

Impact of the aérotrain on regional economic development

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IMPACT OF THE AEROTRAIN ON REGIONAL ECONOMIC DEVELOPMENT

High technology is usually considered the solution to a number of problems of economic development. In this sense, many illusions are the cause of a great number of failures. Why is it so? In the field of regional economic development, for instance, failures are numerous in Canada. The cause is mainly due to a misunderstanding of real conditions that prevail in the regional economy domain.

Regional economy is the study of economic spaces and the mechanics of their evolution.

To define an economic space means firstly to define the spatial scale in which we will work. The economic space of a region extends well beyond the region itself. It is then important to have a knowledge of the scale. For example, when Wall Street collapsed in October 1987, this collapse had a worldwide impact. Thus, one can say that the New York economic space is planetary. It is absurd to study the mechanics of Montréal's economy without knowing what is going on in New York or Tokyo. Alas, one sees that happens every day!

In the way it is defined here, regional economy was first developed in Europe and is barely penetrating in North America. In this continent, what has happened is that elements of what was developed by theoreticians such as François Perroux and Jacques Boudeville were used in isolation of their theoretical environment (François Perroux's theory of growth poles, for instance), and those elements were put at work in local applications that didn't function. And some people were led to reject those theories as being inapplicable.

And since one must always invent something new, we have witnessed a new fashion that is being developed in Canada, a small-scale substitute for François Perroux's work : "business incubators".

Presently, "high technology" and "business incubators" have become symbols of promises of development; the symbiosis of the two being without a doubt the last word in development strategies.

As a researcher, I am interested in seeing new ideas arise. And as a practitioner, I realize that they serve as alibis enabling some economists, and administrations not to commit themselves or to postpone the time of action. This being the case, it is the research-development programs of companies that suffer the consequences.

Much has been said in the last years about high speed transportation : the French T.G.V. (Train à grande vitesse - high speed Train), and the Japanese and the German magnetic levitation system. These are the products of high technology, especially the magnetic system which represents, in laboratory, an attractive intellectual performance.

However, the domain of high technology should not be considered only as the sophistication of a system (as is the case with the magnetic train or the French T.G.V.).

High technology is first and foremost the mastery of systems which one wants to develop. This mastery is all the more strong since the builder realizes it with a minimum of means, which ensures him a maximum of reliability and profitability. The more complex a system is, the more it is fragile and costly. Some specialists often forget that.

There can be a relation between high technology and economic development that rests on economic theories, and I will take the example of the Aérotrain.

The market of mass-transit is narrow in North America. The geographical distribution of populations (with the exception of the U.S. East Coast between Boston and Norfolk) do not allow for the profitability of transit systems which need to have markets of approximately twenty to thirty millions of passengers per year. This consideration should encourage pragmatism and prompt decision-makers not to invest public and private moneys in operations that inescapably would be in deficit.

The principle on which rests the air cushion train, and the way it was designed by the French engineer Jean Bertin, corresponds in all respect to the definition of high technology I gave above, namely :

- simplicity of the principle of air cushion;
- technical mastery of implementation, leading to a product whose full scale performances have not been surpassed for the past 15 years;
- operating cost largely smaller than everything that has been done since.

The U.S. East Coast megalopolis is actually in employment stagnation. According to the forecasts covering the period from now to the end of the century, this tendency will persist. The American industry is leaving the Atlantic economic basin to the profit of the Pacific one. In other words, European and African markets are no more interesting for America. But all the Canadian economy rests upon the Saint-Lawrence region, between Quebec City and Windsor. This comes to say that the Canadian economy can be jeopardized by the decisions of big industrial groups in the U.S.A. High technology is leaving East Coast towards West Coast (and despite the recent developments in the Boston area, the overall figure is still negative).

I consider that this deflection offers to the Province of Québec an opportunity to maintain, for Europe and Africa, a high technology bridge on the Atlantic front. In the actual context, only the province of Québec is in such a position. What has to be done is to maintain, for an Europe that is having difficult times and for an Africa that cannot be abandoned in its current situation by the Western World, a technical expertise and experience which will be needed in these regions. And to give the impetus to such an operation, I think that the Aérotrain is an excellent tool.

