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**Maximilian Benner**

# Designing Comprehensive Cluster Policies in Developing Countries: Perspectives for Morocco

## Abstract

Cluster policy has arrived at the mainstream of economic policy since the early 1990. In many developing countries including those on the African continent, clusters on the regional and local levels have been promoted. The North African countries offer an interesting case because of their proximity to European markets, the necessity to employ policies that enhance growth and create employment opportunities due to their high youth unemployment, and their comparatively high technological level. This makes innovation-related methods of cluster promotion feasible in these countries, while at the same time clusters in rural regions require more efficiency-oriented approaches. This calls for a comprehensive strategy of cluster promotion which is suggested and elaborated here for Morocco.

**Keywords:** clusters, cluster policy, regional policy, development policy, development policy, Morocco

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## **I Cluster policy: Benefitting from agglomeration**

Cluster policy has gained prominence since the beginning of the 1990s when Michael Porter's (1990) work on competitive advantages of nations sparked interest by policymakers worldwide. Since then, cluster promotion approaches have been implemented in many developing countries as well as in industrialized countries. They were often connected with high hopes regarding their potential to create growth and employment. These high hopes were often left unfulfilled. Still, the extensive literature on clustering that provides convincing explanations of agglomeration phenomena suggests that there are indeed good reasons to use clustering as a lever for targeted interventions of structural policy (Benner 2012a). This calls for cluster promotion strategies that are based on sound theoretical foundations and well adapted to the institutional context and economic structure of the countries and regions they are applied to.

North African countries offer a context in which such a strategy can be applied. They share common economic problems, probably the most pressing being high rates of youth unemployment. This calls for strategies that are able to enhance growth and to provide employment opportunities for (often well educated) young people. While expectations have to be realistic, taking advantage of agglomeration economies with well-founded cluster policies is one approach worth pursuing. Morocco is one of the North African countries that have attempted to do so during the past years. While the approaches designed and implemented there have their merits, they do not yet represent a comprehensive strategy of cluster promotion that targets all areas of agglomeration economies that can work in clusters.

This paper therefore proposes a more comprehensive cluster policy for Morocco. It starts by introducing past and current approaches of cluster promotion in Morocco. Then it goes on to suggest a model and a toolbox of cluster policy which is then combined with the institutional landscape in Morocco. By doing so, this paper suggests a way to develop cluster policy in Morocco in a way that covers more sources of agglomeration economies and thus widens its scope to more sectors and regions, thus making it applicable as an instrument of a (potentially) growth-enhancing and employment-creating economic policy for many parts of the country.

## 2 Cluster policy in Morocco<sup>1</sup>

Morocco pursues cluster programs on several different policy lines. One of them is the “Initiative Maroc Innovation”. It strives to strengthen collaborative R&D, the creation of an environment that stimulates innovation, and the international visibility of the larger-scale clusters it promotes. Initially targeted industries and technologies were information and communication technologies, microelectronics, and electronics and mechatronics. Classical triple-helix agents (Leydesdorff 2000) such as universities or R&D institutions, businesses, and public agencies were supposed to constitute clusters with internationally competitive strengths.

In the selection process, possible clusters were screened. The selected ones had their structures and infrastructure supported. Selection criteria included their global strategy, networking strategy, themes, and marketing. In the first round in 2011, four clusters were selected: the “Maroc Numeric Cluster” for information and communication technologies, the “Morocco Microelectronics Cluster”, the “CE3M” cluster for electronics, mechatronics and mechanics, and the “Cluster Océanpôle Tan Tan” for marine industries. Apart from the Tan Tan Océanopôle, these clusters are localized along the long coastal strip between Kenitra and Casablanca and thus in the country's economic powerhouse region. In effect, they resemble more sectoral networks of triple-helix agents along Morocco's economically strong coastline than local agglomerations. In total, the program aimed at the designation of 15 clusters.

As it employs a competition procedure for selecting clusters for promotion, the Initiative Maroc Innovation combines a top-down and bottom-up approach (Benner 2013a). It utilizes local and regional agents and the energies and knowledge they can contribute. It thus builds on existing or emerging strengths in the local and regional economic structure, which is often regarded in the literature as an important prerequisite for approaches of cluster policy to be promising (Benner 2012a). However, the exclusive focus on international or even global outreach tends to exclude other industries which could be susceptible for cluster promotion but whose outreach extends “only” nationally.

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<sup>1</sup> The following section builds in part on Benner (2012b).

In addition to these high-profile and usually high-tech clusters, there are some smaller “pôles de compétitivité”. They differ from the larger-scale clusters of the Initiative Maroc Innovation with their expected high degree of global outreach. The pôles de compétitivité open up opportunities for smaller cities and rural regions to benefit from some kind of cluster policy. These zones can be an opportunity for a wider number of industries, including those apart from high-tech sectors. Here, for example, labor-intensive industries might be targeted.

In addition, Morocco's ongoing policy in developing tourism centers (Benner 2011) can also be regarded as a cluster policy with a sectoral focus on tourism (Benner 2013b). This is another way to extend the effects of cluster policy into rural regions and into labor-intensive industries, given that tourism is usually one of the most important labor-intensive industries in developing countries (together with manufacturing industries such textiles, garments, shoes and leather).

Moroccan clusters often engage in partnerships with clusters abroad, usually French pôles des compétitivité. This opens channels for marketing, sourcing, and knowledge exchange for their enterprises.

#### ***Case study: Agadir Haliopôle***

Agadir Haliopôle for fishing is an example of a pôle de compétitivité in a rather traditional industry. It covers the region of Souss-Massa-Draâ including the coastal city of Agadir and focuses on fishing and the processing of seafood. The activities of the cluster initiative revolve mostly around networking and the organization of common projects. The network it provides brings together businesses, public institutes, municipalities and universities. Its goals focus both on innovation and on efficiency, e.g. regarding the pooling of resources (Agadir Haliopôle n.d.).

In focusing on fishing and seafood processing, cluster policy apparently aims to strengthen other industries apart from tourism which is already very well established in Agadir and promoted by Morocco's ambitious tourism policy (Benner 2011). By encompassing fishing and later stages of processing alike, it exhibits a clear value-chain perspective. It builds on existing activities which is generally regarded as a more sensible approach than trying to build new

clusters from scratch (e.g. Castells and Hall 1994: 7-8; Tichy 1998: 232; Taylor and Raines 2001: 32; Rehfeld 2006: 253; Zürker 2007: 268; Feser 2008: 197; Wrobel and Kiese 2009: 164).

Morocco's high-profile industrial strategy “Pacte Émergence” (Royaume du Maroc 2008), involves several additional programs related to clustering. For example, it calls for the establishment of “agropôles” across the country that target the agribusiness sector. Another initiative is the designation of “plateformes industrielles intégrées” (P2I). Such P2I provide real estate for businesses, related services (e.g. security, telecommunications, travel agencies, business centers), one-stop shop functions, transport connections, and other offers. Some of the P2I even enjoy the status of free zones for exporting activities. Some of them, the “P2I Généralistes”, are open to all sectors while “P2I Sectorielles” are designated to host targeted industries. For example, two P2I at Tangier and Kenitra target the automotive industry. Others target offshoring and aerospace. There is still another category dedicated to locally embedded businesses. The P2I are supposed to be reinforced with a strengthening of industrial zones (Invest in Morocco n.d.; Royaume du Maroc 2008).

Strictly speaking, only P2I focusing on industries such as, for example, automotive or aerospace can be regarded as clusters. Importantly and in contrast to the Initiative Maroc Innovation and the pôles de compétitivité, P2I do not focus mainly on networking but more on achieving agglomeration on the local level.

