



## **TAIT ELECTRONICS LIMITED**

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*"We aren't doing anything extraordinary. We're only demonstrating what can be done. New Zealand lacks believers." Sir Angus Tait 1997<sup>1</sup>.*

## **Introduction**

In June 1999, Angus Tait became a Knight Companion of the New Zealand Order of Merit for services to technology, manufacturing and exporting. He is synonymous with Tait Electronics, the company he has led for 30 years. Although he recently turned 80, Sir Angus remains the Chairman and the public face of the company; however day-to-day management of the company has passed to a Chief Executive. Since 1997 this had been Warren Rickard.

Tait Electronics employs around 1,000 people, including 750 in the Christchurch site, a combined design, manufacturing and head office facility. About 90% of the \$150+ million sales are exported to over 80 countries. The company spends around 10% - 15% of sales on Research and Development, compared to a national average of 1%. Private ownership makes the high level of reinvestment in R & D possible. As a self-confessed "Technologist", building careers, respected products and a great company are more important to Sir Angus than a bag of gold<sup>2</sup>.

The company is regarded as a model of innovation gained from generous funding for research and development, and has the largest electronics research and development group in Australasia<sup>3</sup>. Yet despite Tait's success in world markets and the host of awards received, the message that New Zealand can succeed in high-tech and competitive industries like electronics has not really been accepted. The prevailing mindset is that agricultural exports will continue to provide the backbone of New Zealand's economy.

"The root cause of failure (in manufacturing) is that in the Beehive we have not had true believers in industry and the role it could have in our economy"<sup>4</sup>.

New Zealand has fallen victim to continually declining prices for its agricultural commodities. During the time that Sir Angus has been making mobile radios, New Zealand has fallen from third, to third to last on OECD rankings of income per head<sup>5</sup>.

## **What is Mobile Radio?**

The main purpose of Mobile Radio is to enable communication with fleets of vehicles such as police cars, ambulances, fire engines, taxis and couriers. However applications

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<sup>1</sup> Technology Scheme Targets Private Sector; David Armstrong. ; The Christchurch Press 02/09/97 P38

<sup>2</sup> Adapted from - School Hobby Blooms Into Boom Industry. By Neill Birss. The Christchurch Press 14/07/98 P7

<sup>3</sup> Modest Knight Who Neglected His Homework NZPA 7 June 1999

<sup>4</sup> Sir Angus Tait as report by Mark Reynolds; Growth is Not A Dirty Word Say Export Leaders; New Zealand Herald 22 April 1999.

<sup>5</sup> The Independent 21 July 1999 page 24, Angus Tait - Making Money Wasn't The Objective Of The Exercise. By Rebecca Macfie.

for mobile radio exist wherever dispersed teams of people work on a common task, examples include security staff and oil exploration. In some situations the intended coverage is very limited, such as servicing an airline departure, while at the other end of the spectrum, Tait is supplying a system that will cover the Canadian province of Alberta. This system includes features like one-to-one and group calls, interconnection with the telephone system, messaging and mobile data services.

Mobile radio offers a complete communications network on its own, and as such continues to have special attractions in applications where channel integrity and security are important such as fire and police. Mobile radio is used in situations where instant communication is needed, for example in dispatching taxis, police, ambulance and concrete trucks. They are installed in vehicles, worn by individuals and take the form of static base station systems<sup>6</sup>.

Mobile radio is not cellular telephones. In mobile radio the communication is usually one-to-many or many-to-many, whereas in cellular communication the relationship is typically one-to-one. With a signal strength of 25 watts, mobile radio has much greater coverage than cellular phones, which have a three watt maximum. "Other benefits include: the ability to speak to multiple users at the same time; having to push just one button to make a call; the capacity to send text messages to drivers; and an automatic vehicle location function for vehicles fitted with GPS (Global Positioning System) units"<sup>7</sup>.

## **Company History**

### ***To 1968      A.M. Tait Ltd.***

Angus Tait was fascinated by crystal sets while at school in Oamaru. This led to work as a radio serviceman prior to World War 2. In 1940 he joined the RNZAF, who sent him to Great Britain, where he studied at the RAF radar school in Scotland. He stayed on as an instructor working initially on Radar for coastal command crews hunting U-boats.<sup>8</sup>

On his return to Christchurch after the war, Tait eked out a living selling electronic control devices to industry. It barely provided a living, so to make ends meet he worked part-time in a radio shop<sup>9</sup>.

The need for mobile communication was recognised long before it became a reality. Broadcast radio developed before World War 2, however the limitation of one-way communication restricted its commercial application. It is difficult today to imagine just how bulky early mobile radio systems were. The wartime urgency to put radar

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<sup>6</sup> Tait leads the way in high-tech success; Export News 27 April 1998

<sup>7</sup> Tait throws off Asian torpor, New Zealand Manufacturer, February 1999, p22-23.

<sup>8</sup> School Hobby Blooms Into Boom Industry. By Neill Birss. The Christchurch Press 14/07/98 P7

<sup>9</sup> Interview, 1998.

into aeroplanes spurred the development of smaller radio-technology units, operating at much higher frequencies than had earlier been possible, between 100 and 500 megahertz. Even so the early systems installed by Tait effectively filled up the entire boot of a car - and were thought to be marvels of compact communication.

The Post Office considered radio an important part of communications, accordingly they assumed responsibility for the development of a national network of relay stations. In the late 1940s, the Post Office announced the creation of the mobile radio network. This was unusual, as in other countries the Post Office or regulatory authority usually didn't want to get involved, leaving the development of the network to typically under-resourced companies and individuals.

"Only the Post Office had the resource to build a network of stations up and down the country because the fledgling industry couldn't"<sup>10</sup>.

Private industry was left to build the radios that would fit in the vehicles. Tait recognised the opportunity.

"I really knew nothing about this, but it seemed to me that it might offer some continuity of work"<sup>11</sup>.

Tait's mobile radios were the first to be made in New Zealand. The pent up demand for mobile radio meant that business was good. Companies whose business was on the road were delighted that at long last they had the ability to talk to the man in the field and organise him. The first customers were Blue Star Taxis, and Rink Taxis. Other early applications included fire engines and carriers.

Early successes led to the formation in 1950 of A M Tait Ltd, funded in part by a 1,500 pound rehabilitation loan. The company grew to employ about 100 people. There was little competition. The business enjoyed good margins and sold a lot of radios, but it was opportunistic and unorganised.

"There was no planning. I did most things, I worked ridiculous hours. I had people on the production side. The technology was my prime concern, but I was also the salesman. I spent the day rushing around and I went all over the country selling things and generally dissipating my energy with varying degrees of success."<sup>12</sup>

Tait had some good advisers, but lacked a mentor capable of telling him where he was going wrong and what he needed to do about it. The business ran on blind optimism. It was headed for the rocks.

