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## **CLUSTER APPROACH IN INDUSTRIAL POLICY THE EXAMPLE OF AUTOMOTIVE CLUSTER IN BOSNIA AND HERZEGOVINA**

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### **Abstract**

Industrial policy in modern economies requires a co-ordinated effort between the actors in economic policy. Mere state intervention has the tendency to allocate scarce resources inefficiently. Industrial policy includes all government regulations, laws or activities that aim directly or indirectly at changing the structure of the economy or influence this change; the character can be a defensive or reactive. There are completely different judgements on industrial policy: the neo-liberal representatives judge any industrial policy as a negative intervention disturbing the market and generally reject it, advocates stress the positive results of temporary smoothening effects of structural change or promote the creation of emerging industries.

The main objective of industrial policy in a modern economy is to improve the competitiveness of the companies. One relatively new instrument of industrial policy is the Cluster approach.

Earlier economic literature and economic-policy approaches view competitiveness either from a microeconomic or macroeconomic point of view, neither perspective could explain successes or failures of national economies facing competition. In the cluster approach, competitive advantages result from the system of interrelationships within which a firm is embedded. While the traditional sectoral approach concentrates on horizontal linkages and competitive interdependencies, the cluster approach also includes vertical linkages between different firms and the existence of symbiotic interdependencies. A cluster is an instrument that can also be used to support small and medium-sized enterprises (SMEs). SMEs can work together to utilize the advantages of a large firm without having to finance large-scale

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infrastructure and idle capacity. A number of criteria must be met for a cluster to be successful.

In Bosnia and Herzegovina, cluster promotion is building on the industrial core of the automotive supply industry and incorporates associated economic area that is also interesting for other industrial branches. The first positive results of this approach can be seen.

**Keywords:** cluster; industrial policy; structural change; externalities; economic framework conditions; competitiveness; value chain; innovative capacity; SME; automotive cluster; Bosnia and Herzegovina; Porter, Michael

## Industrial Policy in a Market Economy

The objective of economic policy is in most countries to fulfil the goals of economic growth, full employment, prize stability and a foreign-trade balance. To reach this objective in times of globalisation, the competitiveness of the country has to be strengthened. One specific policy to obtain these goals is industrial policy. Although permanent subsidies to jobs in otherwise unprofitable firms preserve the existing structures, this apparent stabilization is a waste of economic resources that even highly developed economies cannot permanently afford. In addition, the structural preservation avoids pressures to economic and technical adaptation. In the medium and long term, jobs can only be preserved or created in competitive industrial branches and firms. The necessity for productivity increase and cost reduction, but also research and product development are not felt in subsidized enterprises. In these companies steps towards progress take only a reduced pace (if at all). Possible competitive advantages are not used or developed, and competitiveness is thus surrendered.

Industrial policy includes all government regulations, laws or activities that aim directly or indirectly at changing the structure of the economy or influence this change. The character can be a defensive or reactive if they aim at softening the social effects of structural changes. However a pro-active industrial policy intends to promote or shape structural change. Therefore, „Industrial policy aims at offsetting externalities that affect production decisions by firms.”<sup>1</sup> Intervention in the private sector by the public sector is active industrial policy. Although the private sector bears the responsibility for competition in a market, the public sector bears the responsibility for market failures only. The main objective of industrial policy in a modern economy is to improve the competitiveness of the companies.<sup>2</sup> The European Union as one important supra-national actor of industrial policy aims to prevent losses in

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<sup>1</sup> Begg et. al. 2000, стр. 294

<sup>2</sup> Eichner 2002, стр. 15

trade on the global markets and to slow down the emigration of enterprises and prevent the related loss of jobs.

In the current discussion on the theory of economic policy the neo-liberal representatives judge any industrial policy as a negative intervention disturbing the market and generally reject it. On the other side advocates insist on specific state interventions.

