

INSEAD

The Business School
for the World®

Faculty & Research Working Paper

Place Branding and Place Surrogacy:
The Making of the Masdar Cluster
In Abu Dhabi

Sami MAHROUM
Yasser ALSALEH
2012/130/IPI

**Place Branding and Place Surrogacy:
The Making of the Masdar Cluster in Abu Dhabi**

Sami Mahroum*

Yasser Alsaleh**

* Director, INSEAD Innovation and Policy Initiative at INSEAD Abu Dhabi Campus, P.O. Box 48049, United Arab Emirates. Email: sami.mahroum@insead.edu

** Senior Research Fellow, INSEAD Innovation and Policy Initiative at INSEAD Abu Dhabi Campus, P.O. Box 48049, United Arab Emirates. Email: Yasser.alsaleh@insead.edu

This working paper was developed using funds made available through the Abu Dhabi Education Council, whose support is gratefully acknowledged.

A Working Paper is the author's intellectual property. It is intended as a means to promote research to interested readers. Its content should not be copied or hosted on any server without written permission from publications.fb@insead.edu

Find more INSEAD papers at http://www.insead.edu/facultyresearch/research/search_papers.cfm

Abstract

The literature on cluster development almost unanimously regard 'clusters' as the co-location of businesses along a supply-chain ultimately culminating in the territorial concentration of certain economic activities. This paper presents a different strategy of cluster development, the renewable energy cluster in Abu Dhabi known as Masdar, which is based on the twin-strategy of 'Place Branding' and 'Place Surrogacy'. The Masdar experience presents an interesting approach to cluster development that involves planting the seeds of a local renewables industry overseas (through making investment and engaging in worldwide place branding activities) whilst preparing the minds and ground for its eventual transplantation back home when conditions for the transfer are suitable. Such a 'spin-in' based surrogacy model of cluster development, which is yet to prove its success, differs from the conventional wisdom with regard to the importance of both start-up and spin-offs during cluster emergence.

1. Introduction

Clusters have long been used as tools of economic development, especially at a regional level, with the objective of making firms more competitive (Porter, 2000a); creating more specialised skilled employment (Desmet and Fafchamps, 2005) and speeding up firm creation and growth (Baptista and Swann, 1998). Subsequently, clusters have been planned, developed and evaluated towards achieving these ends. Clusters are meant to be designated locations that provide 'micro climates' that favour and facilitate firm creation, technology transfer, highly skilled employment and overall economic growth (Jussawalla and Taylor, 2003). Therefore, many regions in both developing and advanced economies have attempted to 'manufacture' locations with cluster-like features and functions such as business incubators and science and technology parks (on industrial districts see Asheim et al., 2008; Harrison, 1992; Markusen, 1996; on regional innovation systems see Braczyk et al., 1998; Cooke et al., 1997; on innovation milieus see Camagni, 1991).

There has been some supporting empirical evidence that adopting cluster-based strategies has helped some economically laggard regions to attract new industries despite otherwise having imperfect investment climates and institutions (Lagendijk, 1998; Van Dijk and Sverrisson, 2003). Furthermore, some studies have found that companies located in clusters both grow more strongly and innovate more quickly than non-cluster companies (Baptista, 2000, 2001; Baptista and Swann, 1998; Breschi and Lissoni, 2001).

A distinctive feature of most clusters is that they cater for and facilitate inter-firm and inter-agency cooperation within their designated zone (Asheim et al., 2008; Harrison et al., 1996). It is in fact through such inter-tenant cooperation that extra added value is derived. Clusters are at least in theory conducive to the promotion of a network environment where industry agglomeration, economies of proximity and knowledge sharing can take place (Bell, 2005; Giuliani, 2007; St. John and Pouder, 2006). Porter (2000b), for example, suggests that a cluster of firms stimulates the growth of supplier and other complimentary economic activities that are essential for optimising the various conditions for economic competitiveness in nations and regions.

Clusters have been adopted and promoted by all sorts of regions, including those with a weak industrial base. As per the discussion above, the benefit of clusters increases with the intensity of interaction among its tenants. For example, Menzel and Fornahl (2010) say that “The growing density of companies and institutions within the boundaries of the cluster increasingly creates possibilities for innovation networks or customer–supplier relations and forms a specialized labor market” (pg. 226). Therefore, regions and economies that are characterised by a sparse or thin industrial base will face more challenges in the creation of industrial clusters. This is directly due to their small industrial “ecology”, which is often characterised by a limited number of firms operating along any particular value chain. Such a situation, for example, characterises many of the attempted cluster activities in the Gulf Cooperation Council (GCC) countries in the Middle East. The industrial structure of the GCC economies is dominated by two types of industrial ecologies, the first being monopsonies and duopolies industries with one or two dominant firms (often state-owned) acting as sole buyers from larger number of small suppliers. These tend to be concentrated in the traditional sectors such as oil and gas, in addition to construction, food and beverage, retail and transport sectors. The second is nascent industries, which consist of very small scale and small size firms that supply similar products and services largely in the IT and business support sectors. In the latter, the typical small size of the firms, the competition for same clients between them, as well as the absence of corporate taxation in the economy at large make clustering not very attractive. This particular industrial structure, which dominates most economic sectors in the GCC region, especially in the Business-to-Business markets, prevents the emergence of Porterian and/or Marshallian types of clustering and industrial districts. Instead, some clusters, in the UAE in particular, emerged as free-zones areas benefitting from legislation that permit foreigners who set up businesses in these areas to acquire residency rights. Businesses established in the free-zones, however, are usually not permitted to trade within the UAE.