Beyond explicit cluster programs, there are local interventions that are supposed to utilize benefits from clustering. One of these policy instruments are technoparks like the Casablanca Technopark that hosts 130 companies in information and communication technology industries as well as training and R&D institutions (OECD 2008: 58).

Free zones complete the cluster landscape in Morocco. Industry-specific free zones include, for example, the Tangier Automotive City (with Renault as an anchor company), the Oujda Free Zone for Cleantech, and the Nouaceur Aerospace City. Apart from the free zone program, the plan “Casablanca Finance City” launched in 2010 ventured to make Casablanca a regional finance hub both for the Maghreb and Western Africa (Hassani 2012; Invest in Morocco 2012).

This overview shows that there is a wide variety of cluster initiatives with varying designs and degrees of cluster orientation in Morocco. What is lacking though is a comprehensive strategy of cluster promotion that also incorporates aspects apart from networking, e.g. labor-market related or competition related ones (Benner 2009; 2012a; 2012c). A framework for such a strategy for Morocco is suggested in the following sections.

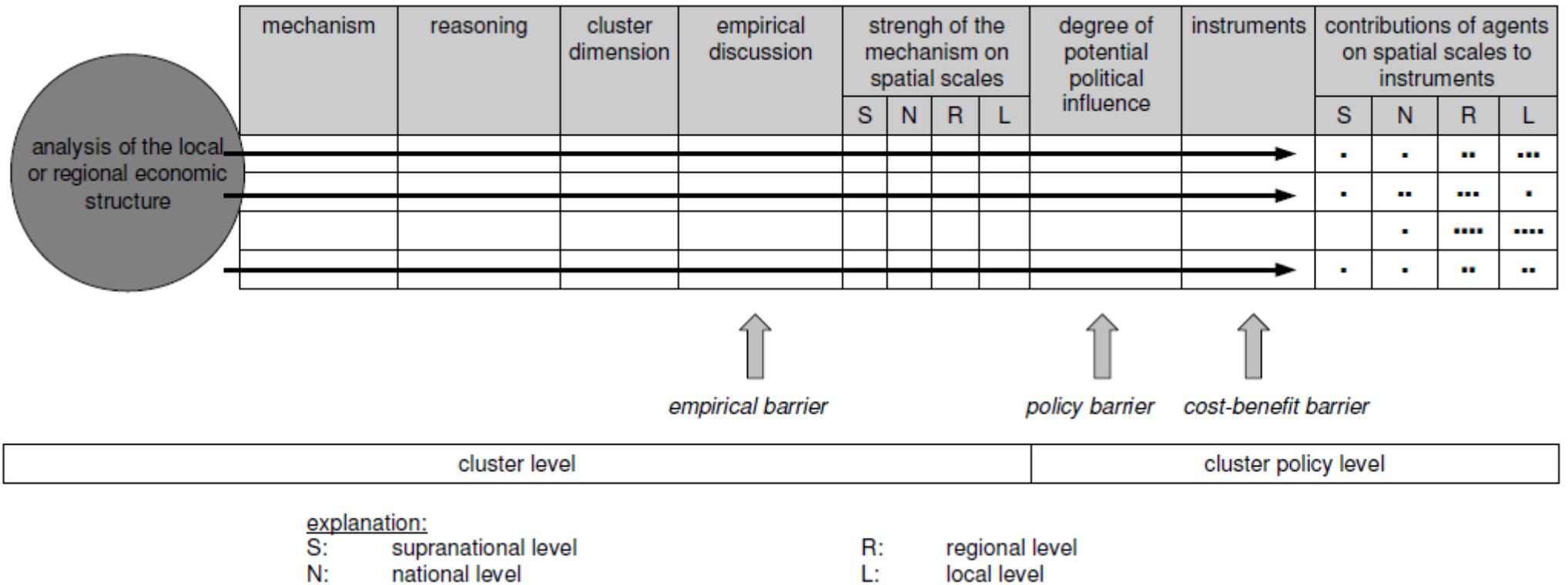
### **3 A model of cluster policy<sup>2</sup>**

A comprehensive cluster policy can be developed with the toolbox proposed by Benner (2012a; 2012c). It aims at evidence-based cluster policy. The model combines cluster mechanisms, instruments, agents, and spatial levels in a model of cluster policy for the regional and local level illustrated by Fig. 1.

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<sup>2</sup> The following section builds on Benner (2012a; 2012c).

**Fig. 1: Model of cluster policy for the regional and local level**



Source: Benner (2012c: 18).

The model can be used for the design of cluster promotion strategies in the following way:

1. A profound analysis of the economic structure of a region or a nation (in the latter case concerning the economic structure of a nation's regions) needs to be the first step. This will make existing or emerging cluster potentials visible and provide insights into points of departure for cluster promotion. This is important because the literature generally considers the effectiveness of policies aimed at “creating” new clusters from scratch to be very limited (Castells and Hall 1994: 7-8; Tichy 1998: 232; Taylor and Raines 2001: 32; Rehfeld 2006: 253; Zürker 2007: 268; Feser 2008: 197; Wrobel and Kiese 2009: 164).

In the case that only competitions combining top-down policy with bottom-up dynamics (Benner 2013a) are utilized, such an analysis on the national level is dispensable, as localized structures will reveal themselves through agents that participate in the cluster competition and their coordination among each other. On the regional level, however, an analysis that informs regional and local stakeholders about the economic structures they are working with is essential, even if its methods might differ from those employed at the national level. For example, regional and local agents' knowledge and experience can be incorporated, albeit in a structured and systematic way.

2. As the analysis will discover which cluster mechanisms are at work and to what degree, gaps between clusters' potential and their real vibrancy can be identified. Cluster mechanisms fall into the broad categories of those related to networking and input-output relations (e.g. horizontal or vertical cooperation), those connected to labor markets (e.g. labor mobility), and those centered on competition within the cluster. The selection of mechanisms that are to be promoted then leads to several instruments of cluster policy that can be used.
3. In the choice of instruments to be employed and their concrete design, the model's barriers need to be addressed:
  - a) The empirical barrier calls for policymakers to be aware of the state of empirical confirmation of a mechanism's effectiveness. If some mechanisms are only weakly

established empirically, scarce resources should be concentrated on other ones with a higher degree of empirical confirmation.

- b) The policy barrier assesses the degree of political influence on a mechanism. If some mechanisms can be affected by policy only indirectly and weakly, scarce resources should be concentrated on those where a more direct and stronger degree of political influence is possible.
- c) The last and maybe the most critical barrier is the the cost-benefit barrier. In a market economy, instruments of cluster policy and their design should not lead to disproportionate market distortions. In addition, their benefits should significantly exceed their costs. Scarce resources should be concentrated on those instruments and designs that have the most beneficial cost-benefit ratios.

These three barriers serve as guidelines for the compilation of a menu of cluster policy interventions that are adapted to the respective country's and region's economic context and structure.

- 4. Once instruments to be employed have been selected, agents on various spatial scales come into play. Their individual contributions are combined with each other to implement the use of instruments.

Table 1 lists possible instruments of cluster policy and assigns them to the cluster mechanisms they can affect. Importantly, some instruments can influence more than one mechanism, leading to multiplier effects. This is an argument that should be considered in weighing the costs and benefits of instruments in the selection process as part of the third barrier.