"There was a competent lady that did the mechanical things like sending out bills

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<sup>10</sup> Interview, 1998.

<sup>11</sup> Tait Electronics: Tuning In to Market Needs; Export News March 1987.

<sup>12</sup> Interview, 1998.

and getting in the money but other than calling out to me the size of the overdraft and what was I going to do about it, she really had nothing to contribute".<sup>13</sup>

"I was convinced that technology was the shining gold that would solve all problems. I'm not a numerate person, I hate numbers. I was over optimistic. I pretended there were no other goals in life other than technology. I very rapidly found out that this thing called payday came round once a week, it was a ghastly experience".<sup>14</sup>

Tait had preferred to hire engineers, and he had not put in place someone to do the financial management he was not interested in himself. A small economic downturn in 1967 tipped the scales. On Christmas eve, Tait received a phone call telling him the business was being put into receivership. According to Tait, the business failed "because it deserved to fail".

### ***1969-1983 Tait Electronics Ltd.***

#### **A New Life**

Tait was 48 years old when AM Tait Ltd was put into receivership. He found it a chastising experience, and thirty years on the memory remains painful.

"It was a very dismaying experience to see the work of several years go down the drain, and the assets put together during that period sold off"<sup>15</sup>.

"You find yourself being sold, washed up," Mr Tait remembers. "You have two options. Go and hide from the world, which some people do and never come up again, or you can try again."<sup>16</sup>

Tait was convinced that his ideas were basically sound and that worldwide development of mobile two-way radio services was still in its infancy. With vehicle, fuel and labour costs all increasing, he envisaged an ever-growing market for communications links, which would improve business efficiency by saving time and unnecessary travel<sup>17</sup>. Tait decided to start again.

The old company traded in receivership for more than a year until the receiver concluded it wasn't profitable. Tait still has the letter in which he was formally sacked.

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<sup>13</sup> Interview, 1998.

<sup>14</sup> Interview, 1998.

<sup>15</sup> Tait Electronics: Tuning in to Market Needs. Export News 3/87 pp 14 & 15

<sup>16</sup> School Hobby Blooms Into Boom Industry. By Neill Birss. The Christchurch Press 14/07/98 P7

<sup>17</sup> Tait Electronics: Tuning in to Market Needs. Export News 3/87 pp 14 & 15

The new company, Tait Electronics Ltd., started in 1969, while the receiver continued to operate the old company. The two companies had a good working relationship as the new company bought stock from the old. Initially Tait Electronics sold hybrid radios, bought from the receiver at a modest price. These radios incorporated both valve and the emerging transistor technology.

### **Arrival of the Transistor**

Just as the wartime development of airborne radar had spurred the valve based mobile radios of the 1950's, the American space program of the 1960's spurred the new transistor technology. Tait engineers had been working with transistor technology in the old company, trying to tame the transistor's tendency to slip into feedback loops, an instability which made transmitting unreliable.

By the time that transistors suitable for transmission were becoming available at commercial prices in the late 1960's, Angus Tait was ready to apply the new technology to mobile radio as he had applied World War 2 derived technology twenty years earlier. The work had started in the old company. Tait targeted 12 former staff with experience in the new technology as the key people for the new company.

At that time there was no all-transistor mobile equipment in New Zealand. Tait seized the opportunity and began work on what became the first all transistorised mobile radio in New Zealand. The transistor revolutionised mobile communications as it permitted much smaller units and required far less power. The new units could be installed under the dash, and could be left on all day without running the battery flat.

The Tait engineers did the best they could with what they had, money and resources were in short supply. For example they couldn't afford \$20,000 for a spectrum analyser to allow specific measurement of the amplifier output so "they worked by trial and error". Fortunately most of this work had been done in the old company.

"Fortunately the design ideas were in our heads and I was able to raise a modest amount of money - enough to buy back some equipment from the receiver".<sup>18</sup>

### **CB Radio - Ten Four!**

Citizen Band (CB) radio was a short lived consumer craze in the early 1970's. In comparison with mobile radio where equipment specifications were demanding and enforced by the Post Office, CB was something of a toy. It produced less than a quarter of the power output of mobile radio, had much shorter range, and was less reliable. However it provided a lifeline for the young company, which was quick to realise its potential. Producing an 'all transistor CB' was much easier than producing an 'all transistor mobile radio'. Strategically it generated the cash to keep the company alive. A small production line was established in 1969, capable of producing a few

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<sup>18</sup> Award-winning company has firm RT niche in world market; New Electronics November 1987 p30

thousand radios, which was extended in 1972 and 1973.

The experience with CB taught Tait how to control transistors. Both the cash generated and the experience enabled them to develop their VHF mobile radio. Tait was first off the mark with a very small, completely transistorised radio. The Mini-phone released in 1973, and named after the mini-skirt, became the industry standard. The Mini-phone was the genesis for the new firm.<sup>19</sup>

Tait was not the only player with the new technology. There was another Christchurch producer, and two or three more in the North Island. Tait admits that some of these were building better radios. There was also imported equipment. But Tait pursued the opportunity with more vigour, and in a year or so had captured 70 percent of the New Zealand market for mobile radio.

“We were quick off the mark . . . They were a bit slower and needed to work 23 hours a day”<sup>20</sup>

The new industry was protected from offshore competition by import licenses and a 45 percent tariff. In addition, the NZ Post Office required participants to meet local technical standards so that all radios would work on the Post Office’s network.

"It was not an enormous amount. It would still only be a few thousand radios a year, it was still only 40 or 50 people, but to a small company, it was a gold mine".<sup>21</sup>

## **Management**

Although the shareholding in Tait Electronics had started to spread, Sir Angus retained a majority shareholding. Control remained firmly in his hands.

Having learnt his lessons from the failure of the first company, Tait was determined to employ competent people in those fields, such as finance, where he lacked skills.

"The philosophy was, if you don't know, get somebody who does; or if you don't want to do it, get somebody who will do it for you. On that basis you've at least removed some of the probabilities of doing it [going into receivership] again."<sup>22</sup>

"I mightn't always agree with the advice they give, but by and large, going in opposition to knowledgeable advice isn't a very bright thing to do."<sup>23</sup>

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<sup>19</sup> Working Knowledge; Bruce Ansley Listener 26 June 1999 p23

<sup>20</sup> Interview, 1998.

<sup>21</sup> Interview, 1998.

<sup>22</sup> Interview, 1998.

<sup>23</sup> Tait Electronics: Tuning in to Market Needs. Export News 3/87 pp 14 & 15

Despite the appointment of competent people, Tait had something to learn in terms of management concepts. The idea of creating a management group who would meet regularly and discuss all aspects of the business came from the staff, it had not occurred to Tait. The management group was initiated in the late 1970s. It included Ben Rumble, founder of the Ben Rumble Communications retail chain, who was International Sales Manager from 1972 to 1982.