In countries which base their economic policy on the importance of market relations the mechanism for industrial policy are incentives for investment. These incentives should attract investment for building or improving infrastructure, promotion of research and development and - if necessary – the subsidy of industrial sectors in crisis. Here, industrial policy has a very limited degree of intervention or co-ordination, its character is reactive or defensive.

However in countries where government is traditionally taking more responsibility for economic activities, besides improving the economic framework conditions industrial policy aims at temporarily subsidising private investment in sectors in crisis and promote the creation of new emerging industries for the future. This can take the form of either direct or indirect subsidies to private investment, enabling of technology transfer and dissemination of technological know-how in the industries, protection of domestic industries, etc. or the formation of substantial industrial conglomerates to promote competitiveness. The co-ordination of state interventions can be centralised or decentralised.

Four conditions influence the orientation between these two forms of industrial policy:

1. A broad political consensus on the legitimacy and necessity of public interventions into the economy is required.
2. The administration needs comprehensive capacities in respect of planning and implementing industrial policy mechanisms and also have funds available. The budget constraint is one of the main problems for many governments.
3. A good relationship between administration and private economy is essential. In a market economy the administration cannot dictate the entrepreneurs where they have to invest. Nevertheless the civil servants have to know what companies need, and entrepreneurs have to have the possibility to act.
4. Comprehensive and consistent business associations and workers representatives should be present.

Furthermore time has to be considered as a factor. Interventions should only last for a limited time, in subsidising industries in long-term decline and in emerging new industries.

Considering the variety of determinants in economic structural change industrial policy consists of a variety of policies, e.g.

- tax policy and subsidies: direct or indirect financial investment promotion
- regional politics or infrastructure politics: promotion of economic development by providing infrastructure especially in structurally weak regions
- research, development and technology politics: motivation of research and development, and dissemination of know-how
- environmental and energy politics with regards to industrial needs
- foreign trade policy.

### **Cluster approach to promote competitiveness**

Earlier economic literature and economic-policy approaches view competitiveness either from a microeconomic or macroeconomic point of view. Microeconomics presented the competitiveness of a firm as a function of its individual production conditions, its research achievements, and its marketing strategies. The competitiveness of a sector or a country was therefore defined as the sum of individual firm results. Macroeconomic policy argued from the perspective of comparative cost advantages resulting from natural factor endowment or government planning interventions into economic processes.

However, neither perspective could explain successes or failures of national economies facing competition. Therefore, since the beginning of the 1990s, more complex models have been developed that derive national competitive advantages from a number of determinants. Industrial competitiveness is considered primarily as the result of the quality of an industrial location. This is not only a microeconomic phenomenon; one must also look at the related firms and supporting supplier and service firms.

In addition to supply relationships with customers in a value chain, links and strategic alliances to universities, research institutions, providers of business development services, customers, as well as lateral connections (e.g. to firms from other sectors that have similar needs or technologies) can also influence competitiveness. While the traditional sectoral approach concentrates on horizontal linkages and competitive interdependencies, the cluster approach also includes vertical linkages between different firms and the existence of symbiotic interdependencies, from which synergies result in the analysis.

In the cluster approach, competitive advantages result from the system of interrelationships within which a firm is embedded. A cluster is a group of organisations (companies or supportive institutions) in related industries that are linked together because they buy and sell from each other, and/or because they use the same infrastructure, customers, skills or technology base. To give a more specific definition is „A cluster is a geographic concentration within a

nation or region of interconnected companies, specialised suppliers, service providers, and associated institutions in a particular field.”<sup>3</sup>