**Table 1: Instruments of cluster policy**

Mechanism	Instruments
Recruitment of qualified new staff among alumni of higher education institutes	<ul style="list-style-type: none"> <li>▪ Job fairs</li> <li>▪ Direct matching between employers and qualified job-seekers</li> <li>▪ Direct dialogue between companies and R&amp;D/education institutions</li> <li>▪ Public relations initiatives for the cluster</li> <li>▪ Online job exchange</li> </ul>

	<ul style="list-style-type: none"> <li>▪ Use of social media tools</li> <li>▪ Lobbying for measures of education and science policy (e.g. for locating R&amp;D/education institutions within the cluster)</li> </ul>
Labor mobility among companies or between higher education or research institutes and companies	<ul style="list-style-type: none"> <li>▪ Job fairs</li> <li>▪ Direct matching between employers and qualified job-seekers</li> <li>▪ Public relations initiatives for the cluster</li> <li>▪ Online job exchange</li> <li>▪ Use of social media tools</li> <li>▪ Lobbying for measures of education and science policy (e.g. for locating R&amp;D/education institutions within the cluster)</li> </ul>
Student work in companies (e.g. as interns or student trainees or through writing theses)	<ul style="list-style-type: none"> <li>▪ Job fairs</li> <li>▪ Direct matching between employers and qualified job-seekers</li> <li>▪ Direct dialogue between companies and R&amp;D/education institutions</li> <li>▪ Public relations initiatives for the cluster</li> <li>▪ Online job and internship exchange</li> <li>▪ Use of social media tools</li> <li>▪ Scholarships for theses and internships</li> <li>▪ Lobbying for measures of education and science policy (e.g. for locating R&amp;D/education institutions within the cluster)</li> </ul>
Spinoff formation	<ul style="list-style-type: none"> <li>▪ Entrepreneurship or business plan competitions</li> <li>▪ Foundation of technology centers or science parks</li> <li>▪ Entrepreneurship seminars</li> <li>▪ Consulting for (possible) entrepreneurs before and after the new business formation and information about support options</li> <li>▪ Matching of entrepreneurs and experts</li> <li>▪ Industry and technology-specific subsidies for new business formation</li> <li>▪ Lobbying for measures of education and science policy (e.g. for locating R&amp;D/education institutions within the cluster)</li> </ul>
Availability of venture capital (including financing through angel investors)	<ul style="list-style-type: none"> <li>▪ Allocation of venture capital by venture capital funds</li> <li>▪ Direct coaching for spinoffs by venture capital donors</li> <li>▪ Development of technology centers or science parks into incubators through the offer of venture capital</li> </ul>
Cooperation between higher education or research institutes and companies	<ul style="list-style-type: none"> <li>▪ Technology transfer departments of subsidiaries of universities</li> <li>▪ Technology transfer specialists at university institutes or chairs</li> <li>▪ Management of cooperation projects</li> <li>▪ Direct matching of potential partners</li> <li>▪ Congresses, seminars and other meetings as a means of initiating and maintaining contacts</li> <li>▪ University classes for industry workers</li> <li>▪ University training programs for industry workers</li> <li>▪ Use of universities' or R&amp;D institutions' infrastructure (e.g. laboratories or machines) by industry</li> <li>▪ Financial support for collaboration (also through cluster competitions)</li> <li>▪ Innovation vouchers</li> <li>▪ Formation of associations or working groups encompassing industry and universities or R&amp;D institutions</li> <li>▪ Use of contacts to other associations or networks for trans-regional matching in the external cluster dimension</li> <li>▪ Industry semesters of university teachers</li> <li>▪ Collaboration in designing a cluster strategy in order to participate in a cluster competition</li> <li>▪ Online cooperation database</li> </ul>

	<ul style="list-style-type: none"> <li>▪ Use of social media tools</li> <li>▪ Creation of a cooperative climate by building a common cluster identity (e.g. through public relations initiatives)</li> <li>▪ Lobbying for measures of education and science policy (e.g. for locating R&amp;D/education institutions within the cluster)</li> </ul>
<p>Horizontal cooperation among companies (including cooperation in trade associations)</p>	<ul style="list-style-type: none"> <li>▪ Management of cooperation projects</li> <li>▪ Direct matching of potential partners</li> <li>▪ Congresses, company visits, seminars and other meetings as a means of initiating and maintaining contacts</li> <li>▪ Use of leading companies' infrastructure (e.g. laboratories or machines) by other companies</li> <li>▪ Financial support for collaboration (also through cluster competitions)</li> <li>▪ Formation of industry associations or working groups</li> <li>▪ Use of contacts to other associations or networks for trans-regional matching in the external cluster dimension</li> <li>▪ Collaboration in designing a cluster strategy in order to participate in a cluster competition</li> <li>▪ Use of trade fair participation programs for trans-regional or international matching in the external cluster dimension</li> <li>▪ Use of delegation trips for trans-regional or international matching in the external cluster dimension</li> <li>▪ Online cooperation database</li> <li>▪ Use of social media tools</li> <li>▪ Creation of a cooperative climate by building a common cluster identity (e.g. through public relations initiatives)</li> <li>▪ Focused investment promotion towards external companies, including through focused allocation of subsidies</li> <li>▪ Use of public relations initiatives for trans-regional matching in the external cluster dimension</li> </ul>
<p>Vertical cooperation among companies</p>	<ul style="list-style-type: none"> <li>▪ Management of cooperation projects</li> <li>▪ Direct matching of potential partners</li> <li>▪ Congresses, company visits, seminars and other meetings as a means of initiating and maintaining contacts</li> <li>▪ Use of leading companies' infrastructure (e.g. laboratories or machines) by other companies</li> <li>▪ Financial support for collaboration (also through cluster competitions)</li> <li>▪ Formation of associations or working groups encompassing various industries</li> <li>▪ Use of contacts to other associations or networks for trans-regional matching in the external cluster dimension</li> <li>▪ Collaboration in designing a cluster strategy in order to participate in a cluster competition</li> <li>▪ Use of trade fair participation programs for trans-regional or international matching in the external cluster dimension</li> <li>▪ Use of delegation trips for trans-regional or international matching in the external cluster dimension</li> <li>▪ Online cooperation database</li> <li>▪ Use of social media tools</li> <li>▪ Creation of a cooperative climate by building a common cluster identity (e.g. through public relations initiatives)</li> <li>▪ Focused investment promotion towards external companies, including through focused allocation of subsidies</li> <li>▪ Use of public relations initiatives for trans-regional matching in the external cluster dimension</li> </ul>

Intensive local competition	<ul style="list-style-type: none"> <li>▪ Sophisticated public procurement</li> <li>▪ Implementation of common parameters for competition through standard-setting and certification</li> <li>▪ Focused investment promotion towards external competitors, including through focused allocation of subsidies</li> </ul>
Competition in the local social hierarchy	<ul style="list-style-type: none"> <li>▪ Information about cluster personalities (e.g. in newsletters and publications)</li> <li>▪ Allocation of awards</li> <li>▪ Use of social media tools</li> </ul>
Cafeteria effects	<ul style="list-style-type: none"> <li>▪ Foundation of technology centers of science parks</li> <li>▪ Use of universities' or R&amp;D institutions' infrastructure (e.g. laboratories or machines) by industry</li> <li>▪ Use of social media tools</li> </ul>
Social networks	<ul style="list-style-type: none"> <li>▪ Congresses, company visits, seminars and other meetings as a means of initiating and maintaining contacts</li> <li>▪ Use of well-connected personalities as a means of initiating and maintaining contacts</li> <li>▪ Industry seminars of university teachers</li> <li>▪ Collaboration in designing a cluster strategy in order to participate in a cluster competition</li> <li>▪ Use of social media tools</li> </ul>

Source: Benner (2013a: 5-7).

