

The multinational companies - an institutional response to the changes in the technological market

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THE MULTINATIONAL COMPANIES - AN INSTITUTIONAL RESPONSE TO THE CHANGES IN THE TECHNOLOGICAL MARKET

<u>ABSTRACT</u>

The globalization process, from both a temporal and locational point of view, has led to changes in the human interrelations, to the unification and expansion of economical activities over the regions and countries. The Romanian economy is depending strongly on the decisions made by large multinational companies that influence upon its integration in the international productive system. Setting up subsidiaries of these multinational companies in Romania is determined by cheap working factors, adaption of the production to the local market demand, penetration of the Romanian market and of the regional markets, an increase in the global effiency at the level of such multinational company.

The cross-border inflows of foreign direct investments contribute to the technological transfer, to an increase of the productivity, a better allocation of capital, a significant increase in the exports and of the quality of the life. The foreign direct investments realized in Romania have led to a visible bettering of the country rating and of the economical performances.

The technological transfers performed by multinational companies generate positive spillovers through the reduction of the productivity disparities, the accorded technical assistance, the continuous process of formation of the qualified personnel and managers. The mechanisms through which technological spillovers are realized, are represented not only by the foreign direct investments made by multinational companies, but also by the strategic alliances, licence buying, licence change and the assistance accorded by foreign counselors, foreign and local suppliers of new materials, products and equipments.

Despite the fact that the process of taking over new technologies by Romanian firms depends mainly on the decision of multinational companies, the success of technological transfers depends on the efforts made in the direction of taking over, assimilation, and bettering these absorbed technologies, and also by the level of training of the personnel.

To conclude with, the technological transfer traffic is not free within the multinational firms and far less, outside them. Consequently, the Romanian economy can beneficiate only by a part of the scientifical and technological know-how. This is kept and conducted by the multinational companies and controlled by them.

The capacity of absorbtion of the new technologies depends on the relations that multinational subsidiaries keep with the local research centres, the economical politics promoted by subsidiaries as far as concerns the recruitment and the profesional formation, the purchase of products realized from the local suppliers, the sales realized on the Romanian market, the state policies concerning the attraction of foreign direct investment and the help accorded to the research and industrial innovation. This dispersion of technologies generates a reallocation of the working places, productivity externalities for the Romanian companies, know-how, and some imitative processes regarding the formation strategies of employees from the multinational companies.

1 The devices by which the technology transfer is made

The technologies assumed from the multinational companies help the Romanian companies to put in practice new working methods, to attain the necessary competences and aptitudes to use effectively the new technologies. The mechanisms by which the technologies transfer is made are represented by an assembly of voluntary ways of the new technologies diffusion, next to methods of learning and purchase of new technologies. The main mechanisms by means of which the transfer of new technologies is made are:

- The local and foreign suppliers of materials, products and equipments;
- Direct investments made by the multinational;
- Technologies transfer by technical advisors;
- Purchase of license, exchange of license, strategic alliances;

In reality the mechanisms by means of which the technological transfer is made are combined. Thereby, the affiliates of the multinational companies often contract and pay licenses in a separate way from the dues for the technical assistance and certain services supplied by societies of engineering counseling.

The developed technologies in some countries form a vector of the industrial development in Romania, contributing to the growth of the industry competitive faster than if it would continue to develop autonomous. The new technologies replace the production and products methods, generating a current of rejection of the new Romanian firms, but this makes them become disadvataged of the request change and of the exclusion from the circuit of global commercial flux, because of the execution impossibility of the necessary adjustment in real time.

In reality, the takeover of the new technologies by the Romanian companies depends on the choice of the multinational companies either in favor of the indirect transfers, or in favor of the direct ones. These choices are at the same time influenced by the wide complex of exchanges established between multiple units of production, sales and scientific research spread from a geographic point of view, but which functions as an incorporated space and of the technologies' flows orientation between these poles.

The success of the technological transfers depends on the efforts laid in the direction of the new technologies takeover, by the education degree of the population, by the assimilation and the reformation of the takeover technologies to be adapted to the local environment conditions. From a practical point of view, this transfer does not sum up at the equipments transport from one country to another, but implies an assembly of selection activities to choose the technology adapted to the local conditions, according to the efficiency that they will have in the new economic and institutional environment. At the level of the origin countries of the multinational companies some unwanted effects may appear, when the multinational cannot generate and develop the new technologies to replace the moral worn ones, because they influence on the development on long term. The assembly of the activities developed by the multinational companies contributes to the elimination of the technological advance or at least at their reduction where they set their affiliates. These expand the current operation boundaries which they control beyond the national boundaries.

