

The role of meso organisations in the Product Space

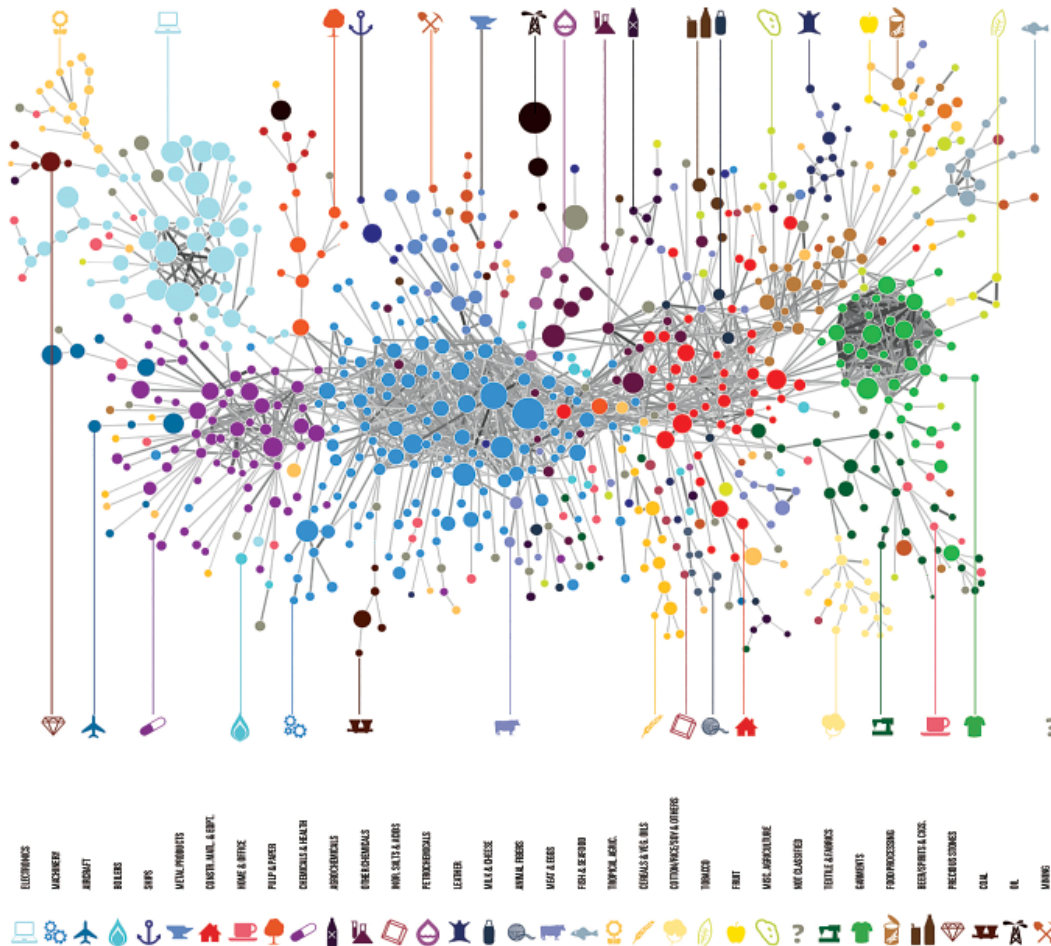
During the last 10 years, a promising approach has emerged from the Centre for International Development (CID) at Harvard University and Macro Connections at MIT Media Lab. It is called the Atlas of Economic Complexity (Hausmann, Hidalgo, Bustos, Coscia, Simoes & Yildirim, 2013). It is a powerful interactive tool that enables users to visualise a country's total trade, track how trade dynamics change over time and explore growth opportunities for more than a hundred countries worldwide.

