



Management
& Technology
Consultants

CONVERGENCE LETTER

Of science parks and men

*Cities, the catalysts for development
in emerging markets*



N°30

To get there. Together.

ABOUT BEARINGPOINT

BearingPoint. Management & Technology Consultants.

We deliver Business Consulting. We are an independent firm with European roots and a global reach. In today's world, we think that expertise is not enough. Driven by a strong entrepreneurial mindset and desire to create long term partnerships, our 3,200 consultants are committed to creating greater client value, from strategy through to implementation, delivering tangible results.

As our clients' trusted advisor for many years (60% of Eurostoxx 50' and major public organisations), we define where to go and how to get there...

To get there. Together.

For more information: www.bearingpoint.com

Editorial content: Henri Tcheng and Jean-Michel Huet

Coordination and circulation: Sandrine Pigot and Stéphanie Lesdos

Contact: henri.tcheng@bearingpoint.com

Emerging markets are playing an increasingly important role on the international stage. In order to gain more influence, they have a number of challenges to face. First of all, these countries need to develop the local economy by creating more businesses, making these more attractive to overseas investors and giving structure to agricultural, industrial and tertiary industries in order to become more competitive. Their telecoms, energy and sanitation systems need to be developed or modernised in order to ensure a better quality of life to the local population. At the same time, they need to make sure that urbanisation is well organised and speed up the emergence of cities that are at the cutting edge of technological advancement.

■ From the 1970s onwards, industrialised countries set up programs to create technology centers or science parks in order to make up for their weaknesses in economic development, IT, unemployment and professional training for graduates. These science parks also provided a solution to the increasing need for innovation in an ever competitive environment. In other words, after the oil shock most countries realised that innovation was of primordial competitive importance and science parks seemed to be the ideal solution. Hence, in a quarter of a century, a myriad of technology centers or science parks popped up all over the world.

This phenomenon had a contagious effect on emerging markets and the trend has been accelerating over the last ten years. A multitude of factors explain this rise: national plans to develop digital economies, an increase in foreign investment, improved network infrastructures and more recently, Africa's connection to the fiber optic network. This last element is a turning point: if the 2000s heralded the setting up of science parks in richer emerging markets (North Africa, Persian Gulf, South East Asia), the new trend for the 2010s is the development of science parks in zones like sub Saharan Africa that have until recently not been concerned by this phenomenon.

■ **A science park has an effect both on training and research thus accelerating a country's development.** Egypt, Morocco or even Tunisia have opened the way for science parks in Africa and these pioneers have seen their initiatives crowned with success: several thousand new jobs have been created and the role of ICTs in these countries' economies has increased. Egypt's lighthouse technology project, Smart Villages, which opened in 2003, gave a 14.6% boost to the ICT sector in 2009, which contributed hugely to sustaining Egyptian economic growth in the face of the world economic crisis (+4.7%). Today, Smart Villages has over 35,000 employees on site.

Because science parks are considered to be actual development tools, positive competition between emerging markets has been born. Infrastructures that are specific to each country's attributes

are set up and each country attempts to make its own science parks stand out from another's by positioning themselves on their particular specialised area where the value added is high. In this way, Tunisia's El Ghawala Technopark, a technological window for the country that is specialised in ICT and micro electronics, has benefited from the large number of computer science engineer graduates the country produces. Certain countries take it even further and become country-enterprises, building a packaged offer of science park deployment by selling their know-how in this area to other countries. For example, the Tunisian technology centre of EL Ghazala carried out a technical, economic, commercial and environmental feasibility study for setting up a science park in Madagascar.

■ **Emerging markets use several different forms of leverage to aid in their economic transformation.** They are now able to obtain smarter and smarter technology that can help pilot their infrastructure networks (electricity, energy and water). It is through this deployment of digital infrastructures that African nations are beginning to emerge. The continent already has access to four underwater cables: the ACE cable on the West coast, the EASSy cable on the East coast, Lyon which connects the Indian Ocean islands to the rest of the world and the last cable, IMEWE which links the Middle East to Europe and Asia.

The main obstacle to developing these structures is financing these science parks. Mechanisms vary according to whom is involved in the project. Traditionally public finance takes care of the initial phases of conception and construction, while private operators invest in operations and production. More often than not the BOT (build, operate, and transfer) model means these projects can be financed by public-private partnerships. Specialised financing agencies are also called upon to bring in additional financing both for the initial science park construction as well as to encourage private companies to set up there. These agencies are often in touch with public or international organisations. They can grant loan facilities that are particularly well suited to promoting innovation with the aim of regional development.

■ **Science parks offer an intermediate level of technological innovation in infrastructure and have a sizeable impact on jobs, training and a country's economic development.** These parks bring together an ecosystem of actors from different horizons whose common aim is to stimulate innovation via training centers and research on one hand, and areas dedicated to developing innovative companies on the other hand (saplings, incubators, etc.) as well as business centers where companies can set up shop.