The orientation of the foreign direct investment fluxes at international level (exits)
-implicit and relative values-

Years	2	2003	2	004	2005		
	Implicit value (mil.\$)	Percentage (%)	Implicit value (mil.\$)	Percentage (%)	Implicit value (mil.\$)	Percentage (%)	
TOTAL	561103	100,00%	813068	100,00%	778725	100,00%	
Developed countries	514806	91,75%	686262	84,40%	646206	82,98%	
Countries in process of developing	35566	6,34%	112833	13,88%	117463	15,08%	
Countries from S-E of Europe and CIS	10731	1,91%	13973	1,72%	15056	1,93%	

Source: World Investment Report 2006, UNCTAD

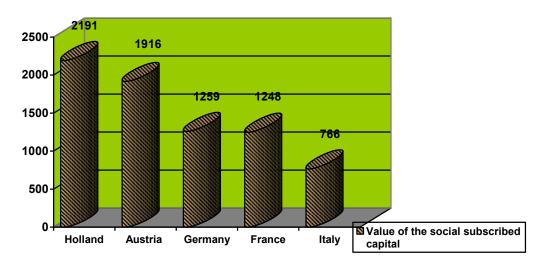
From the table above we observe the fact that from the total of the direct foreign investments fluxes exits at global level, the main investor countries are the developed countries, these ones having the significant share from the total of the accomplished investments (91,75 % in 2003, 84,40 % in 2004 respectively 82,98 % in 2005). It is obvious the decreasing tendency of this share, because of the doubling of the accomplished investments share from the countries in process of development along the analyzed period (from 6,34 % in 2003 to 15,08 % in 2005), this tendency carrying further in present too, natural consequence of the economic development of these countries. Regarding the countries from the S-E of Europe and the former soviet countries, the share of the attained investments by these ones are relatively small, fluctuating around the value of 1,72 % and 1,93 %.

We further analyse which of the developed countries contributes in the highest way at the accomplishment of the direct foreign investments, and we can state that in the classification of the greatest investors on the first places we can find the countries form the European Union (with shares varying between 48,80 % and 85,86 %) and those belonging to the North America (with shares between 3,31 % and 38,72 %). If we take into consideration the countries from the European Union, a classification of the 5 investors in year 2005 includes: Holland (21,53 %), France (20,85 %), Great Britain (18,22 %), Germany (8,23 %), Italy (7,15 %).

If we keep in mind the **source of the direct foreign investments in Romania**, we can notice that the main origin countries of the investors especially in commercial societies with foreign participation at the capital are the developed countries belonging to the European Union. So, having as reference period 1991 – 31st of December 2005, on the first places we can find, according to the subscribed social capital, the investors from Holland with 2.288 commercial societies and with

¹ According to the date supplied by the World Investment Report 2006, UNCTAD

2.191,1 million Euro subscribed capital, Austria with 3.578 commercial societies and with 1.916,7 million Euro subscribed capital, Germany with 12.898 commercial societies and with 259,3 million Euro, France with 4.060 commercial societies and with 248,4 million Euro, and Italy with 18.747 commercial societies and with 766,7 million Euro (Graphic 8).



Graphic 1 – The classification according to the provenance of the direct foreign investments fluxes made in Romania, 1990-2005.

2. The determinant factors on the decisions of the multinational companies to accomplish the technological transfers by mean of the affiliate creation in the Romanian economy

The decisions of the multinational companies to accomplish implants in the Romania economy are influenced by the economical and political situation evolution, the existence, the quality and the cost of the necessary resources (materials and human), the approach and the buying up of new commodity markets and obviously of the global income maximization. More than that the decisions of the multinational companies to transfer new technologies are determined by the life circle of the product that is going to be accomplished. It is important if it is a new product, an adult product or a standard product.

The new products usually are intended to answer a potential petition from the consumers with high incomes or form the petitioners of equipments interested in the economy of the used work force. To reduce the uncertainty in the period of rapid evolution of the product, the producers will orientate the offer to the consumers who can communicate in the fastest way and who have high incomes. Practically, the capacity of taking over the new technologies accomplished in the research laboratories from the foreign companies, meant to introduce the new products is almost null for the Romanian economy.