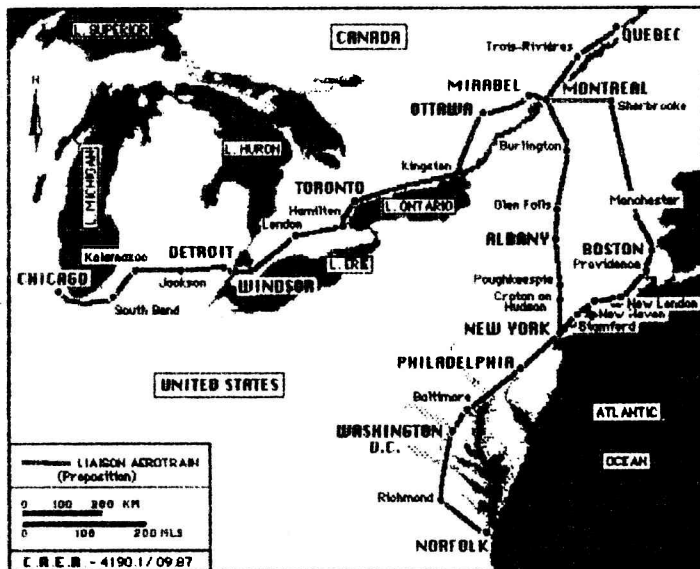
It satisfies two objectives. First, it satisfies local necessities (of transportation at the North American level, and of employment at the local level). Second, it could be the start of the establishment of this Atlantic front.

The operation consists in throwing a bridge between the growth poles theory of François Perroux and the

development axes theory of Professor K.H. Hottes, of Bochum, West Germany.

Firstly, the immediate market: junction of Montréal's downtown with its two international airports (Dorval and Mirabel), with further extension towards Ottawa, Toronto and Windsor, and later on, towards Chicago. Canada has the most urgent need to reinforce the links in the Quebec City-Windsor corridor, which is the spinal column of Canada's economy.

The second link (in the longer term) would be the Montréal-New-York one, via Boston, and in direction of Washington and Norfolk.



This program justifies the implementation of the Aérotrain in Canada. Taking into account the itinerary of the first link, the train could equally be built in Toronto, Montréal or elsewhere. The result would be an operation of economic development, focused on transportation, with short term induced

effects. Benefits other than the ones related to transportation will stop there. And I may point out that, politically speaking, it might be the easier operation.

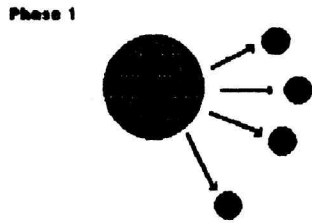
We speak a lot in Canada of the Quebec City-Windsor corridor.

The essential feature of a corridor is that it is passed through without any stopping. A segment of this corridor is Quebec City-Montréal. There is few flow between these two cities. However, there is, between Montréal and Quebec City, three types of transportation infrastructures : the road, the railway, and the Saint-Lawrence River. In the definition of Professor Hottes, these are link axes. Their function is to reduce the time-space separation between Quebec City and Montréal.

If we consider the town of Trois-Rivières and the investments made by the government of Québec to develop this region, we have, in the centre of the 270 kilometers stretch between Quebec City and Montréal, an infrastructure that enables the corridor to be transformed in a development axis whose function is to institute continuous interactions between urbanized and industrialized points gone through.

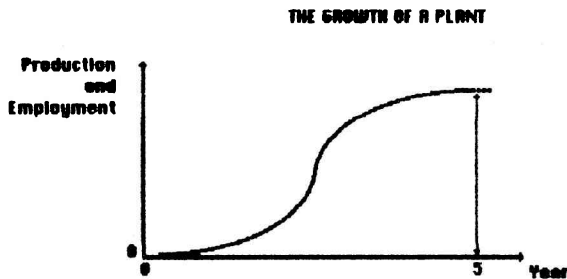
The following process rests on two experiments done in Europe twenty years ago. The first one is the development policy of the Italian government for the region of Mezzogiorno, in southern Italy. The second one was done by the French subsidiary of an American multinational company (Cie IBM France), in Montpellier, in southern France.

