

Electronics Industry in Canada?

Report on report which says sock pulling up is required

IT WAS WITH great interest that we read the report of the Task Force on the Canadian Electronics Industry. Released in Toronto on September 6th, it contains numerous useful and informative concepts and views on our electronics industry, and some strong suggestions for the future.

KEY REPORT CARRIES WEIGHT

The report was commissioned originally by the federal government's Ministry of Industry Trade and Commerce. Chaired by Mr. Larry D. Clarke (Chairman of Spar Aerospace Products Ltd.), the Task Force was composed of key people from management and labour position, and also representation from the university and provincial government view points. The report is one of 23 similar documents on sectors of industry, intended to keep the MITC in touch, and to advise them on possible future courses of action. As such then it has the potential for far reaching effects, hopefully in a positive direction for the large number of our readers who are involved in some way with the electronics industry.

THE REPORT

For the benefit of those readers who have not got a concrete mental picture of the electronics industry, we will start with a look at this, drawn from the report and also from the 'Sector Profile-The Canadian Electronics Industry', appended to the report.

FIRST THE BAD NEWS

Overall, Canada's electronics industry has had consistently the worst trade balance of all six countries studied; Japan, USA, Germany, UK, and France being better. That is, we import a heck of a lot more than we export, and it has been getting worse to the point that in 1976 (latest figures provided) we imported US\$1267 million

more than exported, while Japan was doing US\$ 8 billion the other way. (More figures are available in the report, we're skimming the high (low?) points). In other words, Canada was relying on her traditionally strong, but unskilled labour intensive and diminishing natural resource industries, and on borrowing money.

NOW THE WORSE NEWS

The report indicates that Canada's electronics industry as a whole is sick, victims of insufficient home market for sufficient mass production of consumer goods here to compete price-wise with imported goods, and (really part of the same problem) insufficient protection in the way of tariffs, or preferential purchasing plans by governments or institutions.

SOME GENERAL CHARACTERISTICS

There are over 700 companies in Canada making electronics products, of which 80% are in Quebec and Ontario producing 90% of the products. These companies are chiefly located near cities where they have access to 'a supporting technological infrastructure' and skilled labour. The report notes however that there is little need for location in any particular area in Canada (hence more regional development is possible).

Size: Most companies (70%) have less than \$1 million in annual sales, (1976 again) with only 8% above \$25 million. Northern Telecom, the largest at over \$1 billion represents 30% of the total and is only medium sized by international standards. 30 electronic companies in the world are larger, 15 of which exceed Canada's total domestic demand! Needless to say, it's challenging to compete with them.

Research and Development: The electronics industry is the largest

employer of technical and scientific brainpower, 25% of all R&D expenditure being in electronics. Looking at it another way, in electronics, an average of 4% to 5% of sales is spent in R&D versus 1% in other industries.

Naturally, this large R&D characteristic ties in with long development large R&D capital (equipment and facilities) investment, and public investment in training and nurturing skilled and educated people.

Foreign Ownership: 20% of Canadian electronics firms are foreign owned, with 55% of the industry's sales (80% if it weren't for Northern!). This obviously implies that on average the foreign owned ones are the larger, 72 of the top one hundred for starters!

A LOOK AT SECTORS

For the purpose of making the industry a manageable concept to think about, the report identifies and describes several major 'sub sectors'.

Consumer Products: An extremely price sensitive field, where anything we can make some other nation can make more, cheaper. TV manufacturing has collapsed, and it's unlikely that any electric consumer products are profitably produceable in Canada.

Components: A somewhat loose grouping, ranging from resistors to LSI chips. Again bad news in the mass production department, especially at the resistor end. IC's require lots of R&D, and not much return in the Canadian market with difficult international competition (remember Micro-Systems International?).

Our best bets are relatively small volumes of complex, highly specialized or custom components.

Telecommunications: One of our fortes since we have the world's second largest amount of long distances. Northern Telecom is the star, with a large home market and world leadership

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in many aspects of communication technology.

Other Communication: Dating back to the establishment of Canadian Marconi in 1903, this field includes commercial public broadcasting equipment and installation, radar, microwave systems, and various defense and space projects. Canadian suppliers have been losing ground as suppliers in Canada, but increasing exports. Small size tends to hinder the credibility and bargaining stance of Canadian owned firms in this subsector.

Computers and Office Equipment: Fast changing field, our own companies are mostly into computer peripherals and specialised data processing systems. More successful are the branch manufacturing plants of foreign companies. Some potential appears to be in the computer support and software fields. **Control and Instrumentation:** A very broad area is covered here, populated by a small number of large multinational companies, and a large number of small Canadian companies. Strong growth, especially with increase of small computers in control applications. World trade has been inhibited by 'non-tariff barriers' of major nations. ('buy-at-home' policies etc).

Systems Electronics: This subsector was felt by the Task Force to be that having most potential for growth in Canada and upon which much attention should be lavished to cultivate expertise.