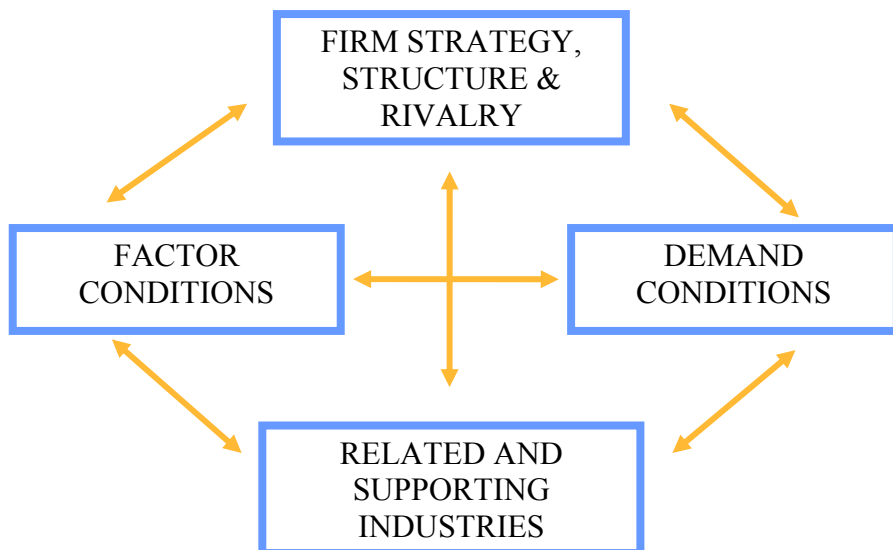
Porter, the pioneer and still most frequently cited proponent of the cluster approach, defines a cluster as „A group of inter-related industries whose linkages mutually reinforce and enhance their competitive advantage”.<sup>4</sup>

According to him the elements of this system are:

- firm strategy, structure, and rivalry,
- demand conditions,
- factor conditions, and
- related and supporting supply and service firms.

The cluster approach is an alternative to the top-down approach of traditional government economic planning.

- Uses a core industry to set a ‘meso-economic’ framework
- Framework directs actions and interventions at micro (firm) level
- Enables SMEs to gain big-company advantages through collaboration
- Enhances innovation and new product development
- More effective/efficient way for Government to assist key industries



<sup>3</sup> Kuchiki 2005, стр.1

<sup>4</sup> Porter, 1998.

A cluster is an instrument that can also be used to support small and medium-sized enterprises (SMEs). SMEs can work together enabling them to utilize the advantages of a large firm (e.g. market presence, research, training and upgrading) without having to finance large-scale infrastructure and idle capacity. Likewise, cooperation in a cluster promotes innovative capacity, since innovations can be more quickly implemented in smaller firms. The advantages of the cluster approach are:

- Joint development and ownership of strategy with a wide set of partners
- An industry is viewed in its entirety - beneficial linkages between companies and organisations are developed
- Innovation and collaboration are central to developing successful self-renewing industries
- Interventions are focused on industry priorities not just government policy

Furthermore, a cluster approach can make it easier for the government to introduce concrete measures for certain industrial branches, as direct feedback from all cluster elements is possible.

### **Experience in Bosnia and Herzegovina**

In transition countries, traditional government-planned industrial policy is obsolete. In Bosnia and Herzegovina the regulatory-policy objections of western countries after the war were one aspect, but moreover customary measures for capacity expansion and utilization could simply no longer be financed. Economic-policy advisory services thus also entail the consideration of new economic-development instruments in order to test their effectiveness. Cluster promotion can be an important instrument with which to increase industrial competitiveness. In Bosnia and Herzegovina, cluster promotion is building on the industrial core of the automotive supply industry and incorporates associated economic area that is also interesting for other industrial branches.

Less than a year after the official launch of the automobile cluster of Bosnia and Herzegovina, it has become an important factor in local economic life. In addition to a rapidly growing number of dues-paying member firms, even the government investment promotion agency and the public University of Sarajevo have joined as paying members. Local and international institutions are represented on the board. Up to now only the ministries have limited themselves to a friendly observer position.