### **New Markets**

With limited potential for domestic growth, the company looked overseas. The first target was England, as Tait had spent six or seven years there during the war and understood the culture. He visited the UK and researched local prices. He was pleasantly surprised to find that the company could profitably sell into the new market. Tait production costs were much lower than those in the UK, and possibly the New Zealand company accepted lower margins too.

In 1976 Tait appointed Dymar Ltd. as its UK agents. Dymar placed the Tait product at the bottom end of their own product range.

“We built a rather utilitarian little box, which ... didn't look as pretty as their radio. It worked as well and cost a little less. By and large we were [selling] them as fast as we could make them”<sup>24</sup>.

When Dymar went into receivership about 1978, Tait formed its own subsidiary, Tait Mobile Radios, and appointed Dymar's sales manager Harry Griffiths, manager. Initially Harry worked from his caravan parked in the garden.

The logistics of supplying the new market from 12,000 miles away were daunting. People needed to be employed, infrastructure needed to be established and stock put on the shelves. Customers wouldn't wait while the stock came from New Zealand. Tait's needed \$100,000 for the set-up expenses and for the additional production. The finance companies wanted to charge 20% interest and security. That wasn't viable.

Fortunately the Government had established an Export Guarantee Office which operated within the State Insurance Office. Under this scheme exporters could receive payment from their trading bank once their goods had left New Zealand. However the situation was complicated in the Tait case because the intended recipient of the goods was a Tait subsidiary, and that wasn't allowed under the rules. But Tait already had a relationship with the Export Guarantee Office following their earlier exports to the UK.

"Trading relationships with people ultimately comes down to personal

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<sup>24</sup> Interview, 1998.

relationships. I had a good relationship with [the Manager of the Guarantee Office]. We had a cup of tea and he hummed and hawed. He said, 'I've never done this before but I'm going to do it. I'm going to give you \$100,000'. Well he didn't give me \$100,000 but he guaranteed to send up to \$100,000 worth of stock to my own company, present the invoices to the bank and get them to give money. You could have knocked me off my chair with a feather because it was slowly sinking in to me that this was the cornerstone that made the business possible. Without that I don't know how we would have coped"<sup>25</sup>.

Support for exporters was a political priority of the time. New Zealand's historical dependency on the UK market for dairy and meat products was threatened by the UK joining the European Economic Community in 1972. Export incentives were introduced to encourage new sources of export income. Tait described these as "7-league boots": fairytale boots that would let their owners walk 7 leagues with a single stride. Like many other exporters, Tait also received export development loans from the government-owned Development Finance Corporation.

PYE, GEC and Kosser were the three most important competitors in the UK market, and there were a number of smaller firms as well. Tait's clear focus on mobile radio was an advantage.

"These other companies did a wider range of things but virtually all of them have vanished"<sup>26</sup>.

Tait was surprised at their success in the UK market and quickly achieved a 20 percent market share that they still retain. Tait's success in the UK market required expansion of the company's production facilities and in 1983 Tait acquired, for \$2 million, their current site, a distinctive circular facility originally built for a clothing manufacturer.

Today, Tait is one of the major UK suppliers. The UK subsidiary employs around 50 staff, including its own engineering people, and like Australia contributes about 25% of total sales. Europe, Australia and China are the company's most important export markets.

Success in the UK market built Tait's confidence and in 1982 they set their cap at the huge American market. Texas was the fastest growing state and Houston the fastest growing centre within Texas, so Tait set up there. Tait was to learn the hard way that the US is the largest and most demanding market for mobile radio in the world. To launch the business, the company sent over a kiwi who had not been to the US before, and who failed to set up the agencies Tait were seeking. Tait discovered that American expectations were completely different from those in England and New Zealand. Tait sold 25 watt systems in the rest of the world, but the Americans with their "V8" culture were demanding 100 watt systems, after all 'that's what the competition had'.

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<sup>25</sup> Interview, 1998.

<sup>26</sup> Interview, 1998.

The customer was king.

"The thing you better get right is, you've got to find out, what do the customers actually want in this new market?"<sup>27</sup>

But Tait had entered the market with an attitude that their radio sold well in New Zealand and the UK, and was bound to sell in the US. Year after year, Tait sank more and more money into the American market, in the certain belief that success was just around the corner. It was a very long time coming.

Fortunately, the Australian market sprang to life in 1984. A number of dealers formed a buying consortium which gave Tait complete coverage of the country. This arrangement worked well and stayed in place until the second half of the 1980's. The Australian market now produces a quarter of Tait's sales.

In 1983, Tait opened a sales office in Singapore, which provided a gateway to Malaysia and Indonesia. These proved to be strong markets. Next the Hong Kong office was opened. A lot of sales to mainland China were channelled through this office.

Today, Tait has its own sales offices in Australia, the UK, Thailand, Singapore, Hong Kong, Beijing, Taiwan, Houston, Toronto, France, Germany and Miami, serving Latin America.

### ***1984 - 1992 Deregulation***

The Muldoon Government, which had been committed to walling the New Zealand economy off from the rest of the world, was swept from power in 1984. The Labour Government, which replaced it under the leadership of David Lange, was committed to free market policies. These were informally labeled "Rogernomics", after the Finance Minister Roger Douglas. In a few years, New Zealand went from one of the most protected economies in the world to one of the most open. For companies which had grown accustomed to protection, the shock was often too much. Tait's protected local market was opened up to the world's strongest competitors.

Tait refers to the years from 1984 onward as the holocaust years, as most of the old industry, including PYE, Philips, AWA, GEC disappeared.

"They couldn't hack it, the tariff walls came down and what they were making was totally uneconomic. It was cost plus and we all paid"<sup>28</sup>.

Tait domestic sales suffered, and their problems were made worse for having just expanded production capacity in 1983. In 1984, 50 staff had to be laid off. But by

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<sup>27</sup> Interview, 1998.

<sup>28</sup> Interview, 1998.

1986 the business had recovered its momentum and profitability. Within Tait's industry sector only three companies survived, Fisher & Paykel, PEC in Marton making point of sale retail systems for the petroleum industry and security systems, and Tait. The common factor between the survivors was their sensible use of export incentives.

"We didn't stuff money in our back pockets, we built a business with it. Come 1984 and the whirlwind that stretched through the country and the whole industry vanished, we were very busy making product and we were sending it to various parts of the world. Roger Douglas phased out [the incentives] awful quick. Within about 18 months they disappeared"<sup>29</sup>.

Tait's earlier exposure to world markets may have been their saviour. However the domestic market was still very important. Survival wasn't guaranteed.