The area is said to cover 'the integration of a variety of electronic equipment into a system, usually designed to monitor an activity or process and to initiate corrective and control functions.' This is distinct from the specialization in just one or two types of *subsystem* by many firms today. 'The strength of companies which do systems integration'.....'is their ability to tie together subsystem technologies, often combined with strong software capabilities in the solution of highly complex problems.' Few such companies exist today in Canada, although several subsystem people have evolved some system capability.

Much of the product is (again) custom, not requiring huge manufacturing facilities. However, the market is up and down, hence the prospective systems company needs to have some stabilizing mechanism for the down periods.

WHAT WAS FOUND

Against this brief overview of what's going on now, let's consider what the report had to say about the future.

WHY?

First, why do we need an electronics industry if it's so difficult? Apart from the fact that there are a lot of Canadians who through interest want jobs in electronics, the report points out that the electronics industry is important to Canada as a nation for several reasons.

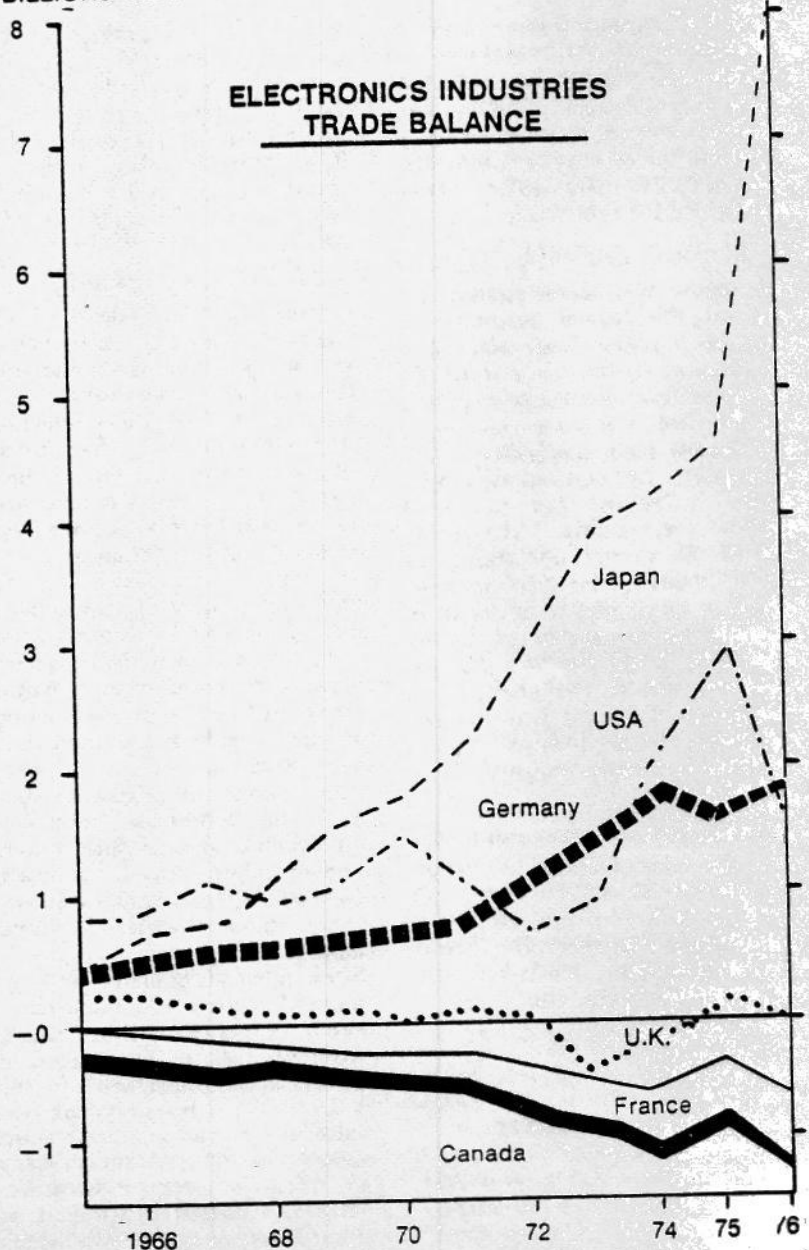
We need the capacity for technological innovation in order to produce internationally competitive goods so that Canada can make some money. Electronics is an opportunity.

Studies show that high technology industries grow fast both in sales and employment. Hence if approached properly they represent a good investment.

As a non-natural resource based industry itself electronics does not depend on something that we're going to run out of, and hence provides for our future viability as a nation.

Electronics (eg systems) supports other industries (eg natural resources exploration, processing) and hence enables us to exploit these more efficiently and profitably. For Canada

BILLIONS US \$



It would almost look funny . . . if the bottom line wasn't labelled "Canada"

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this particularly applies also to transportation and communication. It is a strategically important industry.

Finally, it is an opportunity to provide 'high quality' employment to Canadians hence raising the overall quality of life here.

