

SED — A High Technology Canadian Company

When a French-made Ariane rocket lifted off from its African launching pad carrying four sub-satellites earlier this year at the site assisting with the launch was a group of Canadian experts.

Meanwhile, in Texas, another group of Canadians is installing agricultural electronic chemical spray monitors for custom sprayers who work the citrus fruit orchards.

Still another group of Canadian researchers is busy in a laboratory turning a videotext system into the multi-use electronic web that could help make the wired world a reality.

Space, agriculture and telecommunications would seem to be an unlikely combination for any one company. But SED Systems Inc. of Saskatoon is not just any company. A high-technology business that has had a 40 per cent growth rate since its incorporation in 1972, it has confounded the experts who first predicted that it could not survive outside Ontario and then said SED's diversification would hurt future development.

SED president Michael Hodson smiles as he recounts advice that SED ignored. He is also quick to point out the main reason for SED's success — the application of brain power.

"The product we use in our business is brains. We don't take anything out of the ground or rivers. We take the raw brains out of universities and technical institutes (and put them to work)."

Employing those brains helped SED to expand from a base in aerospace products to a five-division company that expects to do \$22 million worth of business this year.

SED grew out of the University of Saskatchewan's physics department. In the early 1960s, the space engineering division was formed by Alex Kavadas, whose dream was to start a high-technology business that stressed small group projects. He felt that small groups of specialists would be more efficient and innovative than large groups. The result was a pattern of doing work that has become an SED trademark.

SED has expanded in much the same fashion as a human cell. A small group or cell grows to the point where division is necessary to maintain optimum performance. Then a new division is formed and that, in turn, creates a further new division.

Dr. Kavadas searched world-wide to get the technical expertise needed to make the original cell work. Mr. Hodson, a young electronics engineer, was finally convinced that Saskatoon was not a desolate wasteland and that some exciting opportunities lay ahead.

The excitement was not without its anxious moments, however. The SED team had little financial backing, but made up for it by working extra hard. The fear of not succeeding and being unemployed in Saskatoon added an edge too.

The long hours of work led SED's team into designing rocket payloads and satellite components. The research in aerospace products also started spinoffs that helped lay the base for new divisions. Small earth receiving stations provided an area that grew naturally out of satellite work. SED saw that there was an opportunity to capture the earth station market and it made the quick decisions that small group management allows.

The first buyer was Telesat Canada of Ottawa. Telephone companies and the Canadian Broadcasting Corp. soon followed. Last year, Cable Satellite Network Ltd. ordered 50 earth receiving stations at a cost of \$1-million.

The Canadian Armed Forces are currently looking at a SED earth station network for secure communications in the field.

SED is not simply waiting for the market to develop, however. A second generation of smaller earth stations to go with a new type of communications satellite is already in field trials.

Ten Anik-D satellites are to be launched in 1981 or 1982. They will transmit a much more powerful signal than present satellites do. This will mean that earth stations will not have to have

as much power to pick up the signal.

When Anik-D is launched, SED will have a very good idea of its capabilities. SED's earth stations division has a \$1.8-million contract to help develop the satellite, and Mr. Hodson regards this division as a real growth area.

SED also hopes to take advantage of its position as the only commercial producer of earth receiving stations in the world by leaping into vacant export markets. Australia is considering a communications satellite network to link remote communities and mining developments with major centres and SED has already been on a selling mission to gauge the market potential and equipment requirements.

SED manufactures and assembles all the components of the ground stations except the antenna. To maintain productivity, manufacturing is done on a large scale for earth stations and industrial products.

Once research and development testing is finished on a product, it moves out of the small group on to an assembly line. When the telecommunications division has developed a commercially viable product, it hands over the actual manufacturing to the industrial products division and returns to inventing new products.

The industrial products division's biggest job right now is turning out electronic agricultural instruments. With markets in Europe, Australia and the United States, SED is selling electronic equipment directly to farmers or factories to make farm equipment more productive.

As an electronics specialist, the company finds that its practical products often come out of research done for aerospace projects. SED spends about 12 per cent of its sales funds on research and would spend 20 to 30 per cent if it could afford to do so, Mr. Hodson said.

"The cost of research and development in science and technology is very high and risky. But the only way to grow is to spend on R and D."