"It had been clear to us for some years, but it was clearer now that the tariff walls were coming down, the world's products would flow into New Zealand. If you're going to survive as a manufacturer in that environment the products that you were going to be making had to be comparable in terms of value, quality, availability and reliability, as good as anything made anywhere else in the world."<sup>30</sup>

To confront world class competitors on even terms, Tait decided in 1986 to commit itself to achieving a world class manufacturing capability. This meant automation to the point where any differentials in production labour cost became irrelevant.

"When we started building radios, we needed lots of girls with soldering irons and nimble fingers, and it took anywhere from four to five to six hours to build a radio. We now build radios almost entirely with automated machinery and the . . . total time consumed, including machine time, would be about 12 minutes per radio."<sup>31</sup>

With this kind of production technology, world class manufacturing can be based anywhere.

Between 1986 and 1989 the company spent between \$6 and \$9 million installing the new technology. Funding had to be generated from profits or raised from borrowing, not a simple task as the local economy was in turmoil. In 1989, the situation became so critical that a local bank manager recommended the company be put in receivership, fortunately the suggestion was over-ruled at a higher level. However, the bankers insisted that Tait appoint a General Manager to add depth to the company's management.

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<sup>29</sup> Interview, 1998.

<sup>30</sup> Interview, 1998.

<sup>31</sup> Interview, 1998.

"We developed very strong fingers - because we were hanging from the cliff face by our fingernails"<sup>32</sup>.

### ***Tait in the 1990s***

#### **Trunked Radio Systems - The MPT 1327 Standard**

As increasing demands were placed on the radio spectrum, innovative solutions were sought to find more efficient use of the available channels. One of the most important developments was trunked radio.

Trunked radio differed from conventional radio in the allocation of channels. In conventional radio the user selects a channel to be used, but when it is busy they have to wait. In trunked radio, a computer allocates a channel to call participants for the duration of a call. When the call ends, the computer makes the channel available to others<sup>33</sup>.

Trunked radio began in North America in the late 1970's with US companies developing their own highly protected proprietary technologies. In the early 1980's the UK industry, including authorities, manufacturers and users, got together to develop an open standard known as MPT 1327<sup>34</sup>. The new standard was very popular.

As an open standard, 30 different manufacturers could connect to the system. This provided security to users, as they were not locked into one supplier's technology. Open competition was the key to the technology's success.

Through their UK subsidiary, Tait played an important part in the development of the standard. They supplied the first MPT 1327 system, a single site system for British Telecom in London. Later they supplied the world's first multi-site system to Securicor in Northern England.

Tait's involvement with MPT 1327 has been one of its greatest successes as it became the *defacto* world standard. They have supplied more than 200 systems around the world, ranging in size from single site systems through to nationwide networks. In 1999, a system was sold to cover the Canadian province of Alberta.

#### **Trunked Radio in NZ - Fleetlink.**

Twenty thousand hand-portable and mobile radio users are connected to Telecom New Zealand's Fleetlink system. A public access mobile radio network (PAMR), Fleetlink covers 95% of New Zealand's population. The bulk of the Fleetlink

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<sup>32</sup> Interview, 1998.

<sup>33</sup> Tait throws off Asian torpor; New Zealand Manufacturer. 22-23 Feb. 1999.

<sup>34</sup> MPT is an acronym for Ministry of Post and Telecoms.

customers are commercial users such as transport, security and construction businesses<sup>35</sup>.

Fleetlink is an MPT 1327 trunked radio system. The first sites were installed in 1991 and the network grew to full national service in 1994. In 1997 hardware prices fell by almost 50%. It was hoped that the fall in prices would stimulate demand.

### **Digital Technology**

In recent years Tait has made a substantial R&D investment in the development of digital radio products based on the TETRA standard. In January 2000, however, the company decided to suspend its TETRA development and redirect resources to the development of wireless Internet Protocol (IP) capabilities. The high cost of developing TETRA products will in the meantime probably confine their use to the public safety sector (fire, police and ambulance). In most markets this is not Tait's core business. Tait will focus instead on meeting the needs of commercial users, for whom emerging cellular-lookalike technologies will be more attractive. In so doing, the company will be able to leverage off the significant experience gained from its TETRA development work.

### **Growth through Acquisition**

Tait's Management team held a weeklong planning session in Akaroa in 1994. They identified two factors driving the global industry towards consolidation: the huge development costs of the new digital technology; and market entry by aggressive low-cost producers from Japan. This proved to be correct. To be a global player in the new digital industry, the team determined to grow the business to \$500 million in revenues by the year 2000. They called this goal the Akaroa Declaration. Tait's CEO since 1991 determined that the way to achieve this was through acquisition. Four separate attempts were made to buy other companies, one in France, one in England and two in America. However none of these attempts were successful.

"To attempt an acquisition of a company greater than yourself on the other side of the world is an enormous undertaking, enormously distracting, and we did it four times"<sup>36</sup>.

Recently the company has concentrated on growing the business by building productive capacity and the product range. Tait remains firmly in the industry, although its income is well short of the \$500 million target.

### **Management Changes**

Warren Rickard was appointed Chief Executive, following the resignation of Martyn Gall in 1997. Mr Rickard is responsible for the day-to-day management of the company; however Sir Angus remains as the Chairman, he supplies the vision and is

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<sup>35</sup> Source: Tait website, <http://www.taitworld.com/index.cfm>

<sup>36</sup> Interview, 1998.

the public face of the company.

### **The Legacy of Economic Reform**

The Muldoon Government did such a poor job "picking winners" in business, that subsequent Governments were committed never to try. Their "neither help nor hinder" policy had both positive and negative consequences for Tait.

On the positive side, deregulation led to low inflation, low interest rates, lower freight rates and lower support costs. It was clear that the target was looking after the customer, not pleasing the Government. With the election of the National Government in 1990 the earlier reforms were extended into deregulation of the labour market. This provided greater flexibility. Tait has been positive about the benefits of these reforms.

"[Tait Electronics] can design and manufacture a product here and take it to the airport just down the road where it is flown anywhere in the world. It can be sold profitably after perhaps going through a tariff wall. We can only do that, not because we're terribly clever, but because the economic environment in which we're operating allows us to do that."<sup>37</sup>

The effective use of technology and New Zealand's cost-competitive economy were the reasons the company stayed onshore rather than move overseas like a number of other New Zealand businesses.

"We have the most cost-competitive economy on the world stage."<sup>38</sup>

On the negative side, the country was committed to the fiction of a level playing field, which didn't exist in practice. Tait competed against companies in countries which provided incentives, tax breaks for R & D, soft loans to client nations etc. Sometimes political influence or commissions tipped the playing field.

### **New Zealand's Commitment to A Knowledge Based Economy.**

In Tait's view the low level of incentives available to develop a knowledge-based economy, reflect a broad expectation that New Zealand's future lies as an exporter of primary products. An expectation that he sees as fatally flawed.