Nevertheless, almost all the GCC countries have set up and continue to support industrial cluster projects in a variety of industries. This paper considers the life-cycle of the five year old renewables cluster in the Emirate of Abu Dhabi in the United Arab Emirates, named ‘Masdar’ (which means ‘source’ in Arabic). This case study, based on in-depth interviews

conducted with key officials that have worked at Masdar since its inception, has helped us identify a new and unique model of cluster development that characterises several of the cluster projects in Abu Dhabi. This new model that we describe below is one that is based on the twin strategies of 'place branding' and 'place-surrogacy'. A twin-strategy was designed to deal with the two main challenges that face Abu Dhabi: a very weak tradition of industrialisation and a strong association with one particular industry - i.e. oil and gas.

2. Masdar: The Renewables Cluster of Abu Dhabi

2.1 Background

The year 2006 was a historic one for the Emirate of Abu Dhabi. The passing away of the founder of the nation, Sheikh Zayed Al-Nahyan, led to a debate about the future of the emirate - in particular what would happen when the riches from oil and gas resources begin to fade away? A desire for economic diversification had been hovering over the leadership of the country for long time, but in 2006, there was only one question that really occupied the minds that were thinking for Abu Dhabi: What can you diversify into when your economy lies between Dubai, Qatar and Saudi Arabia? One of the answers was Masdar, a first-of-its-kind carbon-neutral city that would play home to cutting-edge technology and research on renewable energy and green building technologies. It was planned that the city, upon completion, would house 90,000 people (40,000 residents and 50,000 commuters).

2.2 Why Masdar?

Abu Dhabi is the largest of the seven emirates that make up the United Arab Emirates (UAE), a political union that was founded in 1971. It has for decades watched its neighbours develop their various, but also overlapping, niche economies. Qatar (around 500km away) may be the world capital of liquid gas, but it has also shaped itself as the headquarters of global media giants such as Al-Jazeera, a regional home for international higher education and research centres such as Carnegie Mellon, HEC, Harvard - and others - as well as becoming a frequent host of high profile international events including the forthcoming 2020 FIFA World Cup.

To the northeast of Abu Dhabi and within the UAE lies Dubai, a flamboyant neighbour that thrives on consumerism, tourism, media, transport, finance, and real estate, which is often nicknamed (somewhat inaccurately) the 'Las Vegas of the Middle East'. Dubai's economy has long been diversifying and its local economy could be described as highly diversified (the 26th most diversified in the world according to the IMD, 2011). To give an example of Dubai's efforts to diversify its economy and enter new fields, consider this: around the year 2006 when there was a global shortage of silicon, the Dubai Silicon Oasis Authority was considering investing in semi-conductor foundries and facilities to produce silicon, which could then be used in manufacturing solar cells. These plans were, however, abandoned soon after the announcement of the launch of the Masdar Initiative, which enjoyed a strong support from the Government of Abu Dhabi.

To the west and the south of Abu Dhabi lies the world's largest exporter of oil, Saudi Arabia. The Kingdom of Saudi Arabia is the largest economy in the Middle East and the biggest recipient of foreign investment in the Arab World. The economic and political importance of Saudi Arabia is too big to be ignored, to the extent that even negative publicity does not cause it much damage.

In 2006, Abu Dhabi had ample supplies of oil and gas but little else to give it an economic advantage either regionally and internationally. Concurrently, the world was beginning to have more of an awareness of the effects of oil and gas production and consumption on the health of the world's ecology. A global backlash against carbon emissions was on the rise, leading to restrictive legislation, subsidies for alternative cleaner energy sources and higher taxes on consumption. An increased global awareness of the carbon footprint of nations highlighted Abu Dhabi as among the world's worst polluters per capita (WWF, 2012).

Therefore, in 2007, the Abu Dhabi Government launched their Economic Vision 2030 (EV2030). That vision which called for economic diversification into new high-tech driven industries saw Masdar as the jewel in the crown of the new strategy. The Masdar Initiative was incubated within one of the country's strongest investment arms - the publically owned company Mubadala. This gave the whole initiative an aura of seriousness as Mubadala has deep pockets and is a serious investor. More importantly, the Mubadala incubation sent the

message that Masdar was an initiative managed on the basis of 'return on investment'. It was not simply large-scale government investment in a new type of infrastructure.

2.3 Place-Making, but first 'Place-Branding'

There was one major challenge to overcome, however, which was how a major producer of conventional energy was to be taken seriously as an advocate of renewable energy? The strong association between Abu Dhabi and the hydrocarbon industry presented a potential problem for Masdar that it could not ignore. In fact, Abu Dhabi's intentions and ambitions for the renewables industry are larger than Masdar, and the latter is but one component of a wider strategy. In order to demonstrate the gravity of its wider strategy, the Abu Dhabi Government created and supported further 'buzz-making' initiatives including the World Future Energy Summit, the Zayed Future Energy Prize and the International Renewable Energy Agency (IRENA).