Although post-war Bosnia and Herzegovina found itself in a process of transformation, and the administrations had little experience in economic development as well as a very limited budget, the preconditions for creating a cluster in the automotive suppliers industry were good. This industrial branch went back to 1950 and was one of the most important branches of the metal

industry with a substantial share of exports before the war. Around 35,000 vehicles were produced in 1991 and over 40,000 tons of components for motors and automobiles were manufactured. There was a broad range of products for the automobile industry such as batteries, oil, air and fuel filters, brake systems, complete rear axles, windshields, automotive electric, oil and water pumps, diesel motors, transmissions for commercial and special vehicles, and clutches.

In the past, many firms worked under the license of German companies. The employees are therefore very familiar with strict quality and time requirements. Very quickly after the war, Volkswagen invested in Bosnia and Herzegovina again and today employs around 300 people; however, it initially had no interest in participating in a cluster.

The market potential of Bosnian firms lies in manufacturing products in the country that have a competitive advantage due to capacity and costs. Following this strategy, it is essential to improve competitiveness against producers in Central and South-Eastern Europe, but also those in more distant countries. Business persons in the automotive supply industry have recognized this and are willing to double their efforts. The first steps required to increase competitiveness were and continue to be at the individual firm level.<sup>5</sup>

However, the international competitiveness of firms can not be solely explained on the operational level of an individual firm. The firms have realized that international competitive pressures force them to continuously improve their products and production efficiency. Integration into networks in which multiple external effects, services, and institutions support the efforts of an individual firm to improve its products and productivity, can be very helpful in this process.

The Foreign Trade Chamber was particularly interested in this industrial branch. But their experts recognized that the traditional set of instruments could not adequately meet the special needs of automotive suppliers. The Chamber requested assistance from GTZ. The Economic Development and Employment Promotion Program took up the proposal of the Foreign Trade Chamber organised a joint booth at an automotive suppliers trade fair in Serbia and Montenegro. The participation at the trade fair was very successful, as Bosnian products regained a presence in this market after a long time, and the participants could renew old contacts and make new ones. The exhibitors at the booth, had already been familiarized with the basic principles of the cluster

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<sup>5</sup> Thus, GTZ advisory services in the metal sector, mechanical engineering, and electrical engineering, carried out on behalf of the BMZ and the Swiss Agency for Development and Cooperation (SDC), were focused on automotive supply firms.

GTZ: Deutsche Gesellschaft für Technische Zusammenarbeit (German agency for technical co-operation)

BMZ: German Ministry of Economic Co-operation and Development

approach in the preparatory stage. Today they constitute the core group of the automobile cluster in Bosnia and Herzegovina.

In 2001/02 GTZ analysed the potential of the Bosnian automotive supply and service firms in the metal, electrical, and electronics areas. Supply and service firms were examined to determine which ones had the potential to withstand worldwide competition and qualify as suppliers in the automotive sector. It was determined that the automotive supply industry had sufficient potential – with the appropriate support – to become competitive in the foreseeable future and thus significantly contribute to improving the employment situation. The study suggested that the cluster approach could be usefully employed to promote this branch of industry: appropriate sites, a critical mass of firms, active promoters, and revived networks offered essential preconditions for cluster development.

To prepare the cluster, a specialized consulting firm was involved that had already successfully collaborated in the establishment of automotive clusters and thus had the methodological and sectoral competence. A cluster team was formed which initially consisted of an expert consultant, a local GTZ staff member, and an employee of the Foreign Trade Chamber. Subsequently, a business representative also joined the team. A study identified the problem areas and prospects of the industrial branch. The results were presented to all participants in various events.

Three categories of firms were included in the studies: firms that were already totally or partially privatised and had found a (usually foreign) partner; firms that had already been partially privatised, but still had problems, for example, with marketing or the degree to which their products were known; firms that remained in state hands. These latter firms usually still lacked external contacts; their machines and products were, to some extent, outdated; there were no funds for modernization; marketing was rarely undertaken; and capacity utilization was under 20%.