The Atlas offers a very different view of economies, structural change and progress. It attempts to measure the amount of productive knowledge that each country holds and reveals potential paths for industry development. Hence it is a useful instrument for policy makers, economic development practitioners and entrepreneurs to find upgrading, investment and leverage points in an economy. From an evolutionary or complexity economics perspective, it is desirable to increase

the economic complexity of a country. More complex economies are those that can weave vast quantities of relevant knowledge together across large networks of people so as to generate a diverse mix of knowledge-intensive products. Simpler economies, in contrast, have a narrow base of productive knowledge and produce

fewer and simpler products, which require smaller webs of interaction (Hausmann & Hidalgo, 2011:18). The tool reveals areas where knowledge spill-overs or capabilities can be strengthened to make experimentation, search and discovery easier, or where industry and technology support programmes may not be effective.

Figure 5: The Atlas of Economic Complexity



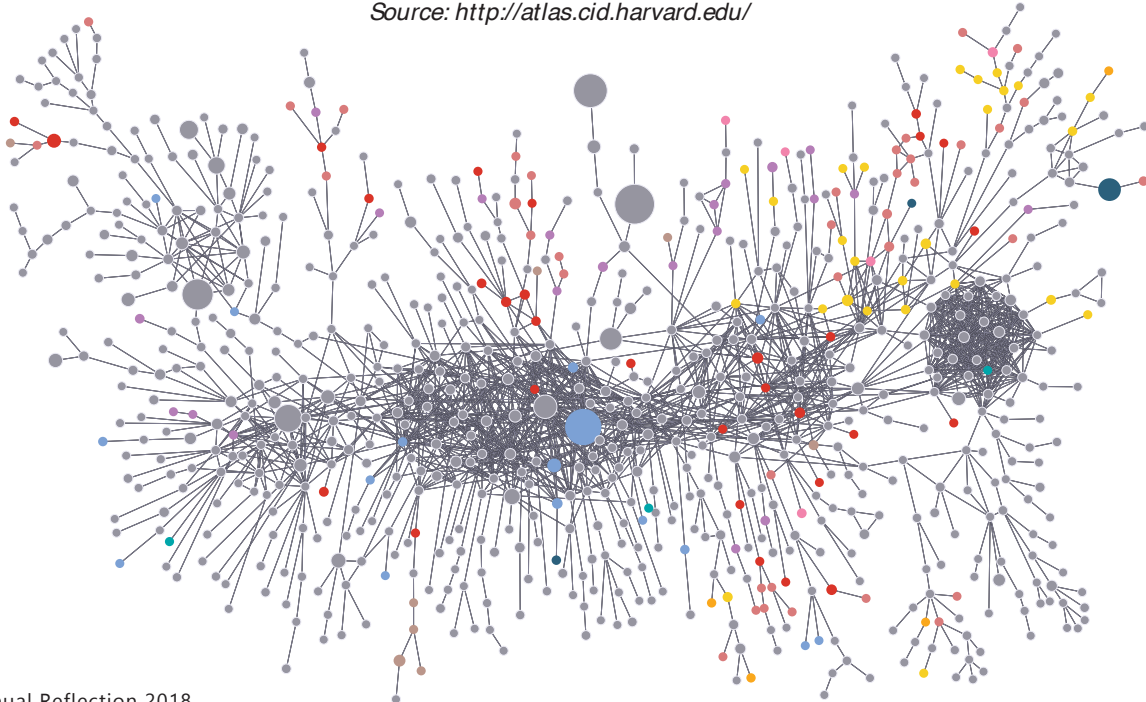
One of the visualisation instruments is the Product Space. It represents all products known to humankind in a relational network map and shows how networked each product group is in terms of the capabilities needed to produce the products. Nodes in this network map represent the knowledge needed to produce a specific product. The maps build on a background of overall possibilities which highlights those products in which a specific country is competitive on the world market (see Figure 5). For instance, products that are assessed to be competitive show up in a colour that represents the broad product classification.

Although the CID and MIT offer different visualisations of the Product Space, they use similar underlying principles

and emergent theoretical frameworks. In the visualisation of the Product Space there is a dense interconnected region representing mainly machinery, metal products, chemicals and capital-intensive goods. To the left of the map lies the electronics cluster, and to the right of the map there is a cluster of apparel, textiles and clothing. All around the dense cluster there are branches reaching out into open space. These outlying products are more disconnected from the dense core. They include, for example, tropical agriculture, oil and mining. They reach into sparsely populated space because they offer low spill-overs: knowledge in these economic activities is not easily adapted to adjacent activities.

