



10 Identifying the meso organisations that strengthen technological capability

First, we developed a framework to identify meso organisations and functions. Various typologies were evaluated that could be used to classify, measure and manage the performance of those organisations involved in technology dissemination or building technological capability. We started with four typologies of public technology diffusion proposed by the OECD (1997) that are based on operational focus:

- **Supply-driven:** programmes to transfer and commercialise technology from government research programmes to private enterprise, both high-tech and low-tech. It also involves education, skills development and standards.
- **Demand-driven:** these initiatives start with a diagnosis or the perspective of enterprises and aim to respond to the challenges or opportunities faced by private enterprises. These could be aimed at plugging specific performance, technology and capability gaps in the enterprises and are often focused on smaller businesses.

During the past year, Mesopartner has been working with the Trade and Industrial Policy Strategies (TIPS) and the Department of Trade and Industry (the dti) in South Africa to develop a strategy to identify and respond to discontinuous technological change (see Article 11 in this Annual Reflection, *Responding to technological change by promoting learning and skills upgrading in the economy*). As part of this research, we developed an approach to map the technological landscape of meso organisations that can assist South African enterprises and government programmes to adapt to technological change.



- **Network-based:** these are often sub-national or regional, and are aimed at creating or strengthening bridging effects, inter-firm partnerships in promoting information flows, and the diffusion of technology. Examples are cluster promotion, strengthening of industry or business associations, and fostering collaboration around skills development, research and development, or the development of shared infrastructure.
- **Technological capability dialogue, adaptation and socio-technical infrastructure building:** these intentional initiatives are aimed at working on a system-wide level to upgrade the technology diffusion capability of the national system of innovation within the context of global and regional economic and technological change and opportunities. This is often in the form of dialogue and reflection about why certain initiatives are not yielding the expected results, or why certain industries are not striving to increase their innovation, use of technology or competitiveness.

An example is the effort by several government departments to collaborate in a national digitalisation strategy, or the effort around the mining and ocean economy in South Africa in the past few years.

Some of these organisations are created to enable international trade. An example is the South African National Accreditation System (SANAS) and other organisations involved in South Africa's technical infrastructure. Other domestic organisations could be created to support a shift in the economy through a supply-side focus, such as the National Cleaner Production Centre, which provides technical support and training to the manufacturing sector. Programmes and functions established through industrial, innovation, education or technology policies should also be assessed as part of the framework.

As we started identifying and mapping the meso organisations, we realised that two critical types of actor were not captured by the typology we created:

- Private actors that provide public goods or mixed goods, such as technology demonstration, training and the provision of technology modules in open-source formats. For instance, Siemens in South Africa provides demonstration facilities and accredited technical training courses to the public.
- Intermediaries or facilitators in the system that broker relationships between different meso organisations and other actors. They may do this as part of another mandate, or they may be set up for this purpose. For instance, in South Africa there is a huge education and skills crisis. A range of non-governmental organisations have emerged that provide important services to the marketplace and the public sector. Many of these organisations conduct research, provide lecturer training, develop training content in open-source format, mobilise public and private

stakeholders into collaborative projects and provide public information on shortcomings in the education system. These organisations are critical to overcome coordination failures and to strengthen information flows between different actors in different spheres of society. However, in a typical meso mapping exercise, these organisations could be overlooked or ignored because the public sector or development cooperation partners may see them as interfering in functions that should be provided by the public sector.

International organisations, consultancies and programmes should also be considered in this framework. For instance, as part of executing its commission with various clients, Mesopartner often plays an intermediary role connecting various meso organisations, policy makers, researchers and leading firms to strengthen dialogue or joint decision making, or supporting collaboration. Other organisations that advise industries and governments and create publicly accessible advisory content should also be included.



A challenge that many developing countries face is that meso organisations have to work hard at creating capabilities that should already have existed five years ago, while trying to keep abreast of new international and domestic shifts that require new management capabilities, human resources, technologies and strategies. Not only the private sector can be overwhelmed or paralysed by competing technological choices, but public sector management can suffer the same symptoms. This means that in the framework provision should be made to differentiate between basic (or fundamental) offerings and future-oriented or more advanced offerings. This is not an additional kind of organisation, but it could be different functions provided by the same organisations.

While some organisations may be more important for improving the productivity and competitiveness of incumbent firms, others may be more relevant for lowering entry barriers to new start-ups and investors. Even if new start-ups lack market access or technological experience, in a dynamic environment their different knowledge and unique technological capability may put them at less of a disadvantage than the incumbents.

Some meso organisations may be hard to classify because they offer diverse services to different beneficiaries. For instance, universities often play an essential role in lowering the costs of gaining access to new knowledge, codified knowledge and research. At the same time, a university may offer industry access to scarce equipment on a pay-per-use basis, while a university laboratory may offer certification or analytical services to another research group. Or a research programme based at a university may be a sophisticated



client of a private enterprise that specialises in advanced equipment, while the same enterprise may be dependent on post-graduate students from the university. Some of these relationships and interdependencies are impossible to map without deep insight into how knowledge, technological ideas and people flow between organisations in the public and private sectors. Yet it is possible for the same organisation to show up in different typologies, in different markets served, or in multiple roles.

Next year we will have to try and figure out how to map these organisations without making it overly complicated and difficult to use, maintain and adapt.

Shawn Cunningham (sc@mesopartner.com)

References

OECD. 1997. Diffusing technology to industry: government policies and programmes.