Taiwan’s Dragon Multinational: The Acer Group

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"I think it is normal that crisis happens in enterprises. It is abnormal if there is no crisis at all. Therefore, a company has to continuously accumulate strength and cultivate talent even though it is not needed immediately."

Acer is the world’s largest and most successful Chinese high technology company – and it is not yet 25 years old. Established in Taiwan in 1976 by entrepreneur Stan Shih, Acer has grown to become a diversified IT group and a world leader in the Personal Computer industry. It is the world’s third largest PC producer (of both branded and original equipment production) and is one of the Top Ten branded PC producers. It offers a range of IT products including high-end servers, multimedia PCs, notebooks, computer peripherals, components and semiconductors – as well as cellular telephones, internet service providers and a range of web-based services. The Acer group encompasses over 120 offices spanning 37 countries and employing more than 32,000 people. The group operates 17 manufacturing sites and 26 assembly plants in 21 countries. Acer group revenues were US$6.7 billion in 1998, rising to $8.7 billion in 1999, but plateauing in the difficult year 2000.

These are the bare statistics of success, for which Acer has become Taiwan’s most famous company and its founder, Stan Shih, the country’s most decorated entrepreneur. But behind these data lies a fascinating story. Acer is a completely new kind of multinational enterprise. It has devised novel organizational and management solutions to the problems of achieving global scale, and in organizing a global scale of operation once it is achieved. While firms can potentially gain enormous competitive advantages from achieving global scale and scope these gains can prove elusive if the firm cannot generate a style of management that Perlmutter described and anticipated back in 1969 as "geocentric."¹ The case can be made that Acer, as a “latecomer” multinational enterprise, has leapfrogged its more traditional rivals in devising through its cellular organizational structures a genuinely geocentric approach to management.² It has

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¹ See H.V. Perlmutter's classic account of the "tortuous evolution of the multinational corporation" (1969). He described multinationals as emerging through stages which could be described as "ethnocentric" (merely duplicating domestic operations abroad) or "polycentric" (merely operating a series of national subsidiaries without any connections). Few firms had attained what he called a "geocentric" outlook, namely one which took the world as its focus. This remains a powerful concept, as captured in the current distinction between the "multinational enterprise" (which is ethnocentric or polycentric) and the "transnational enterprise" which is geocentric in outlook.

² The concept of "latecomer" multinational refers to the fact that firms which emanate from latecomer industrializing nations start with clear disadvantages, but also benefit from certain advantages,
arguably devised an approach to international expansion which resolves organizational dilemmas such as the goal of achieving global integration and local responsiveness simultaneously. As we shall see, Acer placed more emphasis on local responsiveness in the middle 1990s, and then more emphasis on global integration in the later 1990s. Acer is thus a case of exceptional interest.

Acer is a case of great interest also in that its founder and chairman, Stan Shih, is one of the most brilliant of the new business figures to have emerged from East Asia. He is tireless in explaining and defending his organizational philosophies and entrepreneurial style. Shih is remarkable in that when he says he has not done it all on his own, he really means what he says. Shih has been able to motivate employees, customers and suppliers in sharing responsibility for Acer's fortunes, because they are all allowed and encouraged to share in its wealth. Shih boasts that the more he shares ownership of Acer with others, the wealthier he gets -- because the company grows through the efforts of others. Shih's "21 in 21" plan, by which Shih intends that Acer will consist of at least 21 independent publicly listed enterprises by some time early in the 21st century, also ensures the widest possible investor involvement in Acer, and a conservative capital structure for the group as a whole. Having separate investors in many parts of the Acer group in different countries, subject to stringent stock exchange rules in those countries, ensures an openness and transparency in Acer's intra-group dealings that make it stand out amongst multinationals, East or West.

Shih's greatest legacy is likely to be a worldwide Acer Group that can function very effectively without him, enriching its managers, shareholders and employees (who all share in the wealth, through widespread stock ownership plans) and generating new businesses as fast as opportunities present themselves. It is this entrepreneurial and strategic dynamic that keeps a worldwide entity like Acer alive and self-sustaining, and which constitutes such a rich source for the study of the processes which are needed to keep all firms alive and self-sustaining.

Finally Acer is of great interest because it has experimented not with just one model