Having studied several science parks, 3 models of governance and organisation come to the fore, depending on the country in which they are set up. The Moroccan model has the *Caisse des*

Dépôts as a major player. The Tunisian model is characterised by the involvement of a private company, with state help, to develop and manage the park. And the Egyptian model reaches out to private operators who each have to organise their own sites.

Recently, Mauritius was considering setting up a science park in Nouakchott where they estimated excellent growth (+6% over the next five years) coupled with the discovery of natural resources that were more extensive than initially thought (iron, gold, petrol, etc.). Within the framework of its "National Strategy for Administrative and Information & Communication Technology Modernisation" the Mauritian government wanted to develop a specialised ICT structure. Their recommendations were to build a centre that would improve the business climate of Mauritania and particularly the welcome given to international or national companies. They set out clear calculated ambitions.

For emerging markets, the main aim is to make the most of all the technological leverage available to restructure the country around policies for innovation. Having built science parks, developed countries created competitiveness clusters and are moving more and more towards Smart Cities. Smart Cities are cities where the technological level of infrastructure and the socio-economic impact this has is taken to a higher level: a modern infrastructure that addresses urbanisation, sustainable development, technological needs and economic development. A good illustration of this concept is Shanghai's Smart City where new technology has

been integrated into urban life. Emerging countries today are taking this very same path.

A variety of different options are available from the science park to the Smart City via competitiveness clusters, each with their own variations. However two models stand out from the crowd: traditional models that are essentially tied in with fiscal advantages and that bring a real plus on the socio-economic level (training, universities, job creation); models that are much more mature, and mainly technological (digital) or ecological (Ecocities).

■ **Emerging economies still have some way to go until they have complete mastery of "technopolisation" or science & technology park development.** It is not about building at every opportunity, but rather using these parks in an efficient way in order to increase a territory or region's economic and social dynamism. On the basis of past experience, five factors are key to the successful installation of these types of structure.

Factor n°1: be sure of key actors complete involvement

In order to have the ideal conditions that will attract investors, create jobs and stimulate innovation, the science park has to be supported by both public actors (the state, a local equivalent of a public financial institution that helps cities or regions finance projects (*Caisse des Depots*) and universities) and private actors (businesses, banks, professional federations). In all the cases studied it appears that the state generally plays an essential role in

the availability of land, infrastructure financing and innovation (fiscal incentives and subsidies). The government investment banks also play a major role in financing, developing and even managing the science parks. Mobilising national private businesses is a key component to developing sapling businesses. And finally, partnerships with local universities ensure that professionally geared training courses can be set up.

Factor n°2: establish a common vision based on the country's strategic objectives

The science park offers should be adapted to the country's needs and economic policies; activities that are set up in the parks should be considered of strategic importance on a national scale. In order to contribute to job creation in a sustainable way, the science park should be part of a national innovation policy which outlines priority sectors of activity (industry, energy, food industry, services, etc.) both in terms of long term innovation and investment.

Factor n°3: establish an ad hoc financing model

The science park's financing and management model should be established with the input of several public and private partners. Building a model that is oriented more towards state based risk taking and financing through technological and financial partners (possibly privately based ones) and the actual running of the park by private actors appears to be one of the more successful options.

Factor n°4: set up an operational model that is effective and governance that is efficient

Where it comes to governance, a science park's longevity can only be ensured if the park can reach managerial and financial autonomy to the extent that it no longer depends on subsidies, as well as stimulating the search for client companies and partnerships with external companies. The management of these parks is often set up via an association of different players. This model needs to be effective and long-term in order to ensure that the park gradually builds strength and reaches its annual objectives in terms of occupancy. This is where it is useful to bring a professional site management company in. The governing body should pay particular attention to the companies chosen to set up in the park, to promotional initiatives and networking as well as communication policies.

Factor n°5: make science parks attractive to international partners

This is where the marketing of what is on offer comes into play. Everything that is offered to companies (conference centers, libraries, meeting rooms and help desks) needs to be visible on the international scene. It is absolutely vital to carry out a campaign that will seduce national and multinational companies who will choose to set up shop if there is a logistical and administrative advantage on offer. Finally, the park will look even more attractive to overseas investors if there is an incentivising

regulatory framework to facilitate the financing of young innovative companies, as well as some fiscal advantages. International partnerships should be sought out with other entities, be they companies or universities, in order to create productive bilateral relationships.

Past examples have shown us that science parks are true drivers of development in emerging economies if the decision makers choose the right model according to the country's context. This is reinforced if the science park tries to differentiate itself from the multitude of science parks in neighboring countries. Science parks are a source of local job creation as international companies set up and new companies are born. In this way they contribute to the country's economic growth. And finally, they are a powerful form of leverage for an emerging country's international outreach. They are windows that help shine the light on the progress being made in a country and the technological advances some of them experience: be it for advanced broadband or renewable energy.

Jean-Michel Huet, Isabelle Viennois, Romain Striffling and Amira Khediri.