The World Future Energy Summit, first held in 2008, became the world's foremost annual meeting committed to advancing clean energy technologies and solutions. During this event, nicknamed the 'Davos of renewable energy', the winners of the Zayed Future Energy Prize walk away with \$4 million prize. The prize is the world's most generous award for those who have made an important contribution to addressing clean energy, climate change and sustainability (ZFEP, 2012). In order to provide more momentum for Abu Dhabi's dive into the broader sustainability sector, it has been recently decided that from 2013, the two key events will take place over a whole week named 'Abu Dhabi Sustainability Week'. This will also include new events such as the International Renewable Energy Conference; International Water Summit; and the General Assembly of IRENA. Hosting the latter is the third prong of the re-branding strategies undertaken in the Emirate of Abu Dhabi. The decision by IRENA to choose Abu Dhabi as their first headquarters was seen as an important gain for the re-branding endeavour. Masdar has been instrumental in the success of these achievements, all of which contribute to transforming the image of Abu Dhabi into a leader in the world of renewable energy.

These accomplishments help us understand the context in which the Masdar Initiative was conceived. Its holistic approach has been, since the beginning, designed to be more than a cluster even in the way it operates. In addition to the Masdar City, it has four additional main arms: i) an educational and R&D arm; 2) a local renewable energy development arm; 3) a domestic carbon reduction arm; and 4) a foreign investment arm. The first arm was realised in the creation of the Masdar Institute in collaboration with the MIT, as the region's first graduate-level, research-orientated university with a focus on sustainable energy and environmental studies. The affiliation with the MIT has been an important part of the re-branding strategy. The MIT brand itself signals seriousness, excellence and a firm footing within the international academic community. The second arm of the Masdar Initiative was Masdar Power, set up to develop and operate utility-scale renewable energy projects, including a project named 'Shams 1', which is expected to be operating by the end of 2012. The third arm was Masdar Carbon, which does not focus on renewable energy but rather on managing projects that can achieve reductions in carbon emissions in Abu Dhabi. Examples include energy efficiency, waste heat recovery and the process of carbon capture and storage. The fourth and final part of the initiative was Masdar Capital. This has been formed to build a foreign investment portfolio taking in some of the world's most promising renewable energy companies. All of these initiatives have demonstrated, and added to, the credibility of Abu Dhabi's intentions with regard to advancing the clean and renewable energy agenda. Through them, Abu Dhabi demonstrated that it was making resources available to achieve its mission to earn a new position in the international arena.

2.4 Masdar Developmental Path

To understand the development of the Masdar cluster to date, we draw on the work of Menzel and Fornahl (2010) that examines the process behind the emergence, growth, decline and renewal of clusters (see Figure 1). Menzel and Fornahl suggest that the movement of the cluster through its life cycle depends on the increase and decrease of heterogeneity among the cluster's companies and organisations (*ibid.*).



Figure 1: A Typical Cluster Life Cycle (Menzel and Fornahl, 2010)

We can also supplement the cluster life-cycle (CLC) above with the AC/DC framework for analysing innovation capabilities within specific localities that was developed by Mahroum et al. (2008). The AC/DC framework stipulates that innovation capability can be deconstructed into a set of five functions, namely; to access, anchor, diffuse, create and exploit knowledge (Mahroum et al., 2008). Thus, we extend the notion of these five functions to the study of a cluster life cycle (see Fig. 2 below) and propose here that as they emerge along the Menzel and Fornahl's (2010) trajectory, cluster activities take different orientations as cluster tenant needs begin to change.

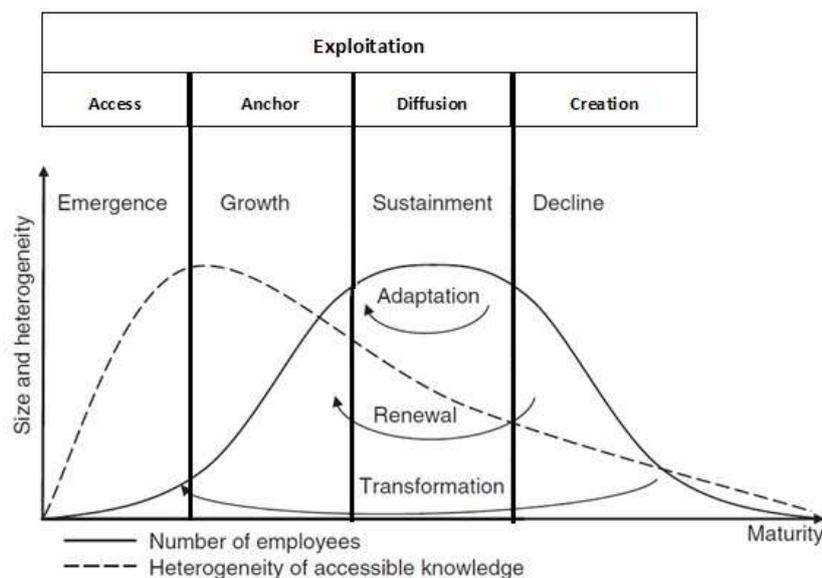


Figure 2: AC/DC Platform for Cluster Life Cycles (based on Menzel and Fornahl, 2010)

To elaborate this point further, in the 'emergence' phase of clusters, for example, the need to gain 'access' to critical resources that exist in various knowledge and business networks is most critical. In the 'growth' phase, clusters require strong 'anchoring' activities from firms, people, and other actors that support business growth. The next growth phase is 'sustainability' and at this stage a cluster will require stronger orientation towards 'diffusion' activities within the local economy in areas such as investing and expanding outside the cluster. Menzel and Fornahl then expect the cluster to enter into a phase of decline unless they manage to engage in renewal activities, or else lose their ability to adjust to a changing environment. It is here that we believe that cluster tenants will need to become more orientated towards the 'creation' of radical innovations and disruptive innovations that help trigger a new wave of growth (Romer, 1986). Finally, the ability to 'exploit' new knowledge is important across all phases of the cluster life cycle.