"This country has a knowledge problem. The sheeps back that we've lived on for 120 years, if it ain't broke, is badly bent. Some politician or party in the next 5 to 10 years had better find an answer, because the natives are getting restless"<sup>39</sup>.

For example, although the number of university students increased substantially, there

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<sup>37</sup> The Dominion 7/10/96 P6.

<sup>38</sup> Government Funding For Research; National Business Review 9 May 97.

<sup>39</sup> Angus Tait as reported in; Working Knowledge; Bruce Ansley Listener 26 June 1999.

remained a strong bias in favour of accounting and law at the expense of science and engineering. The national investment in R & D remained amongst the lowest level in the OECD.

Tait remains convinced that there was a place for incentives.

"The reality is that incentives if cautiously, selectively and carefully applied can be extremely valuable."<sup>40</sup>

Tait has been a keen supporter of the incentives available, such as the Foundation for Research, Science and Technology (FRST) Technology for Business Growth Fund.

"All assistance is gratefully accepted," .."because you can never have enough resource for R&D."

"They are prepared to put money on the table to assist companies achieve new levels of technology competence."<sup>41</sup>

FRST claims the scheme provided a 200% return to the Government through taxation paid by beneficiary companies.<sup>42</sup>

## **The Company Today**

### ***The Mobile Radio Industry***

The constant need to reinvest in technology is a major force in the mobile radio industry. Tait believes that returns are not sufficient to meet both the demand for reinvestment and the demand for a "market" return to shareholders.

It would be almost impossible for a new firm to enter the mobile radio industry the way Tait did a generation ago. The costs of establishing manufacturing capability, world class products and a reputation in the market would be prohibitive. New competition would most likely come from a company with an established position in a related industry such as cellular telephones. However the global trend is for fewer firms with increasing levels of production.

There has been a major change in the economies of scale since Tait started making mobile radios. With constant technological evolution the total labour time has fallen dramatically and changed the economics of production. The fixed costs of design and production dwarf the marginal per-unit production costs. As companies search for higher volumes of sales over which they can recover their fixed costs, the less efficient firms are driven from the industry. Unfortunately for Tait this provides an advantage to their larger competitors.

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<sup>40</sup> Interview, 1998.

<sup>41</sup> Government Funding For Research, National Business Review 9 May 97.

<sup>42</sup> Funding Shows Good Returns. By Malcolm McDonald. Infotech 12 January 1997 P2.

The fixed costs of development and design capability have an increasing significance. In this area Tait enjoys a cost advantage over its main competitors, as salary rates are lower, and Tait claims it has higher productivity rates than its European competitors.

The process of getting products approved for sale in new markets can be excruciatingly slow. This loads the whole financial structure enormously and acts as a barrier to entry. It can take more than six months to get products approved for some European markets. To overcome this situation, a manufacturer like Tait is moving to a system where they are accredited to write their own approval certificates once their internal laboratory has been certified. Unfortunately high certification fees apply whether the work is done internally or externally.

### **Convergence with other Technologies**

There is an increasing convergence between conventional telephone, cellular and mobile radio systems. Increasingly these different technologies can deliver the same services. Although each technology will retain its own niches, there will always be a grey area where no technology is clearly superior. For example, a salesperson with a high level of both internal and external communication has a choice between cellular and mobile radio. In the long-term the winning technology will be the one that provides the best price-performance ratio to the customer.

### **Cooperation**

The manufacturers of mobile radio cooperate in three areas, namely;

- Lobbying to maximise the bandwidth/channels available to mobile radio,
- The development of industry standards such as the Terrestrial Trunked Radio standard (TETRA). This is the digital equivalent of the MPT 1327 standard.
- The development of digital technology. This is so expensive that the smaller firms can't undertake it alone, accordingly alliances are developing.

### ***Scope of Business***

Tait's singular focus on mobile radio is rare in the industry, for competitors such as Motorola, mobile radio is only part of a much wider communications product range. There are advantages in a narrow focus. With only one set of customers, it is crystal clear that Tait must take good care of them.

The disadvantage in maintaining a narrow focus is that Tait does not enjoy the economies of scope that some competitors enjoy. With a wider range, the cost of new technology and production capability can be recovered over more products.

Tait Electronics has a structure based on functional divisions. These divisions are:

- Operations Division                      Responsible for all product development and manufacturing
- Sales and Distribution Division              Responsible for most customer-facing activities such as sales, sales support, product distribution, inventory holdings
- Marketing Group
- Finance Group
- Quality Group
- Human resources Group

In 1998 the company moved to a system of regional offices i.e. Huntington recently became the European headquarters with control over offices in France and Germany, under a new regionalisation process that the company is undertaking<sup>43</sup>.

### ***Scope of Markets***

With incursion from cellular technology, the mobile radio market is getting smaller, however Tait is getting a larger slice of that market as firms are forced from the industry.

Motorola is the largest competitor with approximately 60% of the world mobile radio market. Its size provides enormous political and economic clout. Nokia and Ericsson are major competitors. Simoco is the only other specialist mobile radio company. Tait's share of the world market is about 5%.

Although Motorola may have the political clout, there are some markets such as Iran and Cuba, where coming from a small country like New Zealand is an advantage.

### **Sales Channels**

Tait has subsidiaries in 11 countries, and dealer networks in another 70. Subsidiaries are usually established once annual sales in a country consistently exceed \$1million. There are exceptions. In Sub-Sahara Africa Tait has a sole exclusive distributor, who is well resourced and has served Tait well. They are treated as part of the company.

The subsidiaries provide distribution services and product support to customers; market intelligence and customer feedback flows back to the Christchurch headquarters<sup>44</sup>.

Until a subsidiary is established, a country will be serviced from a Tait office in that region. Subsidiaries or joint ventures are used to get accurate information about the

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<sup>43</sup> Export News 27 April 1998 page 8.

<sup>44</sup> Export News 31 October 1994 p8.

market and control the marketing and distribution of its products.

### **Product Range**

The merging of technologies means the definition of mobile radio is not as clear as it might appear, this is illustrated by the following examples.

- Several modern systems enable calls to be made to and from the Public System Telephone Network (PSTN). A good example is the TaitNet Rural Telephone System, which uses a standard MPT 1327 trunked radio network as a cost-effective means of connecting remote areas to the public telephone network.
- Recently Tait completed a project for the Egyptian National Railway that incorporated a wireless PABX system. Like standard PABX connections, the system included phone, fax and data communication capability<sup>45</sup>.
- Tait's *Inform* mobile data products specialise in data communication. Automatic vehicle location is possible using Global Positioning Systems (GPS) to manage the movement of vehicle fleets, primarily trucks and trains.
- The development of digital technology has introduced a whole new range of possibilities such as the transmission of a video picture.

### **Marketing Strategies**

Tait sees marketing as a key strength.