After the analysis of potential a network between the interested firms was set up. For firm-internal problems such as the lack of marketing and outdated products, as well as branch-internal deficits, such as the lack of a joint market presence along the lines of „Automotive Suppliers in Bosnia and Herzegovina” and the low level of networking among firms, the cluster approach offered a clear opportunity for improvement. Together with the interested firms, „an association of different partners with the same goal, using the strengths of each partner,” the following goals were defined: create an information and communication platform, coordinate individual studies and consultancies of individual firms, find and set up economic areas of activity, and build up personal contacts with possible clients.

GTZ recommended setting up an automobile cluster consisting of companies of all the entities of Bosnia and Herzegovina, because only by



incorporating firms from entire country an adequate number of firms – a critical mass – could be brought together. From the beginning, it was clear that the purpose of a cluster was to strengthen the economic sector on a long-term basis. Because the state can no longer play the role of an active supporter, a new coordinating body for these branch-specific services must be provided.

The cluster was formally registered as an association. Its most important body is the general assembly of members; the others are the board of directors and the cluster manager. The five-member board is independent. The general assembly selected a qualified cluster manager. One of his primary tasks is the provision of information.

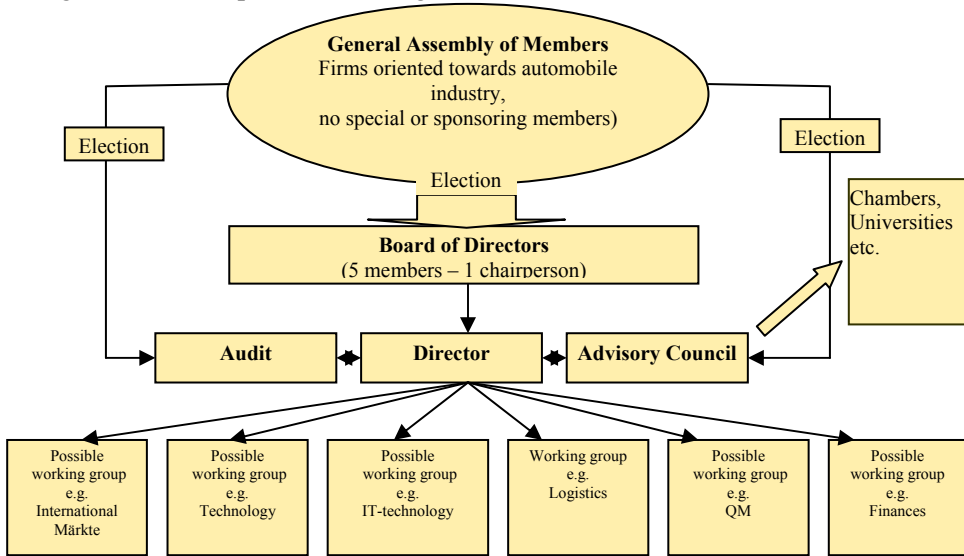
Both members and non-members can discuss the economic and technical trends of the automotive supply industry as part of an advisory council. The advisory council is the forum in which the Bosnian Foreign Trade Chamber, the Association of German Chambers of Industry and Commerce (DIHK), universities, and representatives of other international projects have a voice.

By giving the cluster a fixed organizational form as a legal entity with members, continuity of services can be achieved. Only firms and institutions that are oriented toward automobiles can become members; however, they do not necessarily have to be automotive parts producers. The firms are in a cluster network, but most of them are not in competition with each other, since in Bosnia and Herzegovina most firms operate in different market segments. The firms recognize the benefits of cooperation in a cluster and were therefore willing to pay membership fees from the start. They also make efforts to recruit new members, even advertising for companies to locate in their area. There are a total of over 5,000 people employed in the member firms.

In addition to 24 firms, the cluster now also has two paying institutional members: the state investment promotion agency and the technical faculty of the University of Sarajevo. The mechanical engineering faculty of the University of Tuzla has submitted an application for membership. A certifying institution will also become a member this year.