3. How did Masdar Evolve along the CLC?

The Emergence/Access Phase

To consider the effect of the Masdar Initiative has had in connecting Abu Dhabi to the global community of renewables and sustainability, one has only to consider the state of the emirate in this regard before the launch of this initiative. The emirate had no economic or scientific activities in this domain whatsoever. There also seemed to be little, if any, awareness of sustainability issues. The small numbers of locals or foreigners engaged in this field were strictly limited to specialised pockets of environmental preservation at large oil and gas companies.

With Masdar, Abu Dhabi has become very much more engaged with international players in the renewable energy field; not only through participation in and hosting of international events, but also through massive investments in renewable energy technologies and businesses. These represent Masdar's most important bet on the future - the surrogate locations. These are overseas locations where the conditions for the growth and emergence

of a renewable energy technological sector are favourable. Masdar therefore aims to incubate its eggs, so to speak, in these favourable environments to create - eventually - a cluster at home that is born of global expertise.

Much of Masdar's investment in international markets has been through its Clean Tech Fund; whose first round (valued \$250 million) was launched in 2006 and second (\$265 million) in 2009. Through these major funds, Masdar made several direct investments in international companies, as either lead or co-lead investor. Such high-profile investments have been welcomed by most major players; partially due to the global credit crunch but also because they view the UAE as a potential future hub for their operations in a region that is blessed with huge, yet untapped, renewable energy potential.

Examples of Masdar's international investment include partnerships with the German energy corporation EON in the ongoing creation of the world's largest offshore wind park, known as 'London Array', in addition to co-founding Torresol Energy, a solar thermal energy company that is currently building three major solar power plants in Spain. Masdar owns 40% of Torresol, whose products are now sold in Southern Europe, the USA and South America as well as the Middle East and North Africa regions. Additionally, Masdar invested EUR 120 million to acquire 40% of WinWinD, a Finnish wind turbine manufacturer.

Another example of how such investments made by Masdar have provided access is the establishment of Masdar PV (at a cost of around \$600 million) in Germany. Through this investment, Masdar was able to tap into generous German government subsidies for renewable energy. Masdar PV also provided a second type of access; to the large German and wider European market. With an operational factory in Ichttershausen, Germany, Masdar PV has been successful in manufacturing and selling photovoltaic films in Europe. Furthermore, to gain a third type of access, namely to specialised knowledge and expertise, Masdar sent local Emiratis to study and train at German universities and manufacturing facilities. Further plans to bring some of this learning home include a project to build solar factories in the UAE, but these plans are currently on hold until the local industry takes off.

More attention has been given to using Masdar as a platform to access international knowledge and expertise in the renewable energy domain. To achieve that, the Masdar Research Network was created - even before the official establishment of the Masdar Institute - for the purpose of funding research projects conducted at leading universities in collaboration with industrial players. Under each collaboration agreement, two local researchers are sponsored to pursue their doctoral work and any gained intellectual property will ultimately be owned by Masdar. Examples of funded projects include testing solar thermal beam down technology at the Tokyo Institute of Technology, in collaboration with Japan's Cosmo Oil Company. Other projects that have focused on different clean energy technologies were conducted at Imperial College London, Waterloo University, Columbia University and RWTH Aachen University, amongst others. In March 2011, the Masdar Institute was chosen to lead the Gulf region in establishing a clean energy research network in collaboration with the European Union. This networking initiative – which is financially backed by the European Commission – has contributed to putting Abu Dhabi on the map as a leader in the clean energy domain (EU-GCC Clean Energy Network, 2011).

Growth/Anchor Phase

Anchoring is what Masdar aims to do with the offspring of its 'surrogate mothers'. The long term plan is to attract and anchor divisions from the overseas operations to Abu Dhabi. So far success has been achieved in accessing and penetrating the international renewable energy arena. This is beginning to change and Masdar may now be moving into the anchoring phase. Recently, it has been successful in attracting the German engineering conglomerate Siemens to set up its regional headquarters in Masdar City. It is hoped that Siemens will be the anchor, or magnet, tenant of the city that will lure in other major partners to create a clean-tech and R&D hub in Abu Dhabi. The global economic downturn has slowed down the evolution of Masdar along the CLC.

Meanwhile, the Masdar Institute has been successful in recruiting over sixty world-class academics and top-tier researchers with an interest in energy and sustainability (Masdar Institute, 2012). When asked about the main factors that attracted these academic staff to join the Masdar Institute, one of the interviewees cited among others "high salaries, when

compared to those offered by other academic establishments in the region or even in the world". By 2018, the institute aims to host up to 800 graduate students with 200 faculty members.

Sustainment/Diffusion

Following a series of annual surveys conducted by the Environmental Agency of Abu Dhabi, it was recently revealed that local awareness and clean energy-conscious behaviour has increased from an initial level of 49% to 58.5% over the period 2007-2011. Compared to other countries in the region, data confirms that the UAE is now doing well in terms of sustainability awareness. Whether this is largely due to the efforts made by Masdar or not cannot be proved but the branding of Masdar nationally and the various associated sustainability projects and activities launched in the country, makes it reasonable to suggest that these have helped raise societal awareness about sustainability issues in Abu Dhabi (Aswad et al., 2012).