As the model builds on agents of cluster policy on various spatial scales, the institutional landscape of Morocco needs to be screened for agents who could participate in the implementation of a comprehensive cluster policy. This is what the next section turns to.

## 4 The institutional landscape for cluster policy in Morocco

The institutional environment relevant for industrial policy consists of various agents. The Pacte Émergence lists a large number of agencies of organizations and assigns them responsibilities in the implementation of the plan's components (Royaume du Maroc 2008: 74-88). Some of them can be relevant for a comprehensive and multilevel cluster policy as described in the model. Table 1 gives a non-exhaustive overview of such agents in Morocco.

**Table 2: Possible agents for cluster policy in Morocco**

	National level	Regional level	Local level
<b>Public agents</b>	<ul style="list-style-type: none"> <li>▪ Ministry of Economy and Finance</li> <li>▪ Ministry of Agriculture and Fishing</li> <li>▪ Ministry of Higher Education and Science</li> <li>▪ Ministry of Industry, Trade</li> </ul>	<ul style="list-style-type: none"> <li>▪ CRI (Regional investment centers)</li> <li>▪ Regional government (e.g. wilaya or provincial administrations)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Local government (e.g. municipalities)</li> <li>▪ Universities, R&amp;D and training institutions</li> </ul>

	<ul style="list-style-type: none"> <li>and New Technologies</li> <li>▪ Ministry of External Trade</li> <li>▪ Ministry of Civil Service and Administration</li> <li>▪ AMDI (Moroccan Investment Development Agency)</li> <li>▪ ANPME (National SME Agency)</li> <li>▪ Investment promotion funds</li> <li>▪ Hassan II Fund</li> </ul>		
<b>Private agents</b>	<ul style="list-style-type: none"> <li>▪ CGEM (Business association)</li> <li>▪ Trade associations</li> </ul>	<ul style="list-style-type: none"> <li>▪ Regional chapters of national business or trade associations</li> <li>▪ Chambers of Commerce and Industry</li> </ul>	<ul style="list-style-type: none"> <li>▪ Leading companies</li> </ul>
<b>Cluster initiatives</b>		<ul style="list-style-type: none"> <li>▪ Pôles de compétitivité</li> </ul>	<ul style="list-style-type: none"> <li>▪ Management of P2I, incubators, industrial zones, free zones, technoparks etc.</li> </ul>

Source: own work drawing on Royaume du Maroc (2008: 74-88; OECD 2011; Invest in Morocco 2012).

AMDI and ANPME are especially relevant agents, due to their central role in private sector development. AMDI (Agence marocaine de développement des investissements) is the investment promotion agency that operates internationally under the label “Invest in Morocco”. It was established in 2009, succeeding prior institutions. It cooperates with 16 Centres régionaux d'investissement (CRI) that were set up in 2002. They are supposed to act as one-stop shops for investors wishing to invest in the respective region and for entrepreneurs planning to found their own businesses. ANPME (Agence nationale pour la promotion de la petite et moyenne entreprise) is the national SME promotion agency that was mandated in the “Charte de la PME” law of 2002 (Ayadi and Fanelli 2011; OECD 2011).

Other relevant public agents on the national level are investment promotion funds and the Hassan II fund which support investments, equipment and training. The Hassan II Fund concentrates its support in the automotive, aeronautics, nanotechnology, microelectronics, and biotechnology sectors. Sector-specific support organizations include the Moroccan Fund for Tourism Development and the Casablanca Finance City (Invest in Morocco 2012).

Considering the tendency of Moroccan industrial policy to develop sectoral plans, e.g. for automotive, aeronautics, electronics, information technology, food, and textiles under the Pacte Émergence and additionally for information technology, renewable energies, finance, logistics, tourism, agriculture, fishing, retail and housing in sector-specific plans (Invest in Morocco

2012), a more comprehensive and specific picture for clustering in targeted sectors that could entail specific agents and programs might emerge in the future. Still, generic cluster initiatives like the pôles de compétitivité and the PI2 are relevant for a several sectors.

Table 1 implies an emphasis on agents on the national level. It needs to be stressed that not every ministry on the national level will be relevant for each cluster. In addition, the list of agents in Table 1 is non-exhaustive. Still, the observably high weight of agents on the national level does indeed correspond to the top-down orientation that economic policy in Morocco generally exhibits. As far as local forms of self-organization in the economic domain (e.g. local business associations) exist in some locations, their role in economic policy making is limited (if there is any significant policy role for them to play at all). Bottom-up policymaking is rare, although there are some approaches with a combined bottom-up/top-down approach as was the case with the selection large-scale pôles de compétitivité.

## **5 Anchoring cluster policy in local economic development in Morocco**

Drawing on the institutional landscape laid out in the previous section, a map of contributions of agents to a comprehensive cluster policy in Morocco can be developed. This is done in Table 3. The contributions of Moroccan agents are not factual but potential ones; they list possible areas of intervention where Moroccan agents could participate in a cluster policy that addresses all kinds of cluster mechanisms in a wide range of clusters across the country. This means that it would not focus primarily on networking (as some of the current cluster programs in Morocco tend to do) but consider labor market-related and competition-related mechanisms, too. The labor market-related mechanisms could be promoted in close coordination with Morocco's education and training policies, especially in the field of technical and vocational education and training (TVET).

Competition within clusters is a very important aspect that tends often to be neglected in practical cluster policies – presumably because it is difficult to influence by policy – although it can have strong and potentially beneficial effects on a cluster's long-term development because it can considerably contribute to upgrading the competitiveness of a cluster's companies (Porter 1990).

Establishing new organizations is always an option that would change the picture in Table 3. Public infrastructure investments can also be relevant for cluster policy, e.g. in the tourism sector where a strong investing role of government agents can often be observed and is probably necessary in many cases (Benner 2013b). Due to the sector-specific nature of such investments, they are not considered in Table 3 which provides a generic and thus sector-unspecific overview of possible cluster-policy interventions. In a sector-specific adaptation of the toolbox they would need to be considered insofar as they directly relate to cluster policy.

**Table 3: Contributions of agents towards a comprehensive cluster policy in Morocco**

Instruments	National level	Regional level	Local level
Job fairs	<u>All public agents:</u> <ul style="list-style-type: none"> <li>Financial support</li> </ul>	<u>Regional chapters of national associations, Chambers of Commerce and Industry, Pôles de compétitivité:</u> <ul style="list-style-type: none"> <li>(Co-) Organization</li> </ul> <u>Regional chapters of national associations, Chambers of Commerce and Industry, CRI:</u> <ul style="list-style-type: none"> <li>Financial support</li> </ul>	<u>Universities, R&amp;D and training institutions, management of PI2/incubators/industrial zones/free zones/technoparks etc.:</u> <ul style="list-style-type: none"> <li>(Co-) Organization</li> </ul> <u>Local government, leading companies:</u> <ul style="list-style-type: none"> <li>Financial support</li> </ul>
Direct matching between employers and qualified job-seekers		<u>Pôles de compétitivité:</u> <ul style="list-style-type: none"> <li>Direct matching</li> </ul>	<u>Universities, R&amp;D and training institutions, management of PI2/incubators/industrial zones/free zones/technoparks etc.:</u> <ul style="list-style-type: none"> <li>Direct matching</li> </ul>
Direct dialogue between companies and R&D/education institutions		<u>Pôles de compétitivité:</u> <ul style="list-style-type: none"> <li>Direct matching</li> </ul>	<u>Universities, R&amp;D and training institutions, management of PI2/incubators/industrial zones/free zones/technoparks etc.:</u> <ul style="list-style-type: none"> <li>Direct matching</li> </ul>
Public relations initiatives for the cluster	<u>All public agents:</u> <ul style="list-style-type: none"> <li>Financial support</li> </ul>	<u>Regional chapters of national associations, Chambers of Commerce and Industry, Pôles de compétitivité:</u> <ul style="list-style-type: none"> <li>(Co-) Organization</li> </ul> <u>Regional chapters of national associations, Chambers of Commerce and Industry, CRI:</u> <ul style="list-style-type: none"> <li>Financial support</li> </ul>	<u>Universities, R&amp;D and training institutions, management of PI2/incubators/industrial zones/free zones/technoparks etc.:</u> <ul style="list-style-type: none"> <li>(Co-) Organization</li> </ul> <u>Local government, leading companies:</u> <ul style="list-style-type: none"> <li>Financial support</li> </ul>
Online job (and internship) exchange	<u>All public agents:</u> <ul style="list-style-type: none"> <li>Financial support</li> </ul>	<u>Regional chapters of national associations, Chambers of Commerce and Industry, Pôles de compétitivité:</u> <ul style="list-style-type: none"> <li>Setup of the exchange</li> </ul> <u>Regional chapters of national</u>	<u>Universities, R&amp;D and training institutions, management of PI2/incubators/industrial zones/free zones/technoparks etc.:</u> <ul style="list-style-type: none"> <li>Setup of the exchange</li> </ul>