As the request for the new products increases and a certain degree of standardization is reached, from the many variants a reduced number can be reached or at a dominant product, and important are the diminution of the production costs in front of its characteristics. The existence of the qualified work force and of a solvent request in the different area of the countries and from our geographic region can determine the decision to invest by creating affiliates in Romania.

The standardization reduces the informing costs for the potential consumers, and next to the salaries costs, the approach to the market and the political establishment can determine the

delocalization of the production and the inclusion of the Romanian market in the world circuit. In this stage the decisions of the multinational companies will be influenced by the quantity of patents, commerce marks and technologies which they dispose of next to the economies related to the distribution, supply and financing. They have the possibility to sell the rights of utilization of the patents and of the production marks, to produce by means of the creation of new affiliates abroad or just export the products. Yet, the firms that hold new technologies do not want to sell the patent, because they are afraid it could be stolen later. They can not sell a part of the technology, but they have to sell the entire technology which value they know the best. In this way the selling and the utilization costs of the patent can become very high transforming in barriers impossible to cross for the potential clients. To maintain the control on the created technologies, to adapt to the extern market requests and to maximize the profit, the delocalization, the companies purchase to produce of to implant affiliates become possible solutions. The possibility to beneficiate of the new technologies depends on the endowment in production factors of the Romanian economy comparative to the origin economy, fiscal, commercial and transport costs related to the commercialization comparative to the accomplishment of the direct foreign investments.

The analyses frame of the factors which influence on the multinational companies decisions can be extended by taking into consideration the marketing competences and the scientific knowledge obtained by research investments which influence the transfer from one firm to another by direct investments. Knowing the asymmetry and the contractual market which are associated to the characteristics of the products, make the exploitation to be ensured in the most efficient way possible by prolonging the activity beyond the borders by direct investments.

Only in certain cases the license granting to a foreign producer can ensure an earning capacity comparable to a direct investment. This one produces when the lucrative advantage of the mother society consists in creating a technique or a product. The information that sustains the advantage of the mother society can easily be transferred, entirely to a foreign society. In other cases, either the information can not be transferred, or the work force specialized, or the relative uncertainty at the knowledge value on the foreign market will restrain the license granting at a price which reflects the estimated value of the surplus which is provided to the license holder.

In this situation, the direct foreign investment allows the addressee country to benefit of the company examination and favors the technologies and the technical knowledge transfer. The local affiliates are considered capable to exploit the technology, but incapable to exploit assets which could in exchange be transferred and exploited inside the world activities of the mother society. The advantages of the foreign investments derive from the direct exploitation of the transferred active and encounter the national competitors.

The availability, the importance and the utilization in the increase of the informing technologies reduce the need to centralize, and more than that it is easier to coordinate scattered activities. The transport systems and the technologies of modern communication, allow a better coordination of the big companies branches which are geographically broken-down. The new organizational structures for production and distribution reduce the delivery time and favors the appearance of new types of organization. The conception procedures and production flexibility increase the companies capacity to satisfy the clients request rapidly. The research personnel can work in different geographical locations, having the same coordination of the activities.

These changes intervened in the administration way of the activities of production, commercialization and research-development determined changes of the foreign affiliates activity nature related to the research-development. They start to compete the sister companies regarding the exclusive production at world scale. Interested in obtaining international responsibilities the affiliates grant an increased importance to the activities of research-development, influencing on the

competence between these ones by means of the competition influenced by scientific basements and advanced technologies. The localization and the organization of the research development activities and innovation in multinational starts to be influenced by technological progress and organizational one, to which the international relations and the promoted politics are added. The multinational started to bring together a complex network of interactions between the mother company, the affiliates and the local environment which can give human innovating capital, acquiring a matrix structure.

The increase of the local interest for the research-development activity can be observed from the statistical data. As we can notice from the table below (table no. 2) the number of the employees connected in the research-development activity in the Romanian companies increased from one year to another, reaching from 38433 in 2002 to 41035 in 2005, respectively, at a ratio of 48,9 employees in the activity of research-development to 10000 people civil occupied, total expense for this period pendulating between 952872 in 2004 and a maximum of 7620646 in 2003. Of course, this situation varies according to region, to the region Bucharest -Ilfov and the region of North- East being due this increase totally. (Table no.2).