The effect of Masdar, however, can be seen in the interest it has generated among local universities in launching training programmes on sustainability, such as Khalifa University of Science and Technology and the UAE University), which have recently started to offer courses on the subject of renewable energy. Additionally, under the initial guidance of the Masdar Institute, a group of local companies came together to form an industry association in 2009, known as the Emirates Solar Industry Association (ESIA). The association holds regular meetings and events for the purpose of promoting solar energy in the region and fostering closer collaboration (Vidican et al., 2012).

On the ground, however, Masdar as a project remains below expectations in terms of its 'diffusion' impact. This is in the main due to a lack of a critical mass of firms that can be engaged in the field. Abu Dhabi, and the UAE in general, does not have enough firms active in the sustainability field. The situation is changing rapidly though, as is evident by the creation of the ESIA, as well as the recent introduction of green building codes.

Sustainment/Creation

The establishment of the Masdar Institute, in collaboration with the MIT, has transformed Abu Dhabi from a place with negligible contribution to renewable energy-related knowledge to a significant place on the map of scientific production. The Institute's emphasis on research and scientific publications since its inception has already made a meaningful contribution to the knowledge base in this field. Moreover, the Masdar Institute is launching a doctoral programme and has an active post-doctoral programme in place. To date, the Masdar Institute is the only operational entity that conducts any substantial R&D activities in the area of renewables in Abu Dhabi. Next to its campus, Siemens's regional headquarter is being constructed and is expected to be operational in 2013. However, as we have mentioned above, Masdar has been through its 'surrogate locations' active in R&D activities from Tokyo to London with UAE nationals training in these projects. While these activities do not take place physically in Abu Dhabi, they are part of the Masdar virtual cluster with links and transmission channels to the home city.

Growth/Exploitation

So far, Masdar has not reached the growth phase where one can speak of strong exploitation capabilities in the field of renewables having been established. Nevertheless, some progress has been achieved. The emirate now boasts an academic and research centre of excellence that can indeed absorb and exploit new knowledge in the field that has been developed anywhere around the world. Masdar has also played host to numerous testing and prototyping activities for various renewable technologies. The Abu Dhabi investment agencies have developed strong knowledge and expertise in the sector from a business and technological perspectives that now allow them to make well informed investments in this sector around the world. Foreign investments that Masdar has made in this sector internationally can potentially translate into quick wins for the domestic economy by the transfer of part of their activities back to Abu Dhabi. Finally, Masdar has been successful in exploiting the fruits of foreign research and development through its long arm of investments overseas. The cluster project as a portfolio has in fact been globally speaking more successful in the exploitation of new renewable energy technologies than the state of its facilities in Abu Dhabi would suggest.

4. The Masdar Experience as a New Model for Cluster Development

4.1 The Role of Branding

Generally speaking, place branding refers to “The broad set of efforts by country, regional and city governments and by industry groups aimed at marketing the places and sectors they represent” (Papadopoulos, 2004, 1). The Masdar case has shown how governments can make effective use of cluster initiatives to re-brand, mobilise and re-shuffle resources around certain techno-economic domains. There is nothing new with the use of place branding as such. Globalisation has pushed governments towards adopting branding strategies that help differentiate their economies from those of others and create greater awareness about the type of economic activities they are or aspire to become active in (Anholt, 2007). The concept of regional branding is also consistent with developing competitive advantage by helping to sustain and promote the image of a region in the long-run (Pant, 2005; Pasquinelli and Teräs, 2011).

Many countries and regions use place branding in order to face the threats and exploit the opportunities posed by global competition (Pasquinelli, 2012). What is perhaps particular to the Abu Dhabi case is the use of a cluster initiative itself as a branding tool for an entire place. As a matter of fact, the UAE Ministry of Foreign Affairs has set up a dedicated office for environmental awareness, which very much uses Masdar as a case in point to showcase the country’s seriousness about the environment. Thus, clusters can also be an important instrument of place branding (Glaeser and Gottlieb, 2008; Kavaratzis, 2005).

Branding can also help laggard or peripheral regions exploit new opportunities by enabling investors and talent to overcome negative perceptions about a region (Gertner and Kotler, 2004). Similar strategies have been adopted by firms too. For instance, such branding endeavours resemble the efforts made by international oil giants to brand their businesses as energy companies and not simply oil companies. BP has re-branded itself as ‘Beyond Petroleum’ instead of its original name ‘British Petroleum’. In the case of Abu Dhabi, the Masdar cluster has been an effective branding tool. It has been used to counter negative

publicity associated with the production and use of conventional energy (particularly oil and gas) but also to mobilise resources and create a buzz around new industries locally.

4.2 The use of 'Place Surrogacy'

Studies of CLC and cluster evolution dynamics (e.g. see Bergman, 2008; Elola et al., 2012; Poudier and St. John, 1996; Maskell and Malmberg, 2007) have examined the impact clusters have on the economy outside the cluster, their relationship to the immediate vicinities and how the latter play a role in their emergence. The Masdar experience shows that there are new possibilities for the emergence of local clusters, ones that potentially follow different life-cycles. In this particular case, the experience begins with some of the cluster activities taking place overseas. This may be described as the 'surrogate model of cluster creation', where the seeds for the cluster are initially planted elsewhere and then transferred back to a new home location when the conditions for the transfer are suitable. Thus instead of a spill-over effect, this model anticipates a spill-in effect from the overseas locations. Accordingly, the life cycle of the Masdar initiative can be described as a different type of evolutionary path as depicted in Figure 3.