"Through trial and error over the years, we've become sharply marketing orientated. We are always closely attuned to changing needs, preferences and performance requirements in our chosen market niches around the world."<sup>46</sup>

One decisive factor has been in not competing directly with mass production. Tait implemented niche marketing early and looked to produce products where "design qualities are more crucial than labour content"<sup>47</sup>.

"There aren't the same savage competition forces that dominate consumer products, largely because of the rigorous discipline imposed by international type approval requirements. You simply can't sell your product in any given market without approval - a lengthy and costly procedure which sorts the men from the boys, bringing order to what would otherwise be chaos"<sup>48</sup>.

A good understanding of clients' existing and future needs is critically important. Tait

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<sup>45</sup> Source Tait's website, <http://www.taitworld.com/index.cfm>

<sup>46</sup> Award-winning company has firm RT niche in world market; New Electronics November 1987 p30.

<sup>47</sup> Technology is Our Sword. 1998 NZ Export Awards.

<sup>48</sup> Gloom-free, but stern words for Government - Tait; Newelectronics November 1988 p25.

has become a good listener.

"Some users or potential users of two way radios can only indicate in the most general way what their real requirements are. Sometimes they give you the guidance you need almost unwittingly, by way of critical comments about what the market place is not offering"<sup>49</sup>.

Tait designers try to build generic products that will meet the technical specifications in a host of markets. Designing a product to a higher specification may add to the cost, but will mean it can be sold in more markets.

"Clearly the things you do in China are different from the things you do in Europe. "Its horses for courses". We have done well from designing and building our range of mobile radio products. We are able to say yes more often; customising our products and integrating complete solutions"<sup>50</sup>.

Tailoring is done through the Custom Solutions Group. The ability to tailor the product for the customer is important - and difficult for the larger companies to match. According to the communications Manager Andrew Trevelyan,

"We customise a lot of our products to particular needs and simply value our customers more". "Because of our size and our commitment solely to radio communications, we must look after our radio communications customers. They're the only customers we have" "Large companies like Motorola and Nokia don't bend over backwards for customers the way that we, being a smaller and more flexible company can."

Tait products are not usually targeted at the top of a market, instead they aim to deliver good price performance. There may be a product that will do more, but it will be substantially more expensive. The quality of a system usually comes down to two key features, selectivity and sensitivity. Selectivity is the ability to ignore other radio signals and sensitivity is the ability to pick up weak signals. According to Andrew Trevelyan,

"We have a reputation for value for money. Our products are innovative, high quality, robust and reliable. We use very advanced technology and significantly, I think that we are considered good people to do business with".

### ***The Tait Paragon***

The company guides its organisation and management with the "Tait Paragon", or

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<sup>49</sup> Tait Electronics; Tuning in to Market Needs; Export News March 1987.

<sup>50</sup> Technology is Our Sword. 1998 NZ Export Awards. P8.

model of excellence. This has five elements:

- Vision statement
- Corporate objectives
- Mission statement
- Corporate policies
- Points of focus

The Vision Statement specifies the company's intended area of business and includes the following statement:

“The Tait vision is to be the **world's best** mobile radio communication company. This does not necessarily mean being the biggest company or having the cheapest and smallest product. It does mean we want to be the best company to work for, have the best people, utilise the best technology, apply the best practices and produce the best products and services available in the world.”

Tait's Corporate Objectives are shown in Exhibit 3. The company's Mission Statement is “Growth and Prosperity through Quality and Service”. This brief statement encompasses the company's aspirations for growth – both for growth in the business and growth in personal skills; for financial prosperity and on-going security; achieved through quality products, service, people, and practices. A three-page list of Corporate Policies sets out the company's norms under the headings of Organisation, People, Product Development, Manufacturing and Supply Chain, Sales and Marketing, [Product and Service] Support, Financial/Information Systems, Communication, and Quality. Finally, the Points of Focus specifies eight areas of special focus in Tait strategies and capabilities that are “considered to be crucial to our ongoing success”.

### ***Competitive Advantages and Strategy***

The following summarises the Tait business strategy;

"There is only one challenge - to be up at the front. Do things that the world requires and will pay for. Not to claim that we do things better than anyone else but we must be as good as anyone else. Our secret weapons are cost effectiveness and our continuous investment in technology".<sup>51</sup>

Several factors contribute to cost effectiveness. It is partly the effect of earlier investments in new technology. Having a cost-competitive economy is important as well as relatively low design and development costs. The Christchurch location is helpful. With production now highly automated, the key cost item is the cost-effectiveness of the company's 200 design engineers. Here Tait has a significant advantage over its global competitors. For quality of life reasons, engineers will work in Christchurch for almost half what they could be paid in Germany or France. Each year, Tait hires 20-30 new engineering graduates from Canterbury University, and

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<sup>51</sup> Technology is Our Sword. 1998 NZ Export Awards.

supports the university in other ways<sup>52</sup>. But for every two New Zealand engineers, Tait also recruits one engineer from a wide range of overseas countries, attracted by the lifestyle and Tait's global reputation.

Many young Kiwis travel overseas to gain Overseas Experience (OE) before they settle down. Interestingly the situation also happens in reverse, as young Europeans travel 'Down-Under'. Tait has employed a number of engineers in this manner. Often they like Christchurch, settle down and become permanent employees. Bringing staff in from offshore markets is useful as they can provide 'home market' experience.

### **"Doing More with Less"**

Tait doesn't claim technological leadership over its rivals "there are also a lot of smart people in other parts of the world". Instead they claim to produce a product which is comparable with what is being made elsewhere.

Isolation gives New Zealander's a reputation for "kiwi ingenuity", the ability to 'make do' with unlikely materials like No.8. fencing wire. However in the global market "making do" is not enough, the company needs to strive for a far higher standard.

Sir Angus prefers the expression "we are able to do more with less". For example the company found when working with the engineers from other companies "we think we move faster than they do and we do things for about two thirds of the cost that they do." However the difference in culture is declining as New Zealand's isolation diminishes, and thus this point of differentiation is declining.

### **A Private Company**

The company's competitive advantages reinforce each other and are reinforced by the strategies discussed above. Two of the most important are the passion for technology and the fact that Tait Electronics remains a private company.

Being a private company is important to Tait, because it enables the retention of almost all profits within the business to fund further R & D. It also provides an assurance to staff that the company and their jobs will not be sold out from under them.

Shareholders would typically expect to receive a large proportion of the profits generated as dividends. However paying market dividends would starve the investment in R & D, and it would quickly lose its technology edge.

"I have enjoyed the opportunity of putting virtually all that money back into the business primarily to drive this technology. In truth, out of \$X millions ... \$18,000 is the total [annual] amount that's ever been paid out in dividends. That means if you made \$5 million profit it means that we've given the

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<sup>52</sup> In 1996, Angus Tait was awarded an Honourary Doctorate in Engineering from Canterbury University.

shareholders \$18,000 and the rest has gone back into the business.