Table no.2
The research-development activity, on development regions

Development region	The employees from the activity of research- development (number of people)			The employees from the activity of research- development 10000 people civil occupied			Total expense from the activity of research-development (million lei, current prices)					
Years	2002	2003	2004	2005	2002	2003	2004	2005	2002	2003	2004	2005
Total	38433	39985	40725	41035	46,1	48,1	49,4	48,9	5743861	7620646	952872	1183659
North-East	3368	2926	3168	3704	25,7	22,7	25,3	29,3	290469	374904	50439	65326
South-East	1934	1934	1922	1898	18,9	18,9	18,8	18,5	263825	264593	30396	42504
South- Muntenia	4016	4205	4080	3850	32,9	34,8	34,5	32,4	908847	1060481	134476	134192
South-West Oltenia	2757	2841	2799	2569	31,4	32,5	33,0	30,0	215984	213065	53893	45023
West	1925	3268	3315	1855	23,6	40,3	40,5	22,2	265776	465247	45530	52788
North-West	3183	2742	2302	2690	28,1	24,2	20,5	23,5	386870	365767	32508	88971
Centre	4280	3479	2508	2419	41,1	33,9	24,9	24,0	384827	507564	46330	53172
Bucharest – Ilfov	16970	18590	20631	22050	187,2	196,9	210,3	207,6	3027263	4369025	559300	701683

Source: INS, Statistic Yearly, 2006

3. The impact of the border internalization of the activities and delocalization of the multinational companies. Advantages and problems to be solved.

The organizational structure of the multinational companies influence on the relations between the mother company and the affiliates or between the affiliates, because they influence their autonomy, influencing the production and the internal circulation of the technology. In most cases the production of scientific and technical knowledge, but also of the expense are centralized at the origin country level. The mother society imposes restraints to the affiliates even when the activities of

research-development are made by the implanted affiliates, transforming the affiliates into specialized accommodation centers of procedures and products launched by these ones. In this way, the accomplished works by the affiliates is limited at accommodations of the determined products of the market dimension, the consumers preferences or the weather conditions. Practically, the technological dependence is raised and the scientific level of the works is reduced. Not even one advantage appears on the fundamental and applicative research , because there is a dominant of the engineering and development activities.

When the affiliates are included in a global program of research, applying the principle of international specialization makes each affiliate accomplish just one part from these ones. In this way the research laboratories stay at the level of multinational residence and the relations between the affiliates break if they can not accomplish researches determined by the needs of the local markets where they activate. This apparent decentralization pursues the utilization of the specialists from the implanting country by paying smaller salaries than in the origin country. Practically, the circulation of the technology transfer is not free inside the multinational company and less outside of it. As a consequence, the Romanian economy can beneficiate only of one part of the amount of scientific and technological knowledge transmitted by the multinational and controlled by these ones.

Yet, the transfer of knowledge to the personnel involved in applying the results of the research in the company led to the accomplishment of products, technologies, and services or important innovative processes, which started a greater request on the market. If we take into consideration the data presented in table 3, we notice that in the total of existing companies, a slight increase was noticed for the share of the innovative companies, from 17% to 19,9 %. The doubling of the share of the companies with non-finalized innovations or / and abandoned ones, from 0,1 % to 0,2 %.

Table no.3
The typology of the innovative companies

	Number of	companies	Share to the total number of companies		
	2000- 2002	2002- 2004	2000- 2002	2002- 2004	
Total companies	23404	26024	100,0	100,0	
Innovating companies					
From industry and services	3983	5171	17,0	19,9	
Successful innovators	3963	5136	16,9	19,7	
Product only innovators	582	472	2,4	1,8	
Process only innovators	413	1203	1,8	4,6	
Product and process innovators	2968	3461	12,7	13,3	
Companies with unfinalized innovations			·	-	
and/ or abandoned	20	35	0,1	0,2	
Non-innovative companies	19421	20853	83,0	80,1	

Source: INS, Statistical Annual, 2006

The internationalization of the activities by expanding the company along the international frontiers eliminate the imperfections of the production factors market (financial capital, human capital, information and technology), fiscal and commercial barriers, but maintains the advantages of the properties on the patents, on the production marks, know how, new technologies and products. The multinational companies represent an institutional answer at the technology market

imperfections, and of all the markets in general, which maintain by means of internalization abroad the advantages which derive from the exclusive property on some categories of actives. These actives assures the competition and a profit margin increased in relation to the rest of the participants from the market, and puts in discussion the multinational effects on the economies of the host countries, dependent on the available technologies and their characteristics.