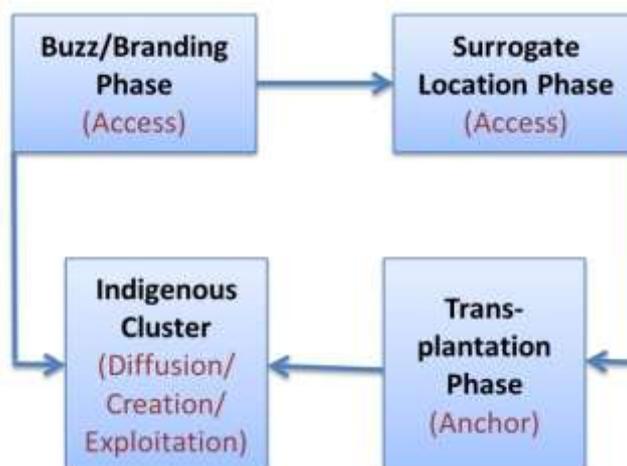


Figure 3: The Surrogate Model of Cluster Creation

Such a 'spin-in' based approach, which is yet to prove its success, differs from the conventional wisdom with regard to the importance of both start-up and spin-offs during

cluster emergence (e.g. see Arthur, 1994; Menzel, 2005). However, it also relates to the notion metaphor of 'local buzz and global pipelines', which was originally articulated by Bathelt et al. (2004), and later advanced by several scholars (e.g. Benneworth and Dassen, 2011; Gertler, 2006; Wolfe and Gertler, 2004), to highlight the importance of both distant and local networks when it comes to knowledge access and creation in clusters. The 'local buzz and global pipelines' notion suggests that certain economic activities can be kicked-off by firstly creating a local buzz around them in order to generate interest and attract investments to the targeted sectors, but that these activities to be successful they need be linked to international markets and global value chains (Bathelt et al., 2004). This notion can be found to characterise many of the large scale economic diversification projects in the UAE. However, the surrogate model of cluster development suggests that there is also the possibility of the existing of reverse dynamics, whereby the 'buzz' is started off globally, while the local pipelines are developed locally. In this case, the Masdar case may be described as a case of a simultaneous development of a 'global buzz' and 'local pipelines'.

5. Conclusions

The Government of Abu Dhabi has adopted a two-pronged approach to promoting the renewables sector in the emirate. This happened by first planting the seeds of a local renewables industry overseas and second by preparing the minds and ground for its eventual transplantation back home. The former was achieved by active foreign investment in renewables R&D and businesses, and the latter by investing in physical infrastructure and a strong re-branding campaign. Much of the Masdar cluster remains in the first two phases.

On the whole, Masdar has been successful in achieving most of its main short-term goals primarily the re-branding of the Abu Dhabi economy and buying-in (planting of seeds) in the global renewable energy industry. Moving to the transplantation or transfer phase will represent a turning point in the life of this cluster.

The life cycle of the Masdar cluster began with awareness and branding as its embryonic phase supported by an ambitious foreign investment portfolio. The cluster initiative is rooted in a major government effort leading to a wider economic diversification strategy

and for that to be achieved; the cluster will need to grow both at home and internationally. So far, the feeling is, as one informant for this case study put it “Masdar has become a governmental entity that is charged with selling the government’s vision with regard to the environment” both locally and internationally.

Internationally, it has represented a concerted effort to change the unenviable image of being one of the world’s biggest polluters. Locally, it helped promote renewables as opportunities rather than threats to an economy that is largely supported by conventional hydrocarbon sources of energy. Thus, from a place-branding perspective, Masdar can be classified as what Helm (2008) called an ‘umbrella’ branding strategy aimed at multiple stakeholders with the objective of branding an entire economy rather than one that is focused on a single location per se.

Branding was initially used to ease access to important players in the field. Subsequently it was supported by various funding schemes to tap into international resources, to support anchoring knowledge creation and exploitation. So far, it has managed to establish strong ‘access’ channels and capabilities for a place that traditionally had limited access to the world of renewables. This was part of what we called the ‘surrogacy’ tactic. So far, there have been limited ‘anchoring’ activities largely due to the global economic crisis that began in 2008, but some major anchoring projects are underway such as a project by the German giant Siemens.

Progress so far, nevertheless, remains compatible with the ‘place surrogacy’ strategy, where emphasis is initially placed on acquiring and developing the genesis of the some cluster overseas while preparing the ground at home for the eventual transplantation of foreign activities to Abu Dhabi. Masdar has also had some ‘diffusion’ impact on Abu Dhabi as a whole, as is evident by the increased number of students and university programmes in the area of renewables as well as increased environmental awareness in the country, which has included the launch of green building codes. Last, but not least, in line with its image change strategy, Abu Dhabi, through Masdar, has been successful in establishing itself as a seat for the newly created IRENA.

Ultimately, the success of this two-prong strategy will very much depend on two things, firstly the success of Abu Dhabi in developing absorptive capabilities and legal and regulatory framework conditions that make the domestication of foreign planted assets possible. Secondly, it depends on the success of the foreign ventures themselves, which is not something to taken for granted. This strategy is quite unique, but does carry some resemblance to corporate practices of setting R&D centres and other business unit in foreign countries in order to access market and/or learning opportunities. Abu Dhabi might benefit from the experience of firms in this regard, especially in terms of managing knowledge transfer from one location to another. However, there remain striking differences between pursuing such a strategy within one single organisation (the firm) and between multiple organisations in different locations. The Abu Dhabi Masdar experience therefore provides new avenues for research on cluster development, knowledge transfer and economic diversification strategies.

Acknowledgements

The authors are indebted to the constructive feedback received from participants of the 7th International Seminar on Regional Innovation Policies. Thanks are also extended to Miss Meera Kanhere for the research assistance she provided towards the writing of [the](#) paper. The authors also wish to acknowledge the financial support from Abu Dhabi Education Council for conducting this research.

References

- Al-Awadhi, A. (2012). *UAE's pioneering experience in sustainable development*. Abu Dhabi: Emirates Centre for Strategic Studies and Research.
- Anholt, S. (2007). *Competitive identity: the new brand management for nations, cities and regions*. New York: Palgrave Macmillan.
- Arthur, W.B. (1994). *Increasing returns and path dependence in the economy*. Ann Arbor: University of Michigan Press.
- Asheim, B., Cooke, P. and Martin, R. (2008). *Clusters and regional development: critical reflections and explorations*. *Economic Geography*, Vol. 84, no. 1, 109–112.
- Aswad, N.G., Al-Saleh, Y. and Taleb, H. (2012). *Clean energy awareness campaigns in the UAE: an awareness promoters perspective*. *International Journal of Innovation and Knowledge Management in MENA*, forthcoming.
- Baptista, R. (2000). *Do innovations diffuse faster within geographical clusters?* *International Journal of Industrial Organization*, Vol. 18, no. 3, 515–535.
- Baptista, R. (2001). *Geographical clusters and innovation diffusion*. *Technological Forecasting and Social Change*, Vol. 66, no. 1, pp. 31–46.
- Baptista, R. and Swann, P. (1998). *Do firms in clusters innovate more?* *Research Policy*, Vol. 27, no. 5, pp. 525–540.
- Bathelt, H., Malmberg, A. and Maskell, P. (2004). *Clusters and knowledge: local buzz, global pipelines and the process of knowledge creation*. *Progress in Human Geography*, Vol. 28, no. 1, pp. 31-56.
- Beaudry, C., Breschi, S. and Swann, G.M.P. (2001). *Clusters, innovation and growth: a comparative study of European countries*. In *Multinational firms: the global-local dilemma*, Dunning, J.H., Mucchielli, J.L. (Eds.). London: Routledge.

Bell, G.G. (2005). *Clusters, networks, and firm innovativeness*. Strategic Management Journal, Vol. 26, no. 3, pp. 287–295.

Benneworth, P. and Dassen, A. (2011). *Strengthening global-local connectivity in regional innovation strategies: implications for regional innovation policy*. OECD Working Paper no. 2011/01

Bergman, E.M. (2008). *Cluster life-cycles: an emerging synthesis*. In *Handbook of research on cluster theory*, Karlsson, C. (Ed.). Cheltenham: Edward Elgar Publishing Ltd.

Braczyk, H., Cooke, P. and Heidenreich, M. (1998). *Regional innovation systems: the role of governance in a globalized world*. London: University College of London Press.

Breschi, S. and Lissoni, F. (2001). *Localised knowledge spillovers vs. innovative milieux: Knowledge “tacitness” reconsidered*. Papers in Regional Science, Vol. 80, No. 2, pp. 255–273.

Camagni, R. (1991). *Local “milieu”, uncertainty and innovation networks: towards a new dynamic theory of economic space*. In *Innovation networks: spatial perspective*, Camagne, R. (Ed.). London: Belhaven.

Cooke, P., Uranga, M.G. and Extbarria, G. (1997). *Regional innovation systems: institutional and organisational dimensions*. Research Policy, Vol. 26, no. 4, pp. 475-491.

Desmet, K. and Fafchamps, M. (2005). *Changes in the spatial concentration of employment across US counties: a sectoral analysis 1972–2000*. Journal of Economic Geography, Vol. 5, No. 3, pp. 261–284.

Elola, A., Valdaliso, J.M., Lopez, S.M. and Aranguren, M.J. (2012). *Cluster life cycles, path dependency and regional economic development: insights from a meta-study on Basque clusters*. European Planning Studies, Vol. 20, no. 2, pp. 257-279.

EU-GCC Clean Energy Network (2011). *Project news* [WWW]. Available from: <http://www.eugcc-cleanenergy.net/News/ProjectNews.aspx> [accessed 14 March 2012].

Gertler, M.S. (2006). *Buzz without being there?* In the Cambridge-MIT Institute Forum on Knowledge Exchange, Networks and Regional Innovation. Cambridge, 6-7 December 2006.

Gertner, D. and Kotler, P. (2004). *How can a place correct a negative image?* Place Branding, Vol. 1, no. 1, pp. 50–57.

Giuliani, E. (2007). *The selective nature of knowledge networks in clusters: evidence from the wine industry.* Journal of Economic Geography, Vol. 7, no. 2, pp. 139–168.

Glaeser, E.L. and Gottlieb, J.D. (2008). *The economics of place-making policies.* NBER Working Paper no. 14373, October 2008.

Hankinson, G. (2010). *Place branding research: a cross-disciplinary agenda and the views of practitioners.* Place Branding and Public Diplomacy, Vol. 6, no. 4, 300–315.

Harrison, B. (1992). *Industrial districts: old wine in new bottles?* Regional Studies, Vol. 26, no. 5, pp. 469–483.

Harrison, B., Kelley, M.R. and Gant, J. (1996). *Innovative firm behavior and local milieu: exploring the intersection of agglomeration, firm effects, and technological change.* Economic Geography, Vol. 72, no. 3, pp. 233-258.

IMD (2011). *IMD World Competitiveness Centre Index.* Lausanne: IMD.

Kavaratzis, M. (2005). *Place branding: a review of trends and conceptual models.* The Marketing Review, Vol. 5, no. 4, pp. 329–342.

Legendijk, A. (1998). *New forms of regional industrial policy in Europe: how do policy makers understand competitiveness and clusters.* In the European Regional Science Association Conference. Vienna, 28 August-1 September 1998.

Mahroum, S., Huggins, R., Clayton, N., Pain, K. and Taylor, P. (2008). *Innovation by adoption: measuring and mapping absorptive capacity in UK nations and regions.* London: NESTA.

Markusen, A. (1996). *Sticky places in slippery space: a typology of industrial districts*. *Economic Geography*, Vol. 72, no. 3, pp. 293–313.

Masdar (2012). *About us* [WWW]. Available from: <http://www.masdar.ae/en/home/index.aspx> [accessed 4 June 2012].

Masdar Institute (2012). *List of faculty* [WWW]. Available from: <http://www.masdar.ac.ae/inc/5/faculty-list.php> [accessed 15 September 2012].

Maskell, P. and Malmberg, A. (2007). *Myopia, knowledge development and cluster evolution*. *Journal of Economic Geography*, Vol. 7, no. 5, pp. 603-618.

Menzel, M-P. (2005). *Networks and technologies in an emerging cluster*. In *Industrial clusters and inter-firm networks*, Karlsson, C., Johansson, B. and Stough, R.R. (Eds.). Cheltenham: Edward Elgar Publishing Ltd.

Menzel, M-P. and Fornahl, D. (2010). *Cluster life cycles: dimensions and rationales of cluster evolution*. *Industrial and Corporate Change*, Vol. 19, no. 1, pp. 205-238.

Pant, D.R. (2005). *A place brand strategy for the Republic of Armenia: "quality of context" and "sustainability" as competitive advantage*. *Place Branding*, Vol. 1, no. 3, pp. 273–282.

Papadopoulos, N. (2004). *Place branding: evolution, meaning and implications*. *Place Branding*, Vol. 1, no. 1, pp. 36–49.

Pasquinelli, C. (2012). *Competition, cooperation, co-opetition: widening the perspective on place branding*. Unpublished Ph.D. thesis: Scuola Superiore Sant'Anna.

Pasquinelli, C. and Teräs, J. (2011). *Branding peripheral knowledge-intensive regions: an insight into international innovation brands*. *Regional Insights*, Vol. 2, no. 2, pp. 9–11.

Porter, M.E. (2000a). *Location, competition, and economic development: local clusters in a global economy*. *Economic Development Quarterly*, Vol. 14, no. 1, pp. 15-34.

Porter, M.E. (2000b). *Locations, clusters, and company strategy*. In *The Oxford handbook of economic geography*, Clark, G.L, Gertler, M.S. and Feldman, M.P. (Eds.). Oxford: Oxford University Press.

Pouder, R. and St. John, C.H. (1996). Hot spots and blind spots: geographical clusters of firms and innovation. *Academy of Management Review*, Vol. 21, no. 4, pp. 1192-1225.

Romer, P.M. (1986). *Increasing returns and long run growth*. *Journal of Political Economy*, Vol. 94, no. 5, pp. 1002-1037.

St. John, C.H. and Pouder, R.W. (2006). *Technology clusters versus industry clusters: resources, networks, and regional advantages*. *Growth and Change* 37, no. 2, pp. 141–171.

Swann, G.M.P. (1998). *Towards a model of clustering in high technology industries*. In *The dynamics of industrial clusters: international comparisons in computing and biotechnology*, Swann, G.M.P., Prevezer, M. and Stout, D. (Eds.). Oxford: Oxford University Press.

Van Dijk, M.P. and Sverrisson, Á. (2003). *Enterprise clusters in developing countries: mechanisms of transition and stagnation*. *Entrepreneurship and Regional Development*, Vol. 15, no. 3, pp. 183–206.

Vidican, G., McElvaney, L. Samulewicz, D. and Al-Saleh, Y.M. (2012). *An empirical examination of the development of a solar innovation system in the UAE*. *Energy for Sustainable Development*, Vol. 16, no. 2, pp. 179-188.

Wolfe, D.A. and Gertler, M.S. (2004). *Clusters from the inside and out: local dynamics and global linkages*. *Urban Studies*, Vol. 41, no. 5, pp. 1071-1093.

WWF (2012). *Living planet report 2012*. Gland: WWF International.

ZFEP (2012). *About the Zayed Future Energy Prize* [WWW].

Available from: <https://www.zayedfutureenergyprize.com/en/about-zfep/> [accessed 1 August 2012].

Europe Campus
Boulevard de Constance
77305 Fontainebleau Cedex, France
Tel: +33 (0)1 60 72 40 00
Fax: +33 (0)1 60 74 55 00/01

Asia Campus
1 Ayer Rajah Avenue, Singapore 138676
Tel: +65 67 99 53 88
Fax: +65 67 99 53 99

Abu Dhabi Campus
Muroor Road - Street No 4
P.O. Box 48049
Abu Dhabi, United Arab Emirates
Tel: +971 2 651 5200
Fax: +971 2 443 9461

www.insead.edu

INSEAD

The Business School
for the World®