The diagram below represents exactly what has been accomplished in Montpellier.



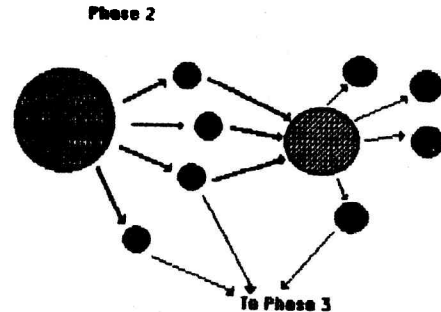
A driving unit of production, in its making, needs to resort to subcontractors for the goods it manufactures. The unit of production, being the principal of the operation, includes in its contracts with subcontractors the following clause: "under no circumstances are the works done by the subcontractor, for the principal, to exceed 30% of its total production capacity". This clause will give to the subcontractors a safety net by which they will not be entirely dependant of the principal.

A business in the making will take 5 years to get its production into cruising speed.



During this period, the commands the principal will order to subcontractors will increase. And the 30% clause will be applied. In Montpellier, we saw the subcontractors group themselves to have another driving company established in the area in order to

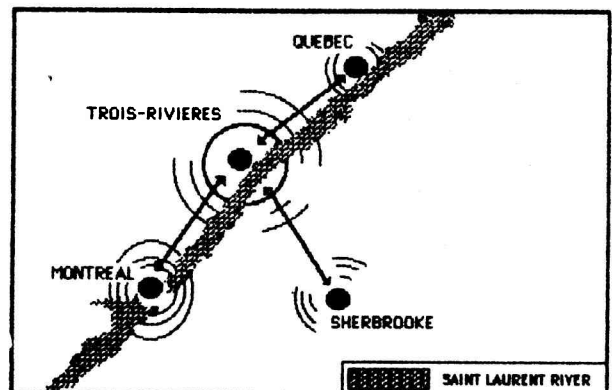
keep the contracts of the first one. This new company brought with her other subcontractors in applying the same clause, requiring the subcontractors to seek for other companies. This process has the advantage to ensure maximum security for everyone.



In this sense, once the system is operating, it becomes the drive of its own growth. It is a concrete application of the theory of growth poles. But transposed in Québec, it has to be related to the theory of development axes.

By locating the operation in Trois-Rivières, economic fluxes will be generated towards Montréal and Quebec City, as well from Montréal and Quebec City towards Trois-Rivières.

Transportation infrastructures are then not considered as a simple support for the link between their two own ends, but as systems wich are polarizing trade all along the spaces run across.



Localizing the construction of a high technology product (Aérotrain) in Trois-Rivières is justified by the urban context (Montréal, population of 3 millions; Quebec City, population of 700,000) and the presence, in a radius of 150 km, of 7 universities and their research centres, with the concomitant presence of a brain pool. From this point on, the qualitative level of trade of goods and services along the whole axis, with Trois-Rivières being the anchor point, presupposes the establishment of cumulative effects mechanisms, which orients the specialization of the area towards high technology.

The Aérotrain and its construction serves here just as a pretext and a lead. Its choice is justified not only by the presence of the consumer market and the need to upgrade the transportation system, but also by the presence of companies directly interested in the manufacturing of this product (Péchiney, Pratt & Withney, Ciment Lafarge, etc.).

I leave to engineers the hardware side of this project. As an economist, I feel important to stress that there can be a close relationship between research-development, which is the basis of the concerns of industry, and an objective economic approach about the use of this research in the public interest. Industry researchers should require economy theoreticians and administrators to keep their feet firmly planted on the ground, while their heads may be floating through clouds. If not being the case, the impact of their research will be limited, as well as their interest.

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