The Romanian economy to obtain real advantages of competition must beneficiate of the new technological transfer either on the direct foreign investments, or by license closure, or by means of the commercial contracts. The potential advantages about which the specialty literature speaks become reality in some proportions only in the measure in which the multinational companies decide delocalization.

The multinational firms take decisions in economic terms, and the final variant is the profit. These ones must choose between producing in their own country and exporting on one hand, and on the other hand investing abroad to produce, or rent the license of the new technologies. This last variant raises problems related to the barriers more or less visible through which the countries protect the markets, the transport costs, the influence of the imperfections of the capital markets, the management of the potential political interventions with economical effects of the authorities in the host countries.

The advantages of the technological transfer by means of multinational are:

- The existence of an informational flux between the mother society and the affiliates.
- The permanent technological transfer, because of the access of the gradual perfections brought to the transferred technologies.
- Permanent development of the personnel.

Yet, to be able to beneficiate of the technological experience got by the multinational efforts of assimilation of the transferred technologies by the receiving companies must be made. The technological infrastructure represented by the technical education, the existing research centers, to which we add the measure in which the local companies develop the technical competences and the commercial initiatives influences on the assimilation and the capacity of development of the transferred technologies.

But, it would be wrong to believe that for the receiving companies would exist only advantages, and the problems to be settled would miss. The takeover technologies create dependence from the origin countries of these ones, because of physical depreciation. It imposes import fluxes to assure the technical elements and other materials which the internal market can not assure. By means of the effects repercussion they will be transmitted over the commercial balance and respectively payments. The takeover technologies can need adaptation to the local conditions which imply additional costs for the local firms which receive. On the other hand the limitation of the research development competences of the local affiliates at the products adaptation to the local requirements, transform them in doers. In this situation the multinational affiliates establish relations and do not imply in the development of the commercial networks with the suppliers and the local clients. More than that the mother-society can impose restrictions related to the right to produce, sell and export the transferred technologies.

Romania as a receiving country can confront next to the apparition of a dominance stage of the market, with the necessity of the political costs bearing, economical costs bearing, fiscal costs bearing to draw the foreign investments to which the payment of an overestimated price is added for the acquired technologies which usually are morally worn for the origin countries. In this way the technological deviations and the rest of the effects which derive from it continue to maintain themselves, but this time the beneficiary economy of the technologies pays the additional costs.

The technological transfer by means of the multinational companies and the technological contribution of the affiliates at the technological progress of the Romanian economy can be favorable for us. At the same time, recurring to the direct foreign investments must be considered in the context of other economical and social advantages and disadvantages associated with the foreign control of a part from the host economy. The development of the local technical competences and the existence of the competitive markets can be important advantages for the equal distribution of the benefits between the Romanian economy, affiliates and mother company, comparative to the interventions of the state to regulate the activities of the multinational companies and attraction by means of expensive fiscal facilities.

4. The relation between the multinational companies' affiliates and the scientific and technical potential of the Romanian economy

The analyses of the relations between the scientific and technical potential of the Romanian economy and implanted affiliates by the multinational shows that their action space grows, and at the same time the increase of the number of Romanian economical entities included in this space as a consequence of the scientific and technical exchange. As a consequence a network of relations between the affiliates and the scientific, technical and industrial entities is created and activates in the Romanian economy. This network allows the increase of the technology transfer.

Next to the relations between affiliates and the mother society, the capacity of technological absorption presents importance because it influences on the expansion of the multinational. The relations between the affiliates and the Romanian economy are accomplished through:

• The relations which the affiliate can have with public and private local research centers.

The affiliates can enclose contracts with private and public laboratories, local engineering societies, universities, to which research works are added and also works on technical development. When these relations are weak it doesn't mean a negative attitude of the multinational towards the existing potential, but it can mean either its ignorance, or the lack of the need to use the scientific and technical resources outside the firm. The lack of interest can be determined by the utilization of the technology elements exclusively or from the mother society or it can be determined by the fundamental and applicative research absence at the level of the affiliates. The relations with local scientific potential can sometimes develop as an element of the public relations under the form of the subscription at research organism without the use of their services or under the form of the research use.