		<u>associations, Chambers of Commerce and Industry, CRI:</u> ▪ Financial support	<u>Local government:</u> ▪ Financial support
Scholarships for theses and internships	<u>Funds, business and trade associations:</u> ▪ Allocation of scholarships	<u>Regional chapters of national associations, Chambers of Commerce and Industry, Pôles de compétitivité, CRI:</u> ▪ Allocation of scholarships	<u>Universities, R&amp;D and training institutions, management of PI2/incubators/industrial zones/free zones/technoparks etc.:</u> ▪ Allocation of scholarships
Use of social media tools	<u>All public agents:</u> ▪ Financial support	<u>Regional chapters of national associations, Chambers of Commerce and Industry, Pôles de compétitivité:</u> ▪ (Co-) Organization  <u>Regional chapters of national associations, Chambers of Commerce and Industry, CRI:</u> ▪ Financial support	<u>Universities, R&amp;D and training institutions, management of PI2/incubators/industrial zones/free zones/technoparks etc.:</u> ▪ (Co-) Organization  <u>Local government:</u> ▪ Financial support
Lobbying for measures of education and science policy (e.g. for locating R&D/education institutions within the cluster)		<u>Regional chapters of national associations, Chambers of Commerce and Industry, Pôles de compétitivité, CRI:</u> ▪ Leadership or participation in lobbying campaigns	<u>Local government, universities, R&amp;D and training institutions, management of PI2/incubators/industrial zones/free zones/technoparks etc.:</u> ▪ Leadership or participation in lobbying campaigns
Entrepreneurship or business plan competitions	<u>All public agents:</u> ▪ Financial support	<u>Regional chapters of national associations, Chambers of Commerce and Industry, Pôles de compétitivité:</u> ▪ (Co-) Organization  <u>Regional chapters of national associations, Chambers of Commerce and Industry, CRI:</u> ▪ Financial support	<u>Universities, R&amp;D and training institutions, management of PI2/incubators/industrial zones/free zones/technoparks etc.:</u> ▪ (Co-) Organization  <u>Local government:</u> ▪ Financial support
Foundation of technology centers or science parks	<u>All public agents:</u> ▪ Financial support	<u>Regional chapters of national associations, Chambers of Commerce and Industry, Pôles de compétitivité:</u> ▪ Establishment of own facilities ▪ Equity interest in facilities	<u>Local government, universities, R&amp;D and training institutions:</u> ▪ Establishment of own facilities ▪ Equity interest in facilities

		<u>Regional chapters of national associations, Chambers of Commerce and Industry, CRI:</u> ▪ Financial support	<u>Local government:</u> ▪ Financial support
Entrepreneurship seminars	<u>All public agents:</u> ▪ Financial support	<u>Regional chapters of national associations, Chambers of Commerce and Industry, Pôles de compétitivité:</u> ▪ (Co-) Organization  <u>Regional chapters of national associations, Chambers of Commerce and Industry, CRI:</u> ▪ Financial support	<u>Universities, R&amp;D and training institutions, management of PI2/incubators/industrial zones/free zones/technoparks etc.:</u> ▪ (Co-) Organization  <u>Local government:</u> ▪ Financial support
Consulting for (possible) entrepreneurs before and after the new business formation and information about support options	<u>All public agents:</u> ▪ Financial support	<u>Regional chapters of national associations, Chambers of Commerce and Industry, Pôles de compétitivité:</u> ▪ (Co-) Organization  <u>Regional chapters of national associations, Chambers of Commerce and Industry, CRI:</u> ▪ Financial support	<u>Universities, R&amp;D and training institutions, management of PI2/incubators/industrial zones/free zones/technoparks etc.:</u> ▪ (Co-) Organization  <u>Local government:</u> ▪ Financial support
Matching of entrepreneurs and experts		<u>Pôles de compétitivité:</u> ▪ Direct matching	<u>Universities, R&amp;D and training institutions, management of PI2/incubators/industrial zones/free zones/technoparks etc.:</u> ▪ Direct matching
Industry and technology-specific subsidies for new business formation	<u>All public agents:</u> ▪ Allocation of subsidies  <u>Ministry of Economy and Finance:</u> ▪ Creation of tax incentives	<u>Chambers of Commerce and Industry, CRI:</u> ▪ Allocation of subsidies	<u>Local government:</u> ▪ Allocation of subsidies
Allocation of venture capital by venture capital funds	<u>Funds, Ministries:</u> ▪ Setup of public venture capital funds ▪ Financial support of private venture	<u>Chambers of Commerce and Industry, CRI:</u> ▪ Setup of public venture capital funds	<u>Universities, R&amp;D and training institutions, management of PI2/incubators/industrial zones/free</u>