"Now if I turned the place into a public company, I would have a bunch of whinging shareholders saying, you made \$5 million, we know that you have got to build the company but hell we want at least a million, or whatever. My answer to that is no, I want to control this thing and I want to decide how and where the money will go."<sup>53</sup>

"If we don't sustain [R & D] and decide to rest on our laurels we're in danger of slipping backwards. In the end the company is selling technology".<sup>54</sup>

Tait has transferred his majority shareholding in the company to a charitable trust, with education as the beneficiary. The objective is to "provide a substantial structure, which will continue in perpetuity". The trust is modeled along the lines of the trust that runs the German Bosch company.<sup>55</sup> Some smaller shareholders have been bought out and their shareholdings transferred to the trust.

"What is the advantage of a bag of gold over a structure that provides careers for lots of people and puts products into the world that are well respected. What is the point in walking away from a life's work or half a life's work with a bag of gold?"<sup>56</sup>

One reason that Tait would never take the company public is the short-term focus of public companies.

"There's a bloody great magnifying glass examining what you are doing, forcing you to keep one eye on the stock exchange and the other on the quarterly reports". "What a dreadful way to live".

"I don't think that you can build any company that's worthwhile within 10 years, probably 20"<sup>57</sup>.

### **People - Earning Loyalty and Commitment from Staff**

The pride and passion apparent in the company reflects a commitment to providing the best product, it isn't just about making money.

"If you're in business just to make money, the people who work for you soon recognise where the money is going and adjust their loyalty accordingly."<sup>58</sup>

The development of the Charitable Trust structure discussed above provides an assurance of continuity to staff.

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<sup>53</sup> Interview, 1998.

<sup>54</sup> Christchurch Press 30 December 1998. P9.

<sup>55</sup> Working Knowledge; Bruce Ansley Listener 26 June 1999 p24.

<sup>56</sup> School Hobby Blooms Into Boom Industry. By Neill Birss. The Christchurch Press 14/07/98 P7.

<sup>57</sup> Vicki Hide A common-sense approach; newelectronics April 1992 p 39.

<sup>58</sup> Working Knowledge; Bruce Ansley Listener 26 June 1999 p23.

The reliance placed on the staff by Tait has typically been a strength, however it has also been a weakness in those situations where poor performance was allowed to go unchecked.

"I have observed incompetent people who are 'nice' people and it took me far too long to move on them. A harder-nosed and more able business person than myself would have moved much sooner. So that has really cost the structure quite a lot of progress"<sup>59</sup>.

### **A Passion for Technology.**

"In the end of the day we are selling technology - technology is our sword"<sup>60</sup>.

The term Research and Development isn't strictly appropriate for Tait, as the company perceives its role to be to develop technologies which have been researched elsewhere.

The design of a major project might consume a total of 30 or 40 people including industrial engineers, Computer Aided Design (CAD) staff and support people. The cost of producing a new analogue family of product would be anywhere from \$5 million to \$10 million. This has to be found from profits, "which is pretty demanding".

In February 1999 Tait won a contract with the Canadian company Telus Mobility, to install one of the world's largest analog single-trunked radio networks. This contract illustrates the importance of the constant reinvestment in technology, as without the recent implemented manufacturing technology, Tait could not have won the contract.

"We simply wouldn't have been able to supply the Telus order on time using the manufacturing technology that we had in place this time last year. When it became obvious that we were in contention for the Telus contract we sped up our existing plans to further improve our analog range of radio products."<sup>61</sup>

With the previous technology 100 radio components still had to be placed by hand. With the new SMD technology just 12 components are hand placed. The company now has the capacity to place half a million components a day into printed circuit boards.

"The new machinery is far more efficient and flexible. It's world-class and cost

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<sup>59</sup> Sir Angus Tait as reported by Rebecca Macfie; Angus Tait: making money wasn't the objective of the exercise; The Independent 21 July 1999.

<sup>60</sup> Technology is Our Sword. 1998 NZ Export Awards.

<sup>61</sup> Tait's Communication Manager, Andrew Trevelyan, as reported in Tait Throws off Asian Stupor; New Zealand Manufacturer 2-23 February 1999.

effective - it has to be if we're going to compete on a level footing with countries in Asia which have far lower labour rates."<sup>62</sup>

### **The Christchurch High-Tech Cluster**

According to Michael Porter "Clusters are geographic concentrations of interconnected companies and institutions in a particular field. They encompass an array of linked industries and other entities important to competition"<sup>63</sup>. Clusters are important because they create a self-perpetuating cycle of competition and cooperation, critical factors in the development of world class products.

Tait Electronics is at the core of Christchurch's high-tech cluster. Also at the core, are a number of companies such as Swichtec, formed by an ex-employee of the company. The total electronics industry in Christchurch is estimated to employ about 2,000 people and contributes 500 million to export sales annually<sup>64</sup>. Another company in the cluster is CES Communications, which has carved out a niche in signal encryption.

Supporting the companies at the core are a number of specialist firms. As Tait grew, supporting infrastructure grew around it. This growth occurred both consciously and subconsciously as the company placed tighter and tighter demands on suppliers, both in terms of quality and in terms of time.

“When we first started building things we were not sophisticated enough to work in plastic, we worked in sheet metal... We went to the local tinsmith. ..He'd cut out a pattern and hang it on the wall and when we wanted another hundred he got the pattern down off the wall and marked a hundred off of this pattern that he kept on the wall. Nobody would do that now.

"He wasn't accustomed to building things to the type tolerances that we were wanting. We had to grow his ability...He bought better machinery because he saw industry growing around it"<sup>65</sup>.

The supporting infrastructure includes metal and plastics firms that make enclosures and chassis, printed circuit board makers and wiring manufacturers.

The supporting physical infrastructure includes Christchurch International Airport. The ability to ship products around the world at competitive rates is critical to remaining competitive.

### **University of Canterbury**

The University of Canterbury forms a critical part of the supporting social

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<sup>62</sup> *ibid.*

<sup>63</sup> Michael Porter; Clusters and the New Economics of Competition; Harvard Business Review November-December 1998. p77.

<sup>64</sup> 1998 New Zealand Export Awards; NZ Business November 1998.

<sup>65</sup> Interview, 1998.

infrastructure for the local electronics industry. There is a strong relationship between the University and the cluster and with Tait in particular. The relationship is essential to ensure that the University is producing graduates with the needed skills. Each year Tait takes 20 - 30 graduates from the University. These graduates form the core of the company's 200 person design team. The links with the University were strengthened by the company funding a chair in Radio Communications at the University of Canterbury's School of Engineering<sup>66</sup>.

