes very useful. To understand how the diferent patterns are developing. We may learn mor comparing for example Estonia with Slovenia, not with Latvia.
- It gives better understanding of the role of diferent policys and policy elements in the process of development.

Impact factors may be divided:

- Population, size of workforce
- Other conditions and resources: geographical location, neighbours, type of economy, science and education etc
- Path dependence (history, origin of genesis of contemporary economy and society
- Policies used
- Timing: concrete polices working only in concrete periood, concrete conditions.

Some comparisons (resourses and background factors)

- Size of population: it makes real difference. 30 million and 1.3 million
- By some parameters Korea is better, but the difference is not very big. „We are playing in the same league“: quality of institutions, education, some measures of innovation. Even salaries and peoples incomes are not dramatically diferent.
- Some indicators and trends are very similar. We are both „latecomers“, open ecomomies, even General Global Competitiveness Index of WB is quite close.

Similarities and differences

- By some indicators Estonia is even better .
- Estonia have longer industrial history than Korea. Today Korea is more industrialised economy than Estonia with his mainly service dominated economy.
- What are the differences behind the Korean wonder in electronics and some ohter industries ?
- „Different leagues“:
- Complex indicator of business sophistication:
- Korea- 26., Estonia 45.
- Value chain breath: Korea 23., Estonia 54.

Differences

- Cluster development: Korea 28., Estonia 73.

- Control over international distribution channels :
- Korea 9., Estonia 59.

Nature of competitive adventage:

Korea 22, Estonia 54.

Number of patents : big difference

Path dependence (Estonia)

- Hard times of systemic change, especially years from 1992 to 1994.
- Post privatisation period (from 1994). Many old-modern Soviet type of enterprises, enterprises of electronics do`nt survived .
- Washington consensus type of ideology domination at 1990ties. Industrial policy was a negatiive term.

Situation with neighbours (Korea)

- Japan was very important in the beginning 1960ties for starting the development.
- Now the dominating partner in the regioon is China. Huge market and source of much cheaper labour. Partly as a partner of tehnological cooperation.
- But a lot of ohter important partners in the region: Taiwan , Vietnam (cheap labour) , ohter ASEAN countries. Extremly favorable location from economic point of view.
- May be labour from North Kerea in the future.

Situation with neighbors (Estonia)

- For industry in general Estonian location in Europe was not favourable: too far from Germany as industrial center. Better for electronics, because Finland and Sweden are nodes in …Nii jõukas turg kui tehniline know-how
- Lion part of cooperation in the regioon is with two Nordic countries is with two Nordic countries: Finland and Sweden Nordic partners
- Russia is not China
- How favorable Estonia`s location is? It depends from the success of Finland and Sweden in economic globalisation in future.

Different spezialisation:

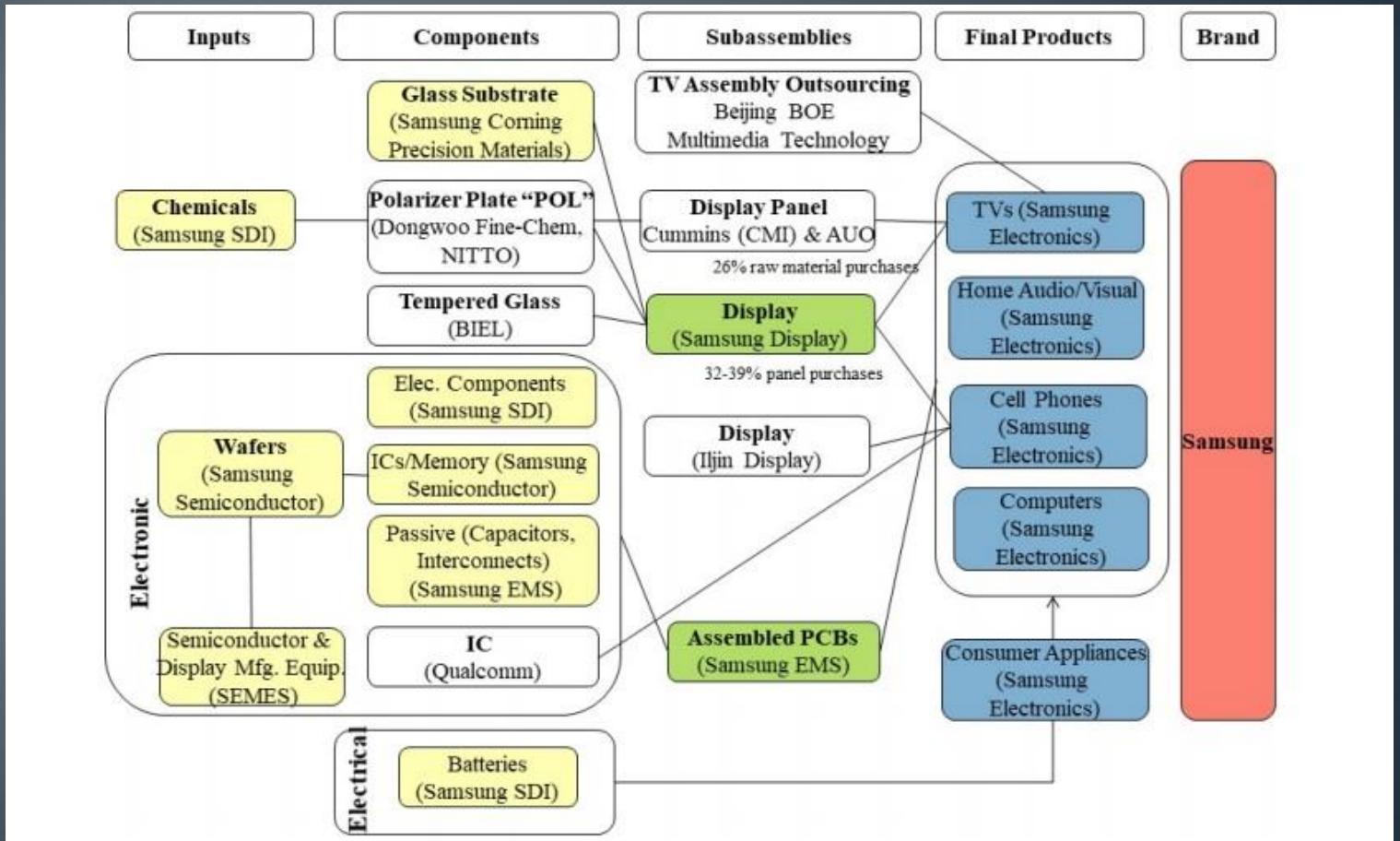
- Korea: Strong in consumer electronics and key physical components .
- Dominance of „3C“: consumer electronics, computers, cell phones. Other consumer electronics
- Not so much in industrial electronics and in non-consumer components (software related services includes).
- Estonia. Main export article by volume: electrical equipment , but the specialisations are rather diferent (diferent sub-assambleys, measurement instruments etc)

Electronics (Korea)

- Development of electronics as export-oriented sector from 1960-ties
- Importance of FDI and technical aid from Japan at the first period
- But building-up domestic (domestic capital plus support from the state) industry quite quicly. Chaebols.
- Two gigants and World brands: Samsung and LG
- State supporting these chaebols and protecting their products and Technologies.

Korean GVCes, dominating business model

- Assambly of finaal products now in cheaper countries: China and at last time Vietnam.
- Domestic production of mainly key intermediate parts as semiconductors and displays for offshore producers
- Korea imports electronical components from China, Taiwan and in lesser extent from Japan and USA and ohter countries.
- Subcontracting is not used very much. The idea of Korean companies in electronics is integrated production chain. Their own daughter companies in foreign countries.



Source: Frederick, 2017. Display panel data: (Samsung Electronics, 2016)

Estonian electronics, stages of development

- FDI based and Michel Porter`s type of logic of development. First stage (from 1990ties): orientation of foreign companies on cheap labour (factor-driven stage). The bottom part of „smiling curve“ in Estonia. Only production, no marketing , no even sourcing in the beginning. Import of components. No clusters etc.
- Next stage: investment based. Widening of production, but not very big investments (because the equipment was leased). Main sector at this time: telecom. But very hard competition because of decreasing unit costs of production.Consolidation.

le 3-11. Types of Upgrading in the Electronics GVC

Upgrading Type	Description
ctional (Moving Services)	Final product manufacturers acquire responsibility for more value-adding activiti switch from manufacturer to service provider often occurs over time: Categories: Assembly→EMS→ODM→Lead Firm Activities: Assembly→Sourcing/Distribution→Development/Design→Marketing
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duct	Shift to customized products, use of higher quality inputs, or other additions that the value of the product or otherwise provide a competitive edge
cess	Reduce cost, increase productivity and improve flexibility by investing in new or machinery or logistics technology. Specific steps within a stage (for example, components): Assembly→Metal Fabrication→Stamping→Finishing→Testing

rce: updated from Frederick and Gereffi (2013)