• The politics promoted by the affiliates on the line of recruiting and professional development.

The market of the work force is an fundamental intermediary in the technology transfer, and this transfer is more intense if the affiliates include in their activity a great number of local employees with a high level of qualification. So, by means of the qualified personnel a multiplying effect of dispersion is produced as a consequence of the qualified personnel which leave the affiliates to employ in other entities from the economy and who take with them the scientific and technological information that was gathered.

• The shopping the affiliates make from the local producers.

By means of this device of transfer the suppliers of the affiliates must respect a certain number of technical specifications. The transfer is more intense when the technical level required from the local producers is higher. The affiliates can ensure technical and eventually financial assistance for the local subcontractors. The politics of technical counseling differs from one affiliate to another according to the specific activity in which the affiliates action and of their relations with

mother society. The resort to this kind of contractual relations depends on the preoccupations related to production capacities of flexibility to face the conjuncture fluctuations. Their proportions depend on the capacity of the local firms to respect the exigency rules imposed by the multinational companies, but also of the technological gauge between the multinational and the technologies used by the local firms.

■ The products sell of the affiliates on the local market

They are influenced by the potential buyers represented by the firms, or by the simple consumers and their level of education. The products buying offered by the affiliates can determine modifications of the sensitive behaviors to favor the technical progress including by means of the selling of technological equipments to the interested Romanian firms.

• The governmental politics in the field of the direct foreign investments control and the help granted to the research and the industrial innovation.

The industrial politics and the regional and local development one can favor or not the affiliates' activities. The legal regulations related to the use of the local work force influences on the affiliates function.

So that this network of relations could function well there must be a better capacity of technologies absorption. The level of development of the economy does not always allow to the affiliates to use these transfer channels or to satisfy the assembly of the needs which derive from them. The analyses of the difficulties related to the technologies transfer shows that they are limited by the existence of some autarchic ambitions at the local producers and intermediary assets that can not be explained by economical considerations. To these the impossibility of prices adjustment by the local producers to satisfy the needs of the affiliates is added.

As a consequence, when in an activity area the industrial infrastructure is physically and morally worn, the work force is not enough or it does not correspond as structure and level of professional preparation and the experience is reduced, the only solution is to adapt the technology taken over from other affiliates or from the mother society. The existence of some deficiencies related to the scientific and technical infrastructure, the efficient absorption of the imported technologies and the set in difficulty of the public authority when it negotiates the accomplishment ways of the implants in economy. In this situation the necessity to resort to patents and licenses appears, by the local firms so that the different industrial projects are able to participate.

The firm managers are interested obviously to reduce the technological dependence and to obtain a certain technological independence. These objectives must not be confused with an autarchic attitude, because they inscribe on the line of the political insurance promoted by the government in the direction of the structural balance rehabilitation of the economy, to the creation of a certain scientific infrastructure and the growth of the national innovative potential. Such a politics pursues on one side the access to the technologies of the developed countries, and on the other side not to increase the presence of the multinational firms. Practically, the processes of industrialization to which the multinational firms participate lead to the diminish of their action margin. In this way tensions and new cooperation modalities appear less harmonious related to the technologies transfer.

The organizational centralized structure of the research development doubled by the objectives related to the scientific and national technical potential development to reduce the progressive technological and scientific dependence hits from the desire of the multinational firms to retain scientific and technical information, by the research potential weakness which exists because of the reduced number of researchers and research centers and the difficulties related to the adaptation of the suppliers and of the local buyers to adapt to the technical rules required by the implanted affiliates. More than that the competitive firms on the Romanian market and abroad force the

multinational to keep a certain secret on the new technologies to maintain the technological advantage.

As a consequence, the development of the scientific and technical cooperation is imposed by multiplying the contacts with the affiliates for the growth of their implanting possibilities. Yet the affiliates set in balance the advantages and the costs implied as well as the strategies at world scale promoted inside of the organizational structure from which they are a part. They have the capacity to identify and use the human resources, the financial resources and the technological resources in economical activities of lucrative commercial ones, the capacity to set in function new techniques and new production competences and management which assures raised accomplishment.

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