Even prior to formal establishment, there were efforts to internationalise. Contacts were made with automobile clusters in Slovenia and Germany. A large booth at the 2004 Automechanika Trade Fair in Frankfurt, Germany showed the firms the advantages of actively marketing abroad as a group. At the same trade fair, the opportunity was seized to introduce the automobile cluster to the international public at a conference organized by the Economic Development and Employment Promotion Project in Serbia and Montenegro. Bosnian businesspersons used the subsequent visit to make extensive contacts with other firms. Then, at the request of the firms, the follow-up was carried out in cooperation with the cluster manager.

The automotive cluster in Bosnia and Herzegovina has also assumed the function of training its members. This occurs through individual consulting by foreign and local experts and through seminars.



Several seminars were organized in cooperation with SEED<sup>6</sup> which provided financial support for the first six issues of the monthly newsletter. The newsletter is distributed in the national language to universities, institutions, and public agencies; the electronic version is also published in German and English on the website. The newsletter and website are now independent and self-supporting; the board decided to appoint a staff member for this purpose. A publishing company that issues an automotive magazine has undertaken efforts to become the media partner.

The establishment and activities of the automobile cluster has attracted great interest far beyond the actual target group. Firms from other industrial branches and international organizations see the auto cluster in Bosnia and Herzegovina as a model for promotional activities. There have been requests from neighbouring countries for expert assistance. Even a firm from Croatia wanted to become a member.

The smaller firms are now more confident in dealing with their affairs abroad. In those countries where acquiring customers would be very complicated due to language, visa problems or travel costs, they ask other cluster members or the manager to represent them. A large Bosnian member firm started a product-development initiative within the cluster to use the

<sup>6</sup> South East Europe Enterprise Development [www.ifc.org](http://www.ifc.org)

network to increase national value added. The firms gained confidence in the cluster because of the concrete advantages for member firms and the neutral management.

Joint problems, such as the payment difficulties of an industrial forge that fulfilled key orders for various cluster members, were jointly addressed. At first a payment moratorium was negotiated with the energy supplier. Because no definitive solution could be found and because it was found that other firms were in great need of this service, a firm now plans to take over the forge. The companies are also actively networking. They invite other members to training events that they have organized and even plan leisure activities for people from all parts of the country who they had never met before.

Firms reported increased productivity after participating in workshops and after individual consultancies. The momentum is also reflected in investment. When a new firm started up, there were public comments on the increasing dynamism in this industrial branch since a cluster had been set up. Through the cooperation between universities, research institutes, and industry, a competence network for the future is being put in place. Thus, intense involvement of the universities is particularly important. The University of Tuzla has designed a Master's program around the needs of the automotive supply industry and presented it to the firms in the newsletter. As the next step research and development will be targeted.

Experience to date in Bosnia and Herzegovina has shown that the cluster approach can result in effective promotion, particularly of small and medium-sized firms. However, the choice of the industrial core is crucial, as examples in other industrial branches and of other international projects in the country have shown. The following criteria must be met for a cluster to be successful:

- In an innovative economic sector, there must be a critical mass of firms and economic activity.
- Participants must be willing to be personally involved (promoters) must be active in firms, associations, supporting institutions, and management.
- Joint development of realistic ideas about international competitiveness and about vision, strategy, and policy guidelines.
- Implementation of joint projects as a visible declaration of specific cluster competence (joint marketing appearance at trade fairs, internet, higher value-added project).
- Supportive policy environment as well as permanent and committed public support (at least there should be no impediments).
- Building on existing networks and initiatives as the organizational nucleus for cluster formation.
- Continual evaluation, reflection, and improvement of strategy / program.
- Professional staff members.

- Moderator function.

Every cluster is different. In the automotive supply area, the external conditions and the commitment of the firms and participating institutions led to a success story, even without significant government support. However, in different industries in the same country, things can look completely different.

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