Figure 6 Product Space of South Africa in 2016

Source: <http://atlas.cid.harvard.edu/>





In Figure 6, the Product Space of South Africa reveals many relative comparative advantages on the periphery in many agricultural commodities, mining and manufacturing. When looking at the change over time a trend of de-industrialisation is shown. Each country's product space is different. It reveals areas where countries have accumulated sufficient expertise to produce products in a way that makes them competitive and allows them to trade with other countries. This makes it possible to detect areas of strength, innovation and competitiveness, and suggest opportunities for future investment.

Due to the fact that the Product Space is constructed based on historical trade data, it shows only products and represents knowledge, but does not show where organisations supporting economic development are or how effective they are. Meso-level organisations are implicit in the theories that underpin evolutionary economics and how knowledge is spread, but they are

not tracked and visualised as an overlay of data points or nodes on the map. In areas on the map which reveal comparative advantages, one would have to assume that there are favourable social and technological institutions (both formal and informal) at work.

To build new capability or improve performance in an area of the Product Space, a whole host of market failures, coordination failures, uncertainties and high transaction costs must often be addressed. It is not enough to focus only on generic development factors such as basic education, health, good governance and the rule of law. This is where new kinds of meso organisations or adaptations of existing organisations are essential, focusing on overcoming structural failures, such as the ones identified by Hausmann, Rodrik and Sabel (2008):

- Self-discovery externalities: reducing the costs and risks from entrepreneurs and investors to explore and



experiment with new products, new combinations of technologies and what can be produced or profitably used in the economy.

- Coordination externalities: new economic activities may lack specialised support and often require a multitude of simultaneous investments and learning by different upstream and downstream actors.
- Missing public inputs: the reason why new areas do not just spring up by themselves is that all kinds of specialised inputs, ranging from laws, regulations, testing and metrology facilities, licences, accreditation, research and development and other physical infrastructure may be lacking.

The more central the capability on the Product Space map, the more likely it is that the capability of industry needs to be complemented by a range of knowledge and technological services, and a broader range of academic and professional education. These are often provided or supported by a range of meso organisations that lower the costs of accessing unique or specialised technological infrastructure, various standards and certification



organisations, research centres, technology extension services and other knowledge-intensive business services. While many of these are provided by the private sector, public sector organisations in most countries play a critical role in regulating, coordinating or providing these intermediary and supporting inputs.

Mesopartner has been using the Product Space to help clients to understand the current economic complexity of their countries and to find out how they can better support diversification, specialisation and increased competitiveness. This approach is very complementary to our work in the promotion of innovation systems and helping countries to acquire new technological capabilities. Instead of only trying to optimise arrangements and capabilities within existing value chains and areas of specialisation, developing countries need to purposefully create meso organisations (institutions) that reduce the costs of exploring related areas. Improving the performance, relevance and diversity of meso organisations may require policy coordination and technical advice, in terms of supporting procurement, developing and managing appropriate incentives, building knowledge capability through education, research and

identification of knowledge partners locally and abroad, as well as enabling regulations.

The CID link to the Atlas <http://atlas.cid.harvard.edu/>

The MIT link to the Atlas <http://atlas.media.mit.edu/>

References

HAUSMANN, R. & HIDALGO, C. 2011. The Network Structure of Economic Output. *Journal of Economic Growth*, Vol. 162011 pp. 309-342.

HAUSMANN, R., HIDALGO, C.A., BUSTOS, S., COSCIA, M., SIMOES, A. & YILDIRIM, M.A. 2013. The Atlas of Economic Complexity. Mapping paths to prosperity. Cambridge, Massachusetts: The MIT Press.

HAUSMANN, R., RODRIK, D. & SABEL, C.F. 2008. Reconfiguring Industrial Policy: A Framework with an Application to South Africa. Working Papers. CID Working Paper No. 168, Harvard, MA: Center for International Development, Harvard University.

Dr Shawn Cunningham (sc@mesopartner.com)
Christian Schoen (cs@mesopartner.com)