CANZ

COMPETITIVE ADVANTAGE NEW ZEALAND

THE CRITERION GROUP

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PREVIEW

From humble beginnings in the family garage in the mid 1960s, Wally and Brian Smaill have built Criterion Furniture[1] into Australasia's largest manufacturer and marketer of ready-to-assemble furniture, with significant markets in the USA, Singapore, Hong Kong, Guam and the Philippines, in addition to its home markets in Australia and New Zealand

The company's development was sustained and even dramatic over the first 20 years of its existence. At one time Criterion held up to a quarter of the giant US market for its leading product line. But the late 1980s saw a radical shift in the US market, and equally radical changes to economic management policies in New Zealand. The impact of these changes on the company was sudden and severe. In recent years the company has had to reinvent a strategy around a new business model.

In 1998 the New Zealand industry sold $1.2 billion of furniture, five percent of which was exported. Imports have increased their share of the local market since the 1990s, with Australia (26% of all imports), Malaysia (11%) and Italy (10%) being leading suppliers.

> "Six years ago one dollar was imported for every three dollars exported. Today that ratio is reversed"[2].

The local market divides into residential and commercial segments, with nearly all manufacturers specialising in one of the two sectors[3].

This history begins with a description of the company as of 1998, then sets out the development of the firm, from its early beginnings to the challenges it faces today.

CRITERION TODAY

Criterion makes and sells a broad line of ready-to-assemble (RTA) furniture products for office and home use. Principal product lines are:

> entertainment centres for housing TV, stereo and other consumer electronics
> lounge, dining and bedroom furniture for the home
> computer workstations
> office desks
> mobile storage units for commercial use

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[1] See below for an explanation of the structure of the Criterion Group of companies.
[2] New Zealand furniture manufacturer David Walker, quoted in New Zealand Manufacturer, September 1988, p 32-37.
[3] New Zealand Manufacturer, September 1988, p 32-37.

> customised units for OEM (original equipment manufacturing) and retailers' own-brand lines[4].

In total there are 200 base products, which support 850 products in different colours and finishes, involving 2600 components.

Manufacturing

In contrast to the craft mode of furniture production, Criterion's RTA furniture is precision engineered for high-volume, low-cost manufacture. Where the skilled furniture-maker crafts finished articles in small batches for limited markets, and develops personal skill in overcoming the inevitable imprecision of craft tools, RTA manufacture involves large-scale, high volume machines working to low error-tolerances, so that components fit right first time. These machines must be integrated into a manufacturing system capable of producing a wide range of products and finishes, and designed to optimise the flow of materials and components through the plant.

This mass-production approach to furniture making requires large markets to support the necessary volumes. RTA furniture facilitates a broad market scope by designing and fabricating furniture units that can be shipped in flat packs of components, and are easy to assemble by the end customer, whether retailer, distributor, OEM manufacturer, or final consumer. Criterion exports over 70 percent of its output, and has the capacity to manufacture over half a million units of furniture per year. Turnover in 1998 approximates $30million.

Criterion's capacity is easily the biggest in Australasia, but modest by comparison to industry giants in the US such as Sauder, Bush, O'Sullivan and Mill's Pride[5]. Criterion therefore avoids mass-market lines retailed through mass merchants such as Wall-Mart, Kmart and Target, and focuses its Criterion-branded products on middle market segments where pressures on margins are less extreme[6]. However, the company continues to produce considerable volumes for customers who buy in volume for sale under their own brand.

Competitive strategy

[4] In the 'original equipment manufacturing' trade, Criterion supplies cabinets to other manufacturers (eg of consumer electronics) who sell the complete package under their own brand.
[5] US production runs can range from 3,000 to 4,000, whereas Criterion's run size is typically between 200 and 300 (Export News, 18 September, 1995).
[6] Margins in OEM lines are about half those achieved on Criterion's own-brand sales.

Criterion bases its competitive strategy on the following:

> Superior designs. Criterion staff travel the world to keep in touch with trends in furniture manufacture and design. Design is important both for market appeal and manufacturing economy.

> Technology. Over 30 years, Criterion has built up a world-class RTA manufacturing facility located in East Tamaki, Auckland. This facility incorporates sophisticated plant such as three-dimensional numerically-controlled routers and high tensile thermoplastic laminating membrane presses. Work flows and material flows through the plant are controlled by an MRP process planning and control system[7]. A relational database and an expert system approach has significantly enhanced the company's IT tools and development of these is continuing. A PhD in engineering is involved in this development.

> Quality. High standards of precision are a requirement for RTA manufacture and for end-user assembly. Criterion's products have rated highly in consumer quality tests. The company has been certified ISO 9001 since 1995.

> Scale. As the largest RTA manufacturer in Australasia, Criterion is able to capture economies of scale and scope more fully than its local competitors, though not on the scale of global leaders.

To support its competitive differentiation, Criterion believes it has built distinctive organisational competencies in:

- RTA systems design and manufacture
- mass production technology
- design innovation
- financial control systems
- planning and distribution systems
- a motivated and committed workforce
- reducing production lead times
- marketing and branding.

<u>Criterion's workforce</u>

Today, Criterion's workforce is tended as a core competitive asset for the firm. The main entrance to the company's East Tamaki site leads directly into the plant's social club, including swimming pool and squash court. The company's 132 hourly-paid and 69 salaried employees all participate in a company profit sharing scheme. Performance incentives are used, both for individuals and for teams.

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[7] MRP = manufacturing resource planning; ERP = enterprise resource planning.