In April 1999 the University's commercial arm, Canterprise, became a standalone non-profit company. Sir Angus was one of four board members appointed at that time<sup>67</sup>.

### **Conclusion**

At the heart of his company's success is Angus Tait, the man. His achievements are testimony to his energy and his drive to build a company of international reach and class. His own measures of accomplishment put more weight on the number of people who have had careers at Tait than his own wealth. He has been driving the same car (a classic Jensen Healey) for years.

He is also quick to castigate himself for episodes when he feels he let himself down. Recollecting the failure of his first company 30 years ago still brings on a flurry of self-criticism. But he is justifiably proud of what his enthusiasm for technology has achieved:

“ I've encountered many people throughout my life who are (a) intellectually much more able than I, and (b) much better performers, much better educated. . . . Ignorance is, I think, bliss. If you are well-educated, and you are cautious of nature, and part of your education has been to study the ups and downs and the difficulties, you will prefer the security of a well-paid job and you will not take the risks.

“Also I would debunk another myth. Many people will say a successful business starts from a business plan [so] you know where you are going and you know what you are going to do. That's rubbish. . . . [Take Sony's Morita.] He didn't know what he was going to do. He did all sorts of silly things until he found something that worked.”<sup>68</sup>

Angus Tait has received numerous awards over the years. Recently they have become more frequent and prestigious, such as the 1998 Ernst Weber Engineering Leadership Award and the 1999 Knighthood.

Having spent a lifetime doing what he enjoyed, Sir Angus does not need the recognition. "I'm not a fan for awards. I prefer to just get on quietly with the

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<sup>66</sup> Building Blocks for Future Growth; 1994 New Zealand Export Awards; NZ Business November 1994 p7.

<sup>67</sup> Appointments Canterprise; National Business Review 6 April 1999.

<sup>68</sup> Interview, 1998.

business."<sup>69</sup> The true value of the awards lies in the message it sends to other New Zealanders.

"We have demonstrated that it is possible to win a share of international markets and that New Zealand's technology, expertise and manufacturing are second to none."<sup>70</sup>

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<sup>69</sup> Electronics Leader Takes Inaugural Directors' Award; Felicity Anderson National Business Review 10 October 1998.

<sup>70</sup> Sir Angus Tait 1994 Export Awards as reported in Export News 31 October 1994.

## Exhibit One: Chronology of Events

- 1947 Angus Tait returns to New Zealand
- 1950 A.M. Tait started
- 1951 First mobile radio built above Cashel Street Seed Shop (rat infested loft).
- 1967 A M Tait Ltd put into receivership
- 1969 Tait Electronics Launched
- 1970 CB Radio
- 1971 CB Radio
- 1972 CB Radio Exports begin to Britain (per NZ Export Awards)
- 1973 Miniphone
- 1974 Miniphone Export Incentives
- 1975 Miniphone
- 1976 Dealer/Distributor appointed for the UK
- 1977 Management Group appointed
- 1978
- 1979 Established wholly owned subsidiary company in Britain ( Export News 3/87p14)
- 1980
- 1981
- 1982 Established wholly owned subsidiary company in USA( Export News 3/87p14)
- 1983 Established wholly owned subsidiary company in Singapore( Export News 3/87p14)
- 1983 Came to the new site
- 1983 Early 1980's release of T500 series
- 1983 50 staff made redundant
- 1984 End of the Export Incentives and protection, commitment to be world class.
- 1985 Prince Phillip Design Award for Design Excellence, with a new model series
- 1985 T500 series launched  
(expected to earn \$15million in exports for 1987 (Export News (3/87)
- Mid 1980's Move into Trunking Technology
- 1986 Achieved \$10 million in Export sales in a single year.
- 1986 Governor-General's Award for exporter of the year
- 1986 Start of major expansion plan. Realisation of the need to be world class
- 1987 Governor-General's Export Award
- 1988
- 1989 Almost placed in receivership
- 1990 T800 series of modular base station and repeater equipment launched.
- 1991 Appointment of Martyn Gall as General Manager
- 1991 Fleetlink started
- 1992 T2000 series launched "Designed by you, developed by Tait".
- 1993 Four attempts to buy out the competition around this time.
- 1993 T3000 series of hand-portables and the Quasi-Sync base station/repeater systems introduced.
- 1994 Governor-General's award for exporter of the year
- 1994 In the 1994 year "Tait had doubled its production." - Export Awards
- 1994 Fleetlink completed
- 1994 First mobile data dispatch products, for use with T2000, launched.
- 1995
- 1996 T3000 series II released
- 1997 T2000 series II launched.
- 1997 Warren Rickard appointed Chief Executive August '97
- 1998
- 1999 Knighthood for Sir Angus Tait

## Exhibit Two: Awards

- 1981 Export Award which recognised the companies achievements in earning \$10million during the previous 5 years.
- 1982
- 1983
- 1984
- 1985 Prince Phillip Design Award for Design Excellence, with a new model series (expected to earn \$15 in exports for 1987 (Export News (3/87)
- 1986 Governor General's award for Exporter of the Year
- 1987 Governor-General's Export Award
- 1988
- 1989 Royal Society of New Zealand, Thompson Award for contributions to technology.
- 1990
- 1991
- 1992 OBE received in the New Year's Honours List
- 1993
- 1994 Governor General's award for Exporter of the Year
- 1995
- 1996 Honorary Doctorate in Engineering from Canterbury University
- 1996 Angus Tait was inducted into the Enterprise New Zealand Trust Business Hall of Fame.
- 1997 Angus Tait was made an Honorary fellow of the Institute of Professional Engineers New Zealand for his contribution to radio communications, his exemplary leadership of innovation, and his remarkable and sustained export achievements.
- 1998 Angus Tait won the inaugural Trade New Zealand Director's Award for outstanding individual achievement at the 1998 New Zealand Export Awards.
- 1998 Angus Tait has won one of two prestigious 1998 Ernst Weber engineering leadership awards from the US-based Institute of Electrical and Electronics Engineers (IEEE). The award was referred to by Warren Rickard as the Oscars of the engineering industry.
- 1999 Angus Tait was made a Knight Companion of the New Zealand Order of Merit for services to technology, manufacturing and exporting

### **Exhibit Three: Tait Corporate Objectives\***

#### **To benefit customers**

To provide communication products and services for the benefit of customers by successfully designing, manufacturing and distributing quality radio communication equipment.

#### **To benefit employees**

To provide secure, challenging and rewarding employment, benefits and prospects for all employees.

#### **To benefit the community and the country**

To help generate wealth and enlarge the pool of technical and commercial resource within the country.

#### **To ensure the continuance of these benefits**

To evolve an organisation which is robust, profitable and progressive in order that it can thrive and grow in its ability to meet these objectives.

\*Source: The Tait Paragon