WHAT SHOULD WE AIM FOR?

As may already have been gathered, we should aim for strengthening those areas in which we are already leaders, and those of strategic importance. This includes 'systems electronics' and telecommunications (which is a system tool). These give us opportunities not only in Canada but internationally as well, especially in such areas as the middle east. In addition these companies as primary focuses of attention would be customers of subsystem and even component companies. We must obviously develop strongly at home that which we wish to be recognised for as exports, and here we already see our good position in telecommunications for example.

Regional development of the industry in Canada would be boosted by these fields, as they are by nature oriented towards local requirements. Companies based already in unusual locations are already demonstrating that you don't have to be in Toronto, Ottawa or Montreal to make it.

HOW DO WE DO IT?

First, let's look at the list of problems faced by Canadian companies.

—Obtaining financing is very difficult and high risk associated with unique or complex projects is a problem particularly in estimation of software costs. In addition, a long investment period before payback.

—High cost of making bids for contracts.

—The financial vulnerability of Canadian companies compared to international giants impedes the ability to compete in an open market, whether here or elsewhere.

—Sporadic availability of projects and long time between project definition and its implementation. This tends to mean that technical teams drift apart and do not keep up with the team's would-be field of expertise. Alternatively, the cost of keeping the team together is high.

—Inexperience in business, and lack of credibility to foreign buyers.

—The existing, evolved collection of companies, if viewed as a structure is inefficient as a whole due to fragmentation of resources and duplication of capabilities.

—Rapid obsolescence of technology and products leads to fast changing market.

RECOMMENDATIONS

A lengthy list of recommendations was gleaned from the report, upon which we have tried to impose some organization.

R & D: In this R & D intensive industry government's influence in the past has been poor due to assistance programs being of a short term or 'stop-go' nature, and concentration on basic research, rather than applied research (you can often get the technology from elsewhere, but it's you who have to apply it to your product) and in general a lack of matching assistance to the needs of the assistee. The government(s) should examine not just who to assist, but how to assist.

Companies should be encouraged to seek mergers that benefit their overall scope, particularly in R & D, but also in marketing. Even links with foreign companies can be beneficial.

Fiscal Incentives: A number of tax adjustments are suggested to influence companies in the 'right' direction, promoting particular activities, and investment in certain areas and oriented toward longer term returns. A useful analogy is the incentive schemes for films, or oil and gas. The shortage of capital would be alleviated by adjusting taxes to improve the risk-reward ratio.

Buy Canadian First: A policy recommended to all levels of government and institutions to encourage a future strong electronics industry. This would involve studying the overall economic effect of purchases (not just the direct cost), co-ordinating government departments in their purchases, basically figuring out what to encourage and then doing it when purchasing.

Some assistance and understanding toward the industries more delicate parts would be helpful, such as planning for the smooth flow of contracts to help project teams stay together, and perhaps more flexible or versatile contracts themselves. A more interactive approach is desirable.

Home Markets: A stable growing home market is essential as a base from which to work, it is claimed. Other countries have tariffs and other trade barriers (such as buy-at-home-first programs) in order to keep their electronics industries healthy. Although Canada's electronics industry feels it could survive in a no-barrier world, it would like some sort of barriers while building up some strength. Currently Canada has none.

Foreign Interactions: A number of proposals related to import and export money matters were forwarded in the report. Import duties should protect and encourage our production, while not making essential imported items more expensive. An example is large computers, perhaps essential for use by one Canadian electronics firm, yet should they be subject to tariffs to encourage some other firm to produce them here? There should be some recognition for that manufacturing which we will resign ourselves to having take place elsewhere.

Competitive financing needs to be available for international competition. Some notes were also made about the exchange rate of our dollar, a topic not limited to electronics of course. There is also the issue of current international discussions regarding tariffs and other barriers.

Finally, the Task Force felt that, on the subject of foreign ownership, it is not so much the ownership, but the 'corporate behaviour' which is important. Accordingly an extensive code of behaviour is appended to the report.

CONCLUSIONS

Basically, the Canadian electronics industry is in trouble if we don't get our collective act together. This means government, industry, labour, education, the works. An initial direction has been pointed out, and it rests with the Ministry of Industry Trade and Commerce to form the plan and co-ordinate the activities.

It will be a challenge, since it seems unusual for a government ministry to prepare for a long term goal, but unfortunately actions based on short term improvement will not be adequate and can be destructive.

The report recommends a number of actions directly to the MITC. These boil down to: Plan for the future, incorporating specific objectives by which to measure progress, then implement the plan.

Again it is emphasised that the rescue of our electronic industry is a medium to long term project, with little to justify expenditures on a short term basis. Will the government be farsighted enough to follow up on the recommendations? If it's not I'll see you in California.

Copies of the report are available from the Ministry of Industry Trade and Commerce, which has branches in major cities, head office at 235 Queen Street, Ottawa, Ontario K1A 0H5.