In recent years, Criterion has invested heavily in upgrading the skill level of its staff. About 60 staff attend company-subsidised evening classes at the nearby Manukau Institute of Technology, and Criterion's HR staff are working with the New Zealand Furniture Industry Training Organisation to develop a unit standard training and assessment system for the whole industry. In-house training courses include job instruction, workplace relations, performance reviews, and company values. The HR unit also offers counseling services to employees.

Design

Criterion's Design and Development unit is another key resource. Led by a PhD in production engineering[8], the 5-person unit takes pride in its close contacts with customers (both internal to the firm and external), and its speedy product development. Criterion's successful entry to the US market in the 1970s required a close working relationship with designers in Japanese parent organisations, to ensure the cabinet system integrated properly with stereo components. Product innovations have been planned in advance to systematically take advantage of the company's developing technological capabilities.

Although less flexible than the craft-based furniture industry, Criterion's relatively small size in the RTA industry gives it greater flexibility and product design speed than its larger competitors. A product that took a much-larger competitor two years to develop might take Criterion a matter of months. The company's design philosophy avoids the high risks of being revolutionary and well ahead of trends, but is quick to identify the latest thinking globally and incorporate it into Criterion designs. As Brian Smaill puts it, "We try to offer something the competitors wouldn't do."[9]

The company has sought advantage by mastering a range of technologies that go beyond what its competitors can offer. For example, product designs can integrate wood, metal and plastic into the one piece of furniture. Some of Criterion's competitors are very good at laminating flat panels, others at laminating profiles, and others at membrane pressing. As Wally Smaill explains,

> "What we have done is combine those three processes . . . to evolve a product that requires all three of the technologies to run together."

[8] The thesis was written on Criterion's own production system with full support from the company.
[9] Unless indicated otherwise, all quotes from Wally and Brian Smaill in this history are drawn from an interview given in October 1998.

The result is a greater ability to combine design, styling and consistency of colour than competitors can achieve.

Distribution systems

A key advantage of RTA furniture is its ability to travel in flat packs with much lower risk of damage than made-up solid furniture. It is estimated that up to 30 percent of solid furniture is damaged in transit[10]. Brian Smaill gives the following example:

> "If you take companies like Myers in Australia, . . . if you go back five years, you would never see any hard furniture advertised in their catalogues. It's all soft stuff, clothing and things. The reason is there was no one company . . . that could deliver hard furniture throughout Australia."

The RTA design also offers considerable saving in space and shipping cost, an important consideration when trans-Tasman shipping costs remained high[11].

Criterion is able to distribute its furniture to national chains throughout Australia and New Zealand, with great flexibility:

> "If you want it in ones, you can have it in ones. If you want in pallet loads, you can have it in pallet loads. If you want it in thousands, you can have it in thousands".

The capability and frequency of the distribution system depend on the volume of product being moved in a market. Systems in Australia and New Zealand are the most developed; the system in the US is being built up as volumes grow.

Financial and information systems

Criterion runs two local area networks in Auckland and Melbourne, utilising Sco Unix 3.2 Version 5 operating systems. These are connected by a dial-up link, which transfers data overnight or as necessary. Information is collected from all areas of the business with all staff accessing an integrated system of accounting, manufacturing, and control modules. In addition, management has access to a powerful management information system which enables analysis of the data held in corporate systems.

A modular accounting/management system (MCBA) covers all aspects of the business from general ledger, accounts payable and receivable and product costing, to manufacturing, scheduling and distribution.

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[10] National Business Review, 21 November 1990, p19.
[11] Wally Smaill, New Zealand Manufacturer, December 1993, p 9.

The IS department consists of two full time permanent staff and is supplemented with contractors as necessary. This provides core knowledge of the corporate systems while retaining flexibility for significant projects.

Company structure

The Criterion Group is organised into a manufacturing company (Criterion Manufacturing Ltd), and several trading companies in New Zealand, Australia and the USA (all sharing variations of the name Criterion Furniture). Central functions are located in the Group company: Design and Development, Human Resources, Finance, and Information Systems. Each company is empowered to act independently in pursuit of the overall Group goal, which is a target rate of after-tax real return on shareholders' funds.

Each company has its own board made up of internal company managers and the two founders, Wally and Brian Smaill. The board chairman for the New Zealand-based companies is an Auckland accountant who is a long-standing friend and mentor to the brothers. Wally and Brian Smaill have swapped responsibilities over the years between manufacturing and trading. Currently, Wally is Managing Director of the manufacturing company and Brian is Managing Director of the Group, taking particular responsibility for marketing and administration. But the brothers have always worked very closely together and share all major decisions. Coordination is also achieved by a system of internal customer relationships within the Group. For example, the manufacturing company employs a marketing manager to manage relationships with Criterion trading companies.

The Group is wholly owned by the two brothers and their family trusts. In tough years, the brothers experience private ownership as a treadmill, something they feel responsible to keep going. But they are prepared to be patient for the good years to come along. And they recall how good things were when their US market success was at its peak in the 1980s. In those days the brothers used to joke that they wouldn't swap their machines for the printing presses used to print bank notes. Those days are now a full decade away and the gap between good years can seem long.

Company values

Criterion has developed 15 values to guide decisions made in the company (see Appendix One). Criterion's strategic plan identifies four key stakeholders in the business: employees, shareholders, customers and suppliers. Criterion aims to create a relationship of shared endeavour with its immediate customers and suppliers, all aimed at providing "better products and services to benefit our end consumers"[12]. The aim for employees is to provide an "environment that encourages interaction, the setting and achieving of challenging goals, and fulfillment of each individual's growth requirements . . ."

Management and planning

In the 1990s Criterion installed a flat, team-driven organisation structure. The 140-strong manufacturing company has just one layer of management, involving 8 people, between Wally Smaill as Managing Director and production staff. Staff are organised into self-managing 'cells'.

The brothers maintain a strategic plan for the business which covers:

> a current assessment of environmental and market trends and conditions
> a SWOT analysis
> identification of critical factors for success
> the company's vision, mission, goal, and values
> its competitive strategies and core competencies
> current strategic imperatives, issues, and themes
> business plans for the main operating units: marketing, product development, manufacturing, human resources, information systems, and finance.

The company we see in Criterion today has grown from tiny beginnings, shaped at every turn by the two Smaill brothers. The remainder of this history tells the story of the firm's evolution.

FROM GARAGE TO FACTORY: 1964-1975

Early years

Wally and Brian Smaill are as close as brothers get. Their recollections of childhood are of building things together: huts and trolleys and big Meccano sets given to them by their father. Their father was "in the x-ray business" and a very practical man. When Wally was 12 and Brian 10, their father died and the family moved from Wellington to Auckland when their mother remarried. The sons inherited their father's

[12] Source, Criterion strategic plan

practical interests and the tools to pursue them. As Wally Smaill recalls, "I had a fantastic workshop at 12 years old".

When they moved to Auckland, Wally went to boarding school and in 1964 moved on to Auckland University to study electrical engineering. While at school, he developed an interest in electronics, building amplifiers and speakers, and later the boxes and speaker cabinets to put them in. He wanted to install a big system in the family lounge,

> "But Mum objected to the pieces everywhere and insisted I had to get neat cabinets to put it all in - so I designed and built them myself, and they looked great.[13]"

Brian, who stayed at home, would join in these projects when Wally was home during the school holidays. Once at university, Wally started selling his systems to friends. The business grew from there and Wally never finished his degree.

In 1968 the brothers' stepfather also died. By then Wally was working part-time for the consumer electronics firm Philips, and Brian was studying accounting while working in the Public Accountant's Office. The brothers worked on the speaker business in the garage at weekends and evenings.

<u>Criterion launched: 1969</u>

The following year Wally made the decision to quit his not-very-well-paid job at Philips and devote himself to the speaker business full-time. Brian followed six months later, leaving behind his accountancy studies. For the young entrepreneurs, setting up on their own was a question of necessity, "to get an income".

Their first product was a line of speaker boxes for the booming hi-fi[14] craze of the 1960s. Audio components were imported to New Zealand under import licenses by firms such as Turnbull and Jones. Speakers and turntables came from the UK and the USA, and later amplifiers came from Japan. The new company made the cabinets to house speakers from rented facilities beneath a fish and chip shop in St Helier's Bay, Auckland. Their first volume business was an order for cabinets for small intercom speakers.

The brothers quickly found that making speaker cabinets in volume became crushingly dull when they used the simple tools they were familiar with. Brian Smaill

[13] Wally Smaill quoted in National Business Review, 19 November 1993, p69-70.
[14] High fidelity audio electronics.

uses their early experience to explain how their commitment to volume production went hand in hand with a quest for better tooling, bigger machines, and automation:

> “There’s actually a little story that’s symbolic of just why the business grew. We really didn’t have a lot of knowledge on cabinet making; well we had nothing. When we were [making] these little intercom speakers . . . what we had to do was to cut a hole in the centre . . . and being laymen, what do you do? Well to find the centre of a rectangle of course you go across the diagonals, don’t you? So that’s what we used to do. On every board we’d join the diagonals so we got a cross on the centre. . . . The next thing was, well, how do you draw a circle? You can do it with a compass but compasses keep moving and they get wobbly especially if you’re doing lots. So we found a 45 record, if you remember the 45, and it was just the right size as it was cut out for a speaker. . . . Then we’d say, how do we then drill the hole? How the heck do we cut this out? We didn’t know about jigsaws or anything so we said well we’ve got an electric drill so we used to drill a series of holes around the inside of the circle and then how do you get that out? Because the holes are sort of joined up, aren’t they, so it’s not going to fall out. So we’d hit that with a hammer and then we got a rats tail file and then we filed it out. So if you do that a few times you think there’s got to be an easier way!
>
> “So . . . we progressed then to . . . jigsaws. That was a big innovation. Then we got sick of drawing the circles. . . . The next thing we found out was that we could buy a router and if you made a jig then you could router the holes so you didn’t have to do any marking. So that was a progression. Then we got sick of that because we had, as the speakers got more sophisticated, . . . three or four holes to do. So then we got an overhead router, a bigger router, and that was still quite laborious and time-consuming. So in the end we designed and built a circle cutter with big blades that came down and did the whole lot all at once. So now we could do not only the one batch . . . at a time but we’d put three or four in the thing and we’d go crunch and we’d do 12 or 15 holes a cycle. That is an example of progressive thinking, “there’s got to be an easier way,” and it’s really just a way in everything we do. I suppose that’s the way we are.”

<u>First factory</u>

The drive for volume manufacturing quickly pushed the business out of its workshop beneath the fish and chip shop. Besides, Wally Smaill recalls that ". . . their plumbing wasn't that good, and they used to put all the potato peelings down the pipe, and the pipe burst and went over the cabinets".

In 1971, with financial help from their step-brother, the Smaills bought a 2400 square foot factory and set up their growing collection of increasingly sophisticated equipment. Over the following five years, the plant grew to 12,500 square feet. Increasingly the brothers were buying equipment that was state-of-the-art on the New Zealand scene: one of the first automatic bench banding lines, RF presses, a double-width belt speed sander. Guiding them in these purchases was an Austrian machinery merchant, Louis Ikner, who the brothers remember as something of a visionary. "I think he looked on us a bit like sons".

As the scale of operations grew, Criterion was increasingly able to add specialised features to their products by designing their own tooling and buying specialised machines[15]. Brian's accounting expertise was put to use to calculate the breakeven usage of these machines, which was often absurdly low. He recalls that one $7,500 bench bander had a breakeven usage of 20 hours per <u>year</u>. The profitability of volumes above the breakeven level was a strong incentive to find new products with features requiring Criterion's specialised plant. The product line extended from speakers to radiograms and TV cabinets.

Volume manufacturing also required attention to quality and precision. As Wally Smaill recalls,

> "In the end, it became very obvious that if actually everything fitted together very well, then you never needed to spend time on finishing. If you cut it right first time and made sure everything was square . . ."

Designing quality into the process became "fundamental to [the] good engineering principles [behind] everything we do". The brothers agree that they "like things done properly", and have a preference for "the best of everything".

<u>Competition</u>

Throughout these years Criterion grew strongly, at more than 50 percent per year. This was largely because its commitment to high-volume, high-precision, highly-automated furniture manufacture was not fully shared by its competitors. In the protected New Zealand market of the 1970s, consumer electronics firms such as Fisher and Paykel[16] and Philips ran their own cabinet plants. In the early years, the

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[15] Criterion has adapted much of its plant to produce product features it has identified as being valuable. The same is true for the manufacturing planning and control systems it has installed.

[16] At the time, Fisher and Paykel had the license to assemble and market Panasonic products in New Zealand.

Smaill brothers looked to another specialised local furniture maker, Goodes, as its model: "their work ethics were good, and their people were good". When Criterion had grown to employ 40 staff, Goodes was about 10 times larger. But Criterion's leadership in engineering saw it grow far beyond its competitors. At its peak Criterion employed 350 people, while Goodes retrenched to just a tenth of that number.

SURFING THE PACIFIC: 1976-1989

The big leap offshore

By the mid 1970s New Zealand was confronting a major economic challenge. Its traditional pastoral-based exporting industries of wool and diary, heavily reliant on the UK market, were threatened by the UK joining the European Community in 1972. Large balance of payment deficits played a significant role in the election of Robert Muldoon's National Party in 1975. The government put in place incentives aimed at diversifying the country's overseas markets, and extending the scope of its exporting industries.

Criterion had by this time built itself into a significant player in the New Zealand market and had first-rate manufacturing plant. First year sales of $12,000 in 1969 had grown to about $1 million by 1976[17]. The company had recently invested in dowl-jointing machinery, which had the effect of greatly simplifying final assembly, allowing cabinets to be shipped in flat packs. This was part of a deliberate strategy to prepare for export markets. But the decision to export was to involve a further major shift in production capability. The inadequacy of their current operations was made clear during early attempts to open up an Australian market.

Criterion had received several orders from Australia but the high cost of trans-Tasman shipping cut into available margins. And although Criterion had acquired excellent machinery, they were unable to automate as fully as they wanted in their cramped facilities. For these reasons, their foray into Australia was not that profitable.

Furthermore, in 1975 Criterion appointed an Australian agent after making some inquiries, but the agent was declared bankrupt before the first container load of Criterion product arrived. Brian Smaill had to rush over the Tasman and reclaim ownership of the goods.

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[17] National Business Review, 21 November 1990, p17.

The brothers came to realise that the move offshore required a large-scale commitment. As Brian Smaill recalls:

> "To make the products, and to make them consistently and profitably, we had to really either go for broke or not continue in the export thing in terms of making products in a knock-down form."

The key step was taken in 1976 when the firm left its first over-crowded production facility for a new purpose-built factory. This was designed to be fully automated, and achieve full control of the flow of materials and components at every stage of the process. Only by achieving higher levels of precision at each step in the process, and capturing greater economies of scale, could the economics of exporting be made to work. With this facility Criterion acquired the capability to enter the international RTA industry.

The new equipment, together with the building, involved an investment of over $1 million. The company received export suspensory loans from the government-owned Development Finance Corporation (DFC) to cover half the cost. At the time, the loan was more than Criterion's annual turnover. The brothers believe this support was vital in getting them over the hurdle involved in reaching export volumes:

> "The DFC for us is the reason we are here. If it hadn't been for that, we would have never, ever got off the ground. . . . [And it was done] without giving away our heart and soul. I mean, we wanted to retain control of the company. We didn't actually feel that comfortable . . . getting a venture capitalist in and sitting on our board. I'm sure they could give us good value, but in the end we've given away our business and our ideas. When's the right time to do that?"

DFC's contribution was more than just financial. Wally Smaill believes that the monitoring and reporting disciplines that came with the loan also made important contributions to Criterion's competencies[18].

Australian success

Criterion quickly got past its early tentative experiences in the Australian market to develop direct relationships with electronics firms operating in Australia. These would use Criterion's RTA packs, designed for easy assembly, to house a range of consumer electronics products from speakers to cabinets.

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[18] New Zealand Manufacturer, December 1993, p9.

The Australian market gave rise to the development of full stereo system units, involving a center cabinet to house amplifier, turntable, and radio, integrated in design with matching speaker cabinets. Each major brand (Technics, Akai, Sanyo, Hitachi, and Marantz) developed their own designs, in close collaboration with their RTA suppliers. These one-brand integrated cabinet systems were precursors to today's entertainment centers, and became the lead product that Criterion used to enter the very much larger US market.

Business was good, and Criterion sustained growth of 60-70 percent per year. Rapid, profitable growth went hand-in-hand with the development of Criterion's manufacturing capabilities. In Wally Smaill's view,

> "Obviously in business you have good years and you have bad years. (And there's good friends and bad friends.) There is no doubt in my mind that when you are investing in the future - and when we were up with the play - that our growth and our leadership as a company was at the forefront. There's an absolutely causal link between the two."

The US market

In 1979 Criterion made its first move on the huge US market. Brian Smaill did the spade-work, making repeated trips to visit US subsidiaries of the same (mostly-Japanese) firms that Criterion served in Australia, using testimonials from the Australian branches to build credibility. As described by Criterion's later Marketing Manager, Tom Macky,

> "In terms of researching the US market, I suppose we used the Japanese style which is basically to get into the marketplace, talk to the people at ground level and those who are the key movers of product within the industry.
>
> From our experience, there is no substitute for doing it yourself when it comes to export marketing. You just have to go there. You can't do it by remote control using outside agencies or middle-men."[19]

Criterion had to overcome more than their lack of experience with US customers. The company's speaker cabinets were not competitive against larger-volume US manufacturers. So Brian focused instead on the concept that had proved so successful in Australia, namely a one-brand, integrated cabinet for a full stereo system.

[19] Marketing, May 1991, p21-25.

However, this went against the established purchasing patterns of US audio buffs, for whom mixing and matching audio components was part of the machismo of their hobby.

When Criterion began developing this market only 30,000 were sold in all the US. At its peak, this was to grow to two million units per year, almost a quarter of which were made by Criterion. By the late 1980s Criterion was exporting 95 percent of its output (70% to the US market alone)[20], all sourced from its East Tamaki factory. The company was employing 350 people.

Brian Smaill had to be very persistent to get US electronics marketing subsidiaries to try the new configuration. He focussed his efforts on the US subsidiary of Japanese firm Toshiba, and on Marantz, a US manufacturer[21]. Both companies liked the concept, but did not want to be the first to introduce it. An executive at Marantz had visited New Zealand on furlough from active duty during the World War 2, and that personal link with the country helped. In the end it was Marantz that came up with the first order, and Wally who got the call, after all of Brian's months of selling.

To make the one-brand cabinet system effective required close coordination between Criterion designers, (who were responsible for the centre cabinet), and the US makers of speaker cabinets, so that materials and finishes produced an integrated effect.

Criterion RTA cabinet systems proved to be very successful in the US. Their ease of assembly made them popular with consumer electronics marketers, and the quality of the product impressed consumers. A US testing agency rated Criterion's cabinets first, third and fourth in a test of eight cabinet systems on the US market.

Criterion's success in the US market swept the company to tenfold growth over the decade of the 1980s. As Brian Smaill recalls:

> "The way we explained it, it’s like being in the middle of the Pacific Ocean and you’re out there on a surfboard and what’s coming behind you is a great big tidal wave. We’ve caught this tidal wave on our surf board and we can’t even see the shore. But we’re going to surf this wave for as long as we can. There’s only one thing about a wave, every wave reaches the shore at some point in time. What we’ve got to do is to be smart enough to know that as we get closer to that shore line we’re actually smart enough to kick off the surf board and kick off that wave and wait for another wave or make another one ourselves or find another

[20] National Business Review, 21 November 1990, p17.
[21] Marantz was later bought by Philips.

opportunities. The other thing we said was, this wave's so big, we've got to be realistic that the next one's not likely to be. It could be a while, we could be in a trough and it could be a while to catch another wave."

Growth on this scale was not without its challenges. In one year Criterion air-freighted 880,000 kilos of flat packs to the US to meet its delivery commitments, the equivalent of eight 747 cargo loads. Their customer presented Criterion with a model airplane with the Criterion trading name printed on the side. The presentation was made at the customer's annual dealer convention to recognise Criterion as best vendor of the year. The award was appreciated, but as Wally Smaill reflects, "When there's less fat in the system, you just can't afford to pay those costs".

Even without the 747s, Criterion's logistics were normally a match for their US competitors. The company required 30 days to complete an order from stock and deliver it from Auckland to any destination in the US. This was competitive with, and sometimes better than, local suppliers[22].

Explaining the success

The Smaill brothers are not completely sure how they came to be so successful in the US. In Wally Smaill's assessment,

> "I think the thing is that good ideas come from people recognising what they want for themselves, so they have the passion to try to solve a problem. So that side of it, in terms of how we came to be above on the technological front, heck I don't know. It's just the way we were. We were, I suppose, on a roll, and it was fun. It really was a lot of fun."

For Brian Smaill, Criterion's advantages stemmed from an interdependent array of capabilities rather than any single one:

> "I think the thing is . . . a package. We were doing lots of things simultaneously. The way I describe it, it's a little bit like the hull of a boat. The theory of being good at marketing and not being good at manufacturing is like having the front end of the boat solid but the back having no stern on it, or whatever. So everything has got to be relatively the same strength otherwise it can't withhold. . . . Everything's got to be linked. [When we improve our processes it] is almost like the tide coming in. As the level rises then we've got to make sure that everything's in sync and everything's moving together."

[22] Marketing, May 1991, p21-25.

As the Smaills see it, part of their success was the relatively low state of US manufacturing in the late 1970s. The strong US dollar had cut into US competitiveness for years, and the best young people avoided manufacturing as a career. Criterion's US competitors had not been investing in plant, so that the New Zealand company's profitable and state-of-the-art production system was a real competitive differentiator.

As the 1980s progressed US manufacturing fought back. Today Criterion believes its US competitors have developed leading production capabilities. Industry leader Sauder, a $300-$400 million company in the 1980s when Criterion sales reached $40 million, has now grown to $500-$600 million.

Power struggles in the value chain

As Criterion's business grew it sought to apply its growing buyer power to win volume discounts from New Zealand suppliers of reconstituted radiata board, its key construction material. For all its growth, Criterion was still a small company next to New Zealand's two giant integrated forestry and timber product companies, Fletcher Challenge and Carter Holt Harvey. These firms in turn were anxious to support huge investments in board-making capacity with strong margins in the local market. Nevertheless, Criterion persisted and did win some concessions.

A key stage in the RTA furniture value chain is the laminating of radiata board with durable wood grain or patterned finishes. Until 1983 lamination for Criterion's products was done by a company independent of the two timber giants. But in 1983 one of the board makers broke a tacit agreement in the industry and moved into laminating without warning. The independent laminator thereby lost his unique place in the value chain and was vulnerable to being squeezed out of the chain altogether. Given its dependence on laminated finishes, Criterion too was threatened by this development.

At the same time Criterion was coming under attack in its US market from a competitor who created designs to use a wider 5-foot laminated board, knowing that Criterion's supplier produced only 4-foot board. Criterion addressed both challenges by buying their own laminating line, and in the process added to their portfolio of multiple technologies.

The wave breaks

As Criterion's great decade of the 1980s came to an end, the Smaills could see their wave of success breaking. They had anticipated the break, and even expected it to come sooner. The market for one-brand audio systems matured. In their place came the more compact mini- and midi-systems, capitalising on the increasing miniaturisation of electronic components. Where Criterion cabinet systems went into living rooms, the new mini-systems went into teenagers' bedrooms. The whole market changed. Audio equipment companies switched their excess speaker capacity into making central cabinets as well. In two or three years (1988 to 1990) Criterion's huge US bonanza effectively evaporated.

Conditions at home in New Zealand had also become harsher. A reforming Labour government had taken office in 1984, sweeping away the array of export incentives that had helped fuel Criterion's growth. To make matters worse, the newly-deregulated foreign exchange markets quickly marked up the kiwi dollar 30 percent against the greenback over an 18 month period from 1985 to 1987. The Smaills considered closing up manufacturing in Auckland and starting again offshore, but rejected the option. As Wally Smaill explains, "My lifestyle and I like New Zealand. Why should I desert all these people?"

Since the reforms of the mid 1980s, the Smaills find New Zealand much less supportive of manufacturing than it had been; they rate the new regime poorly against countries like Germany and Australia, where subsidised land, loans, tax concessions and other incentives are available to exporting manufacturers.

A NEW BUSINESS MODEL: 1989-1998

Difficult choices

The collapse of the company's US market brought an end to a long period of sustained growth at Criterion, and a radical drop in volumes. High volumes and growth were conditions on which the company's old business model had been built; hence a whole new strategic design had to be developed, founded on a desire to make the most of a world-class manufacturing facility. When the plant runs below capacity, however, it cannot deliver the economies of scale it was designed for. And weak growth prospects have limited new investment in state-of-the-art equipment. For example, an improved milling machine has been on the company's capital expenditure schedule for 7 or 8 years, but the brothers have not been willing to add more to an already under-utilised asset base. Meanwhile, five of these machines have been installed by US competitors.

Facing these difficult choices, Criterion has built a new strategic design around the following three principles:

1. A re-focus on the Australian market. Criterion has maintained a presence in the US market, keeping its marketing expenditure at a few hundred thousand dollars a year, and shipping to Los Angeles, Seattle, Chicago and Honolulu[23]. Criterion has also developed new markets in Singapore, Guam and the Philippines. But Australia is now Criterion's dominant offshore market. A joint venture in Australia was bought out, and sales grown from $4 million to more than $20 million between 1989 and 1994. By 1998 exports represented 70 percent of production.

2. A focus on consumer and office furniture products that can be branded with Criterion's own brand name. This has involved Criterion in building up its own direct marketing relationships with major retail chains in its home markets, as well as the USA. The company does still sell considerable volumes of OEM orders for assemblers and retailers to sell under their own brand.

3. An extension of product lines, first into home furniture, and later into commercial furniture.

A constant pressure on the new strategy has been the strength of the kiwi dollar over the 1990s. The brothers feel this has pushed their strategy in a direction opposite to that needed for Criterion's competitive development. To make best use of their plant, they must either grow new markets or expand their product range. The brothers put it this way:

> "Strong New Zealand dollar: narrow market, broader products. Weaker New Zealand dollar: . . . wider markets, narrower focus. If you want to be world competitive you must have a narrow focus, as narrow a focus as you possibly can."

The choice between market development and product expansion within a limited regional market is not one that can be reversed quickly. Recent weakening of the New Zealand dollar against the greenback improves the sums, but does not re-create the

[23] Export News, 18 September, 1995

market capability Criterion had a decade earlier. When exchange rate volatility was at its height, the brothers used to joke that the margin on a big order could be a few hundred thousand dollars better or worse over the passage of a 90 minute long lunch, so they really didn't need to worry about choosing between the $50 or the $60 dollar menu.

On the positive side, a legacy of Criterion's success in the 1980s is a world class manufacturing facility that makes the company twice the size of its nearest Australian rival. In 1998 Criterion was also investigating the purchase of a rival Australian firm. Within New Zealand, there is no other RTA manufacturer, although low-priced RTA is imported from discontinued lines and retailed through mass-market outlets such as The Warehouse.

Marketing and product development

The core of the new strategy has been to develop a new line of RTA furniture products to replace the lost business in audio cabinets.

> “We’ve created niche products - ones that are a bit unique and therefore can be marketed worldwide - and registered the designs and patented technical developments.”[24]

Sensitive to the finite life of their US bonanza, the Smaill brothers had initiated the strategic move to RTA furniture as early as 1985[25]. The collapse of the US audio cabinet business strengthened their commitment to, and dependence on, the new strategy. By 1990 furniture products accounted for 90% of total sales[26].

Having experienced the vulnerability of OEM manufacture, Criterion’s new strategy was to build consumer brand recognition for its new product range, and to develop its own sales relationships with the retail channel. In Wally Smaill’s words:

> “There was little change necessary in our manufacturing processes, but the way we marketed, sold and distributed the new product was vastly different.”[27]

The marketing strategy was to develop close relationships with major retail chains in four targeted markets: New Zealand, Australia, the US, and Japan, with the initial intent being to devote equal sales resources to each. Each market was allocated 2 sales staff. The focus on large chains was a strategy to make the most of the

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[24] Wally Smaill, National Business Review, 19 November, 1993, p69-70.
[25] National Business Review, 21 November, 1990, p17.
[26] National Business Review, 21 November, 1990, p17.
[27] National Business Review, 19 November, 1993, p69-70.

company's limited sales resources. For example, in the huge US market it might take two weeks to cover just 10 customers[28].

Large chains also have the space to display RTA furniture fully assembled. Stores such as Myers or Freedom Furniture in Australia display complete room settings of Criterion furniture[29]. Criterion's Marketing Manager, Tom Macky, saw this as an important step in explaining the product to consumers:

> ". . . the consumer really needs to see the furniture assembled and in a room setting with all the matching accessories, wallpapers, paints, carpets and lighting. This means that the retailer who can set up a whole room display, as well as carry a comprehensive stock of furniture and accessories to enable customers to buy what they see and take it home with them, is the most efficient way of getting our product to the consumer." [30]

Large chains also participate in promotional programmes, sharing advertising budgets with manufacturers. As early as 1990 Criterion furniture featured in a full page of the Myers catalogue, which is distributed to every household in Australia[31].

The company's attempts to build new markets for its furniture products beyond Australia have met with varying success. The Japanese market turned out to require lighter, hollow-core construction, which Criterion was unable to make in sufficient quantity to be economic. Japanese consumers were also unreceptive to the RTA concept. Tom Macky explained:

> ". . . everything we do has to relate to where we see the global, as opposed to local, opportunities. To achieve the economies we need to remain competitive; any new idea we adopt has to work on a broad base."

By contrast, Macky reported that 50 percent of furniture sold in Europe in 1990 was in RTA form[32].

Marketing strategy also had to be designed to cope with the long replacement cycles common for furniture. In New Zealand, for example, consumers replace a piece of furniture only once every 17 years, on average. New Zealanders are more likely to rank a boat or an overseas trip ahead of furniture, and lack a European's concern for the internal design of their homes[33]. Macky thought that RTA would grow in appeal as

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[28] Marketing, May 1991, p21-25.
[29] Marketing, May 1991, p21-25.
[30] Marketing, May 1991, p21-25.
[31] National Business Review, 21 November, 1990, p17.
[32] Marketing, May 1991, p21-25.
[33] New Zealand Manufacturer, September 1998, p32-35.

consumers came to see furniture as a fashion item, with a replacement cycle closer to that of a car[34].

Since the mid-1990s Criterion has also been developing a market for home-based office furniture, aimed at the growing number of people who work from home, often in their own sole-trader business. This kind of furniture has to be more compact than the traditional corporate office designs, and is often designed to store away to allow the home office to be used for other purposes as well. Designs feature adjustability and modules that allow the home-worker to adapt an office to their own needs and space, as well as a range of finishes to match room decor[35]. (See Appendix Two)

Flexible manufacturing

Central to Criterion's new strategy is the attempt to capture as many economies of scale as possible from a broadened and diverse portfolio of products. This is done through careful design of product families around shared components, and complex computer-controlled scheduling of workflows through the plant. The new configuration captures many of the economies of batch production within a process that is essentially a line flow.

An MRPII system was installed in 1989 and customised to Criterion's needs with the help of the Manufacturing Systems Research Group at Auckland University Department of Mechanical Engineering. This has since been linked to an Informix database, and in 1998 Criterion was extending the system to a full ERP system. The company's linked LAN[36] systems in Melbourne and Auckland will be used to feed latest marketing data into the production scheduling model.

The result of these sophisticated processes has been to reduce lead times throughout the plant. Overall factory lead time has been reduced from 5 to 3 weeks since 1995. Despite the extension of product types, it is possible to retain some machine setups across many products. Operational and financial performance indicators have shown marked improvement:

> productivity per person has increased 30 percent
> reworks have fallen 50 percent
> gross margins are showing an upward trend.

Workplace revolution

[34] Marketing, May 1991, p21-25.
[35] New Zealand Business, November 1996, p41-48, and July 1997, p42-47.
[36] LAN = local area network

The new manufacturing philosophy has required radical change to the way people work in the East Tamaki plant. The workforce has been reduced to 200 from a peak of 350. The entire value chain, from customer backwards, has been 'unpacked' into autonomous 'cells'. Performance indicators and activity-based costing systems have been established for each cell, and rewards linked to performance improvements. At each stage, the customers of each cell are clearly identified, both internal and external. The requirements of each customer are clearly identified. For example, Criterion asked its production managers who were their customers. The conclusion was "cell leaders". Then they asked cell leaders what they needed from managers. The answer was for managers to not spend time correcting errors made by the cells, but to give the cells the skilled staff they needed.

The result has been a radical upskilling of the workforce. About half of the Tamaki factory workforce attend Manukau Institute of Technology for one two-hour evening session each week on company-sponsored training. Selected courses include graphing, mathematics, English and effective communication. The Smaill brothers believe they should have begun the change a decade earlier, and that it may take a generation to turn around cultural attitudes to further education in the local community.

Criterion's new cellular manufacturing philosophy was inspired by what the brothers had seen happen in American manufacturing. It required a revolution in workplace relationships to rebuild the organisation around self-managed teams. It took more than explanation to shift mindsets. When new computer-controlled equipment was installed, staff simply switched off its functions and set it up manually. The brothers took to traveling economy on overseas trips and sharing hotel rooms so they could take key personnel with them and show them how the new manufacturing methods worked in practice.

The brothers have also been challenged to change their own style of management as they learn to run the business a new way. They have found that they had not spent enough time applauding other people's accomplishments, and were not always willing to grant the degree of autonomy their people wanted. Like their workforce, the brothers are working to learn new styles of behaviour.

The social change has required many years of sustained effort and a willingness to invest time and be patient before seeing results. Brian Smaill recalls,

> "It started off slow, but today it's gathering momentum. . . . We are starting to see the benefits of empowerment at that lowest level [of the organisation]."

The brothers agree that there is still some way to go to get the people side of their new business model right. The business would now continue to run itself without their input, but they doubt it would change much. They want to get the organisation beyond this point, and to build learning capabilities throughout the organisation. For example, the company's strategic planning process is largely limited to the top team. The Smaills feel this should change.

Information systems

Another integral feature of the new manufacturing philosophy at Criterion is the extensive development of management accounting and information systems. These are increasingly being integrated with Criterion's manufacturing planning systems. Activity-based costing and key performance indicators have been pushed down to the level of each cell. The company's linked LAN systems in Melbourne and Auckland allow all staff access to an integrated system of accounting, manufacturing and control information.

Sales staff are the new focus for Criterion's IS strategy. The firm's two permanent IS staff plan an internet-based information system accessible to both sales staff and customers. They see this as making a crucial contribution to a strategy based on customer service, choice, and rapid reaction to fashion trends.

The Group's Design and Development unit is also steadily building towards full computer-aided design (CAD) capability, integrated with Criterion's manufacturing systems.

An independent audit has advised Criterion that its systems could support a business twice its size. Brian Smaill sees this as a strategic resource which could be applied to add value to other businesses in similar industries. In recent years, development of these systems has had to be slowed, along with the company's investments in physical assets.

Difficult years

The past decade has been much harder on Criterion and the Smaill brothers than the 1980s. The brothers admit that they have been scared at times, and sometimes get tired battling against the challenges that have confronted them. In a reference to their earliest wood-working methods, Wally Smaill describes "The last few years feels like drilling holes [round a circle] and knocking them out with a mallet".

THE VIEW AHEAD

The Asian financial crisis of 1998 depressed demand for Criterion's RTA furniture in its core New Zealand and Australian markets. But it had the benefit of producing a strong US dollar. The kiwi dollar also weakened against the Australian. On past evidence, it would be hard to predict if these positive relativities will be sustained.

As it looks ahead Criterion is focusing on the following five strategic issues, or themes, as the basis for its future success:

> further reductions in lead times
> differentiation of the product portfolio to enhance added value
> improvements in product quality, both in products and processes
> increasing the capabilities of Criterion's team members
> enhancing the firm's ability to measure its performance, in all aspects of the business.

There is no sign of a return of the kind of wave that carried Criterion across the Pacific to success in the 1980s. Success on that scale is, in any case, more than the Smaill brothers might ask for. They are also beginning to ask when is the right time to hand over care of the business they built from the family garage in just 30 years? And to whom?

APPENDIX ONE - CRITERION VALUES

TRUSTWORTHINESS	*Be trustworthy, be trusted*
HONESTY	*There is no good working relationship without honesty*
RESPECT	*Everyone is entitled to respect*
UNSELFISHNESS	*Putting the good of the whole first ensures the good of all individuals*
CARE	*We all take responsibility for our own actions*
COMMITMENT	*We keep our word*
BALANCE	*Act, don't react. Know the difference between response and reaction*
NON-CRITICISM	*Criticism divides*
FACTUALITY	*Facts before opinions*
SERVICE	*Service is all and everything*
LISTENING	*No listening - no communication*
COMMUNICATION	*Communication is the key to open human co-operation*
LEARNING	*When we stop learning we stop growing*
REWARD	*Contribution is rewarding and merits reward*
VISION	*We all need a vision*

APPENDIX TWO – CRITERION'S PRODUCTS: HOME, OFFICE, ENTERTAINMENT, COMPUTER