Table 3-11. Types of Upgrading in the Electronics GVC

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Functional (Moving into Services)	Final product manufacturers acquire responsibility for more value-adding activities; a switch from manufacturer to service provider often occurs over time: Categories: Assembly→EMS→ODM→Lead Firm Activities: Assembly→Sourcing/Distribution→Development/Design→Marketing
Supply Chain Linkages	Establish backward (or forward) manufacturing linkages within the supply chain; related to vertical integration: Inputs →Components→ Subassemblies→ Final Products This can also be extended all the way back to production equipment.
End Market	Market diversification: serving new buyers or markets often in emerging domestic or regional markets (new geographic destinations or distribution/market channels) Geographic: exporting only to the US and now to Mexico as well Market Sector: consumer electronics to medical
Product	Shift to customized products, use of higher quality inputs, or other additions that increase the value of the product or otherwise provide a competitive edge
Process	Reduce cost, increase productivity and improve flexibility by investing in new or better machinery or logistics technology. Specific steps within a stage (for example, components): Assembly→Metal Fabrication→Stamping→Finishing→Testing

Source: updated from Frederick and Gereffi (2013)

Model 1 (Estonia)

- Export-oriented enterprise providing high-standard production environment, working for clients in neighbouring technologically developed countries.
- Produces for different customers and sectors of economy.
- Close cooperation, flexibility, ability to rapidly readjust production process.
- Tries to obtain more complex and sophisticated orders, oriented at producing modules ( ) rather than components. Has no “own” product, but can advise client how to adjust product for better manufacturing.

Model 1 (Estonia)

- Does not seek to reach the top of value chain, but tries to seize integrating functions in it: carries out its own sourcing and offers to take over other functions, e.g. logistics.
- Cooperation with start-ups, consulting them in product design in order to become its manufacturer in case of success).
- Success: situation, where competitiveness depends on flexibility, cooperation and additional functions rather than price.
-
- Could be domestic or foreign-owned; in the latter case must have high degree of independence.

Model 1. Limitations

- Can participate in global chains, but clients should preferably come from neighbouring countries. Flexibility in cooperation as a competitive advantage works better if the client comes from a geographically and culturally close area.

  Requires both high production technology level and active business oriented management.

  Scaling perspectives quite limited

Model 1, subversion A

- Predominantly as the basic version, but shares its business between the export and domestic markets. In the domestic market concentrates on system development, develops and realises complete solutions dependent on a clients specific needs.
- Critical aspect: how much synergy may be created between system development for the domestic market and fulfilling orders for the export market.

Model 2 (Estonia)

- Domestic enterprise possessing an original product or product family.
- Actively seeking to develop and to sell as globally as possible different variations based on this solution for various clients/purposes.
- Operations in value chain: product design (either largely carried out earlier or running parallel to production and sale), ordering a large share of components from subcontractors (predominantly from abroad), possibly acquiring a production facility for that purpose in another country. Marketing and sales.

Model 2, subversion A (Estonia)

Product is not highly innovative , the business idea is based more on the extent of the product family.
In case of variations offered on global market these are quite likely to find clients interested in the combination of parameters of the product. GVC is relatively short, no intermediate operations between the manufacturer and end user. Sale via resellers.

Dilemma: is it possible to leave the reseller out of the chain (the volume and competence of sales activities must increase). Scaling prospects rather high, depend less on new technical solutions for various spheres of use and more on the intensity of marketing.

Model 2, subversion B

Highly innovative product . GVC is longer than in the previous version.

Produces module for the manufacturer or service provider, not for the end user.

Sells complete solution, sectoral (standard) solution (“No no system, no client”). Scaling prospect potentially very high.

Limitations: High product development cost.
Small number of qualified engineers with product development experience in Estonia.
Technological risk. Market access not easy, potential client presents his product as a whole as its core competence, the solution developed by the Estonian enterprise (module, sub-assembly) need not be welcome.

Model 3 (Estonia)

- Multinational firm assigns a product from its portfolio for production in the Estonian daughter company.
- In a positive case with the production of some components and the organisation of sourcing.
- Not all the functions performed by Estonian daughter company at the bottom of the „smiling curve“, but marketing above the daughter company’s level.
- Perspective to get more complicated production task and more function at the next period.

Model 3 (Estonia) , drawbacks

- Much depends on in-concern lobbying rather than on objective factors.
- Management at the daughter firm level often equals to ability of efficiently cutting costs when dealing with assigned problems.

  Opportunities to receive product design functions in Estonia in addition to manufacturing are low.