	<p>capital funds</p> <p><u>Ministry of Economy and Finance:</u></p> <ul style="list-style-type: none"> <li>Creation of a legal and fiscal framework for venture capital</li> </ul>	<ul style="list-style-type: none"> <li>Financial support of private venture capital funds</li> </ul>	<p><u>zones/technoparks etc.:</u></p> <ul style="list-style-type: none"> <li>Setup of public venture capital funds</li> </ul> <p><u>Local government:</u></p> <ul style="list-style-type: none"> <li>Financial support of private venture capital funds</li> </ul>
Direct coaching for spinoffs by venture capital donors	<p><u>Funds, Ministry of Economy and Finance:</u></p> <ul style="list-style-type: none"> <li>Setup of public venture capital funds</li> <li>Financial support of private venture capital funds</li> </ul> <p><u>Ministry of Economy and Finance:</u></p> <ul style="list-style-type: none"> <li>Creation of a legal and fiscal framework for venture capital</li> </ul>	<p><u>Chambers of Commerce and Industry, CRI:</u></p> <ul style="list-style-type: none"> <li>Setup of public venture capital funds</li> <li>Financial support of private venture capital funds</li> </ul>	<p><u>Universities, R&amp;D and training institutions, management of PI2/incubators/industrial zones/free zones/technoparks etc.:</u></p> <ul style="list-style-type: none"> <li>Setup of public venture capital funds</li> </ul> <p><u>Local government:</u></p> <ul style="list-style-type: none"> <li>Financial support of private venture capital funds</li> </ul>
Development of technology centers or science parks into incubators through the offer of venture capital	<p><u>All public agents:</u></p> <ul style="list-style-type: none"> <li>Financial support</li> </ul>	<p><u>Regional chapters of national associations, Chambers of Commerce and Industry, Pôles de compétitivité:</u></p> <ul style="list-style-type: none"> <li>Establishment of own facilities</li> <li>Equity interest in facilities</li> </ul> <p><u>Regional chapters of national associations, Chambers of Commerce and Industry, CRI:</u></p> <ul style="list-style-type: none"> <li>Financial support</li> </ul>	<p><u>Universities, R&amp;D and training institutions, management of PI2/incubators/industrial zones/free zones/technoparks etc.:</u></p> <ul style="list-style-type: none"> <li>Establishment of own facilities</li> <li>Equity interest in facilities</li> </ul> <p><u>Local government:</u></p> <ul style="list-style-type: none"> <li>Financial support</li> </ul>
Technology transfer departments of subsidiaries of universities	<p><u>Ministry of Industry, Trade and New Technologies:</u></p> <ul style="list-style-type: none"> <li>Creation of a legal framework for technology transfer</li> </ul>	<p><u>Regional chapters of national associations, Chambers of Commerce and Industry, CRI:</u></p> <ul style="list-style-type: none"> <li>Financial support</li> </ul>	<p><u>Universities and research institutions:</u></p> <ul style="list-style-type: none"> <li>Establishment of departments</li> </ul> <p><u>Local government:</u></p> <ul style="list-style-type: none"> <li>Financial support</li> </ul>
Technology transfer specialists at university institutes or chairs	<p><u>Ministry of Industry, Trade and New Technologies:</u></p> <ul style="list-style-type: none"> <li>Creation of a legal framework for technology transfer</li> </ul>	<p><u>Regional chapters of national associations, Chambers of Commerce and Industry, CRI:</u></p> <ul style="list-style-type: none"> <li>Financial support</li> </ul>	<p><u>Universities and research institutions:</u></p> <ul style="list-style-type: none"> <li>Establishment of specialists</li> </ul> <p><u>Local government:</u></p> <ul style="list-style-type: none"> <li>Financial support</li> </ul>
Management of cooperation projects	<p><u>All public agents:</u></p>	<p><u>Regional chapters of national</u></p>	<p><u>Universities, R&amp;D and training</u></p>

	<ul style="list-style-type: none"> <li>Financial support</li> </ul> <u>Ministry of Industry, Trade and New Technologies:</u> <ul style="list-style-type: none"> <li>Elimination of possible anti-trust law obstacles</li> </ul>	<u>associations, Chambers of Commerce and Industry, CRI:</u> <ul style="list-style-type: none"> <li>Financial support</li> </ul>	<u>institutions, management of PI2/incubators/industrial zones/free zones/technoparks etc.:</u> <ul style="list-style-type: none"> <li>Project management</li> </ul> <u>Local government:</u> <ul style="list-style-type: none"> <li>Financial support</li> </ul>
Direct matching of potential partners		<u>Pôles de compétitivité:</u> <ul style="list-style-type: none"> <li>Direct matching</li> </ul>	<u>Management of PI2/incubators/industrial zones/free zones/technoparks etc.:</u> <ul style="list-style-type: none"> <li>Direct matching</li> </ul>
Congresses, company visits, seminars and other meetings as a means of initiating and maintaining contacts	<u>All public agents:</u> <ul style="list-style-type: none"> <li>Financial support</li> </ul>	<u>Regional chapters of national associations, Chambers of Commerce and Industry, Pôles de compétitivité:</u> <ul style="list-style-type: none"> <li>(Co-) Organization</li> </ul> <u>Regional chapters of national associations, Chambers of Commerce and Industry, CRI:</u> <ul style="list-style-type: none"> <li>Financial support</li> </ul>	<u>Universities, R&amp;D and training institutions, management of PI2/incubators/industrial zones/free zones/technoparks etc.:</u> <ul style="list-style-type: none"> <li>(Co-) Organization</li> </ul> <u>Local government:</u> <ul style="list-style-type: none"> <li>Financial support</li> </ul>
University classes for industry workers	<u>All public agents:</u> <ul style="list-style-type: none"> <li>Financial support</li> <li>Creation of tax incentives</li> </ul>	<u>Regional chapters of national associations, Chambers of Commerce and Industry, CRI:</u> <ul style="list-style-type: none"> <li>Financial support</li> </ul>	<u>Universities, R&amp;D and training institutions:</u> <ul style="list-style-type: none"> <li>(Co-) Organization</li> </ul> <u>Local government:</u> <ul style="list-style-type: none"> <li>Financial support</li> </ul>
University training programs for industry workers	<u>All public agents:</u> <ul style="list-style-type: none"> <li>Financial support</li> </ul> <u>Ministry of Economy and Finance:</u> <ul style="list-style-type: none"> <li>Creation of tax incentives</li> </ul>	<u>Regional chapters of national associations, Chambers of Commerce and Industry, CRI:</u> <ul style="list-style-type: none"> <li>Financial support</li> </ul>	<u>Universities, R&amp;D and training institutions:</u> <ul style="list-style-type: none"> <li>(Co-) Organization</li> </ul> <u>Local government:</u> <ul style="list-style-type: none"> <li>Financial support</li> </ul>
Use of universities' or R&D institutions' infrastructure (e.g. laboratories or machines) by industry	<u>Ministry of Higher Education and Science:</u> <ul style="list-style-type: none"> <li>Creation of a legal framework to open universities' and R&amp;D institutions' infrastructures</li> </ul>		<u>Universities, R&amp;D and training institutions, management of PI2/incubators/industrial zones/free zones/technoparks etc.:</u> <ul style="list-style-type: none"> <li>Offer to use infrastructure</li> </ul>

			<u>Local government:</u> <ul style="list-style-type: none"> <li>▪ Financial support</li> </ul>
Use of leading companies' infrastructure (e.g. laboratories or machines) by other companies	<u>Ministry of Industry, Trade and New Technologies:</u> <ul style="list-style-type: none"> <li>▪ Elimination of possible anti-trust law obstacles</li> </ul>		<u>Leading companies:</u> <ul style="list-style-type: none"> <li>▪ Offer to use infrastructure</li> </ul> <u>Local government:</u> <ul style="list-style-type: none"> <li>▪ Financial support</li> </ul>
Financial support for collaboration (also through cluster competitions)	<u>Funds, Ministry of Industry, Trade and New Technologies, Ministry of Agriculture and Fishing, AMDI, ANPME:</u> <ul style="list-style-type: none"> <li>▪ Organization of a cluster competition on the national level</li> <li>▪ Financial support of a cluster competition on the regional and local levels</li> <li>▪ Allocation of subsidies for collaboration</li> </ul> <u>Ministry of Higher Education and Finance:</u> <ul style="list-style-type: none"> <li>▪ Creation of tax incentives for collaboration</li> </ul>	<u>Chambers of Commerce and Industry, CRI:</u> <ul style="list-style-type: none"> <li>▪ Organization of a cluster competition on the regional level</li> <li>▪ Financial support of a cluster competition on the local level</li> <li>▪ Allocation of subsidies for collaboration</li> </ul>	<u>Local government:</u> <ul style="list-style-type: none"> <li>▪ Allocation of subsidies for collaboration</li> </ul>
Innovation vouchers	<u>Ministry of Industry, Trade and New Technologies:</u> <ul style="list-style-type: none"> <li>▪ Allocation of innovation vouchers</li> </ul> <u>Ministry of Higher Education and Finance:</u> <ul style="list-style-type: none"> <li>▪ Creation of tax incentives for the use of innovation vouchers</li> </ul>	<u>Regional chapters of national associations, Chambers of Commerce and Industry, Pôles de compétitivité:</u> <ul style="list-style-type: none"> <li>▪ Allocation of innovation vouchers</li> </ul>	<u>Management of PI2/incubators/industrial zones/free zones/technoparks etc.:</u> <ul style="list-style-type: none"> <li>▪ Allocation of innovation vouchers</li> </ul>
Formation of associations or working groups encompassing industry and universities or R&D institutions	<u>All public agents:</u> <ul style="list-style-type: none"> <li>▪ Financial support</li> </ul> <u>Ministry of Industry, Trade and New Technologies:</u> <ul style="list-style-type: none"> <li>▪ Elimination of possible anti-trust law obstacles</li> </ul>	<u>Regional chapters of national associations, Chambers of Commerce and Industry, CRI:</u> <ul style="list-style-type: none"> <li>▪ Financial support</li> </ul>	<u>Universities, R&amp;D and training institutions, management of PI2/incubators/industrial zones/free zones/technoparks etc.:</u> <ul style="list-style-type: none"> <li>▪ (Co-) Organization</li> </ul> <u>Local government:</u>

			<ul style="list-style-type: none"> <li>▪ Financial support</li> </ul>
Formation of industry associations or working groups	<u>All public agents:</u> <ul style="list-style-type: none"> <li>▪ Financial support</li> </ul> <u>Ministry of Industry, Trade and New Technologies:</u> <ul style="list-style-type: none"> <li>▪ Elimination of possible anti-trust law obstacles</li> </ul>	<u>Regional chapters of national associations, Chambers of Commerce and Industry, CRI:</u> <ul style="list-style-type: none"> <li>▪ Financial support</li> </ul>	<u>Leading companies, management of PI2/incubators/industrial zones/free zones/technoparks etc.:</u> <ul style="list-style-type: none"> <li>▪ (Co-) Organization</li> </ul> <u>Local government:</u> <ul style="list-style-type: none"> <li>▪ Financial support</li> </ul>
Formation of associations or working groups encompassing various industries	<u>All public agents:</u> <ul style="list-style-type: none"> <li>▪ Financial support</li> </ul> <u>Ministry of Industry, Trade and New Technologies:</u> <ul style="list-style-type: none"> <li>▪ Elimination of possible anti-trust law obstacles</li> </ul>	<u>Regional chapters of national associations, Chambers of Commerce and Industry, CRI:</u> <ul style="list-style-type: none"> <li>▪ Financial support</li> </ul>	<u>Leading companies, management of PI2/incubators/industrial zones/free zones/technoparks etc.:</u> <ul style="list-style-type: none"> <li>▪ (Co-) Organization</li> </ul> <u>Local government:</u> <ul style="list-style-type: none"> <li>▪ Financial support</li> </ul>
Use of contacts to other associations or networks for trans-regional matching in the external cluster dimension		<u>Regional chapters of national associations, Chambers of Commerce and Industry, Pôles de compétitivité:</u> <ul style="list-style-type: none"> <li>▪ Direct matching</li> </ul>	<u>Management of PI2/incubators/industrial zones/free zones/technoparks etc.:</u> <ul style="list-style-type: none"> <li>▪ Direct matching</li> </ul>
Industry semesters of university teachers	<u>All public agents:</u> <ul style="list-style-type: none"> <li>▪ Financial support</li> </ul> <u>Ministry of Higher Education and Science:</u> <ul style="list-style-type: none"> <li>▪ Creation of a legal framework to enable industry semesters by teachers employed by public universities</li> </ul>	<u>Regional chapters of national associations, Chambers of Commerce and Industry, CRI:</u> <ul style="list-style-type: none"> <li>▪ Financial support</li> </ul>	<u>Universities, R&amp;D and training institutions:</u> <ul style="list-style-type: none"> <li>▪ (Co-) Organization</li> </ul> <u>Local government:</u> <ul style="list-style-type: none"> <li>▪ Financial support</li> </ul>
Collaboration in designing a cluster strategy in order to participate in a cluster competition		<u>Regional chapters of national associations, Chambers of Commerce and Industry, Pôles de compétitivité:</u> <ul style="list-style-type: none"> <li>▪ Leadership in the strategy formulation process</li> </ul> <u>Regional chapters of national associations, Chambers of Commerce and Industry, CRI:</u>	<u>Leading companies, universities, R&amp;D and training institutions, management of PI2/incubators/industrial zones/free zones/technoparks etc.:</u> <ul style="list-style-type: none"> <li>▪ Leadership in the strategy formulation process</li> </ul> <u>Leading companies, municipalities:</u> <ul style="list-style-type: none"> <li>▪ Financial support of the strategy</li> </ul>

		<ul style="list-style-type: none"> <li>Financial support of the strategy formulation process</li> </ul>	formulation process
Online cooperation database	<u>All public agents:</u> <ul style="list-style-type: none"> <li>Financial support</li> </ul>	<u>Regional chapters of national associations, Chambers of Commerce and Industry, Pôles de compétitivité:</u> <ul style="list-style-type: none"> <li>Set-up of a database</li> </ul> <u>Regional chapters of national associations, Chambers of Commerce and Industry, CRI:</u> <ul style="list-style-type: none"> <li>Financial support</li> </ul>	<u>Universities, R&amp;D and training institutions, management of PI2/incubators/industrial zones/free zones/technoparks etc.:</u> <ul style="list-style-type: none"> <li>Set-up of a database</li> </ul> <u>Local government:</u> <ul style="list-style-type: none"> <li>Financial support</li> </ul>
Creation of a cooperative climate by building a common cluster identity (e.g. through public relations initiatives)	<u>All public agents:</u> <ul style="list-style-type: none"> <li>Financial support</li> </ul>	<u>Regional chapters of national associations, Chambers of Commerce and Industry, Pôles de compétitivité:</u> <ul style="list-style-type: none"> <li>(Co-) Organization</li> </ul> <u>Regional chapters of national associations, Chambers of Commerce and Industry, CRI:</u> <ul style="list-style-type: none"> <li>Financial support</li> </ul>	<u>Universities, R&amp;D and training institutions, management of PI2/incubators/industrial zones/free zones/technoparks etc.:</u> <ul style="list-style-type: none"> <li>(Co-) Organization</li> </ul> <u>Local government:</u> <ul style="list-style-type: none"> <li>Financial support</li> </ul>
Use of trade fair participation programs for trans-regional or international matching in the external cluster dimension	<u>Ministry of External Trade, ANPME:</u> <ul style="list-style-type: none"> <li>(Co-) Organization of trade fair participation programs</li> </ul> <u>All public agents:</u> <ul style="list-style-type: none"> <li>Financial support</li> </ul>	<u>Regional chapters of national associations, Chambers of Commerce and Industry, Pôles de compétitivité:</u> <ul style="list-style-type: none"> <li>(Co-) Organization of trade fair participation programs</li> </ul> <u>Regional chapters of national associations, Chambers of Commerce and Industry:</u> <ul style="list-style-type: none"> <li>Financial support</li> </ul>	
Use of delegation trips for trans-regional or international matching in the external cluster dimension	<u>Ministry of External Trade, ANPME:</u> <ul style="list-style-type: none"> <li>(Co-) Organization of trips</li> </ul> <u>All public agents:</u> <ul style="list-style-type: none"> <li>Financial support</li> </ul>	<u>Regional chapters of national associations, Chambers of Commerce and Industry, Pôles de compétitivité:</u> <ul style="list-style-type: none"> <li>(Co-) Organization</li> </ul> <u>Regional chapters of national associations, Chambers of Commerce and</u>	

		<u>Industry, CRI:</u> ▪ Financial support	
Focused investment promotion towards external companies (including competitors), including through focused allocation of subsidies	<u>AMDI:</u> ▪ Efforts to focus the work of the investment promotion agency		
Use of public relations initiatives for trans-regional matching in the external cluster dimension	<u>All public agents:</u> ▪ Financial support	<u>Regional chapters of national associations, Chambers of Commerce and Industry, Pôles de compétitivité:</u> ▪ (Co-) Organization  <u>Regional chapters of national associations, Chambers of Commerce and Industry, CRI:</u> ▪ Financial support	<u>Universities, R&amp;D and training institutions, management of PI2/incubators/industrial zones/free zones/technoparks etc.:</u> ▪ (Co-) Organization  <u>Local government:</u> ▪ Financial support
Sophisticated public procurement	<u>Ministry of Economy and Finance, Ministry of Civil Service and Administration:</u> ▪ Standards for own procurement ▪ Standards for local and regional government procurement	<u>Regional government:</u> ▪ Standards for own procurement	<u>Local government:</u> ▪ Standards for own procurement
Implementation of common parameters for competition through standard-setting and certification	<u>Ministry of Industry, Trade and New Technologies:</u> ▪ Financial support for standard-setting and certification organizations ▪ Transformation of standards into law		
Information about cluster personalities (e.g. in newsletters and publications)	<u>All public agents:</u> ▪ Financial support	<u>Regional chapters of national associations, Chambers of Commerce and Industry, Pôles de compétitivité:</u> ▪ (Co-) Organization  <u>Regional chapters of national associations, Chambers of Commerce and Industry, CRI:</u> ▪ Financial support	<u>Universities, R&amp;D and training institutions, management of PI2/incubators/industrial zones/free zones/technoparks etc.:</u> ▪ Own publications  <u>Local government:</u> ▪ Financial support
Allocation of awards	<u>All public agents:</u>	<u>Regional chapters of national</u>	<u>Universities, R&amp;D and training</u>

	<ul style="list-style-type: none"> <li>▪ Financial support</li> </ul>	<u>associations, Chambers of Commerce and Industry, CRI:</u> <ul style="list-style-type: none"> <li>▪ Calls for applications</li> <li>▪ Financial support</li> </ul>	<u>institutions, management of PI2/incubators/industrial zones/free zones/technoparks etc.:</u> <ul style="list-style-type: none"> <li>▪ Calls for applications</li> </ul> <u>Local government:</u> <ul style="list-style-type: none"> <li>▪ Financial support</li> </ul>
Use of well-connected personalities as a means of initiating and maintaining contacts		<u>Pôles de compétitivité:</u> <ul style="list-style-type: none"> <li>▪ Direct matching</li> </ul>	<u>Universities, R&amp;D and training institutions, management of PI2/incubators/industrial zones/free zones/technoparks etc.:</u> <ul style="list-style-type: none"> <li>▪ Direct matching</li> </ul>

Source: own work based on Benner (2012a; 2012c; 2013a).

Considering the dominance of national agents in Moroccan cluster policy, it might be worthwhile to pursue a strategy of cluster promotion which would consist of building and strengthening local stakeholders and initiatives. This would enable cluster policy to benefit from bottom-up energies and creativity. Table 3 demonstrates that in a comprehensive cluster policy, agents on the regional and local levels can provide considerable contributions to a large number of cluster-promotion instruments. Therefore, it appears sensible that they be assigned a major role in cluster policy. Employing cluster competitions (Benner 2013a) is a valuable instrument to do so. In fact, this is what Morocco did in the identification of its larger-scale pôles de compétitivité. Employing the competition approach to smaller-scale clusters, too, could be a path worth pursuing. Notably, this could lead to the elaboration of suitable strategies for “low-tech” clusters in rural regions, e.g. in handicrafts. On another note, such an approach would often need to be combined with capacity building of local agents (e.g. municipal administration, local business associations, etc.).

Another, sector-specific pathway towards a comprehensive cluster policy for Morocco is to complement the country's ambitious tourism policy with targeted measures to promote tourism clusters. Due to tourism's tendency to agglomerate and Morocco's efforts to build new tourism destinations (Benner 2011), considering such an approach appears worthwhile. Currently Morocco aims to expand its tourism sector with the plan “Vision 2020”. Its goal is to welcome 20 million tourists in 2020, up from 10 million in 2010 which was the objective of the previous plan (Benner 2011; Invest in Morocco 2012). Developing such a tourism cluster policy could build on a sector-specific adaptation of the model proposed here. Such an adaptation is elaborated elsewhere (Benner 2013b).

## **6 Chances and limits of the cluster approach**

A comprehensive cluster strategy that built with the toolbox proposed here can facilitate upgrading the competitiveness of businesses and thus long-term economic growth and employment creation. However, this is not a guaranteed outcome. Cluster policy is no panacea and its limitations need to be considered. It is important to embed cluster policy in the wider context of economic policy which encompasses, for example, macroeconomic stability and good governance. Even under suitable framework conditions, the development of clusters is a path-

dependent and contingent process (Bathelt and Glückler 2012; Benner 2012c). Therefore, there can be no deterministic causal relationships and no guarantees for success. This means that expectations have to be kept realistic.

Cluster policy alone will certainly not solve the problem of high youth unemployment that Morocco faces. Still, it can be one element in a comprehensive economic policy aimed at enhancing growth and employment creation. This presupposes a long time horizon. Clusters develop over very long periods of time, lasting several decades (Benner 2012c). Policymakers need to consider this and adapt their expectations and their planning accordingly.

One caveat that needs to be considered in designing cluster policies is their inherent tendency to maintain and possibly even to reinforce spatial disparities. After all, spatial disparities are at the heart of agglomeration phenomena such as clusters. Considering the intensity of existing spatial disparities in MENA countries (The World Bank 2010), this issue needs to be addressed. The comprehensive approach to cluster policy suggested here offers ways to alleviate the danger of increased spatial polarization because it considers not only innovation-related mechanisms centered on networking and knowledge transfer, but also efficiency-related ones. This comprehensiveness provides a multifaceted toolbox from which policymakers can choose not just to promote clusters or cluster potentials in already strong urban regions (which is where high-tech clusters will in most cases be situated) but also those in economically weaker, rural regions that still exhibit some sectoral strengths in certain industries (e.g. tourism or handicrafts). Nonetheless, cluster policy should not be the only thrust of regional policy. Other policies need to complement cluster policy which will not be suitable for every region (The World Bank 2010; Benner 2012c).

If it is regarded as one of many approaches in economic policy in developing countries, if it is adapted to the specific institutional context and economic structure of the country and region it is applied to, and if the expectations attached to it are realistic, a comprehensive cluster policy that takes use of the full breadth of clustering dynamics can definitely be an important tool for long-term economic development. This holds true for industrialized, developing and transition countries alike. Thus, adapted cluster promotion strategies can be elaborated for most or all African countries. North African economies feature particular characteristics that can be

incorporated in cluster policy. For example, their spatial proximity to European markets and their participation in the EU's neighborhood policy offer chances for accessing European markets, while their comparatively high standard in academic education offers perspectives for promoting innovation in high-tech clusters and for integrating research and development into cluster policy, while at the same time cluster promotion instruments aimed at efficiency-enhancing mechanisms will be necessary to strengthen clusters in rural regions. Morocco thus is an interesting case both for the way cluster policy is employed to date in a developing country oriented towards Europe and for possible pathways towards a more comprehensive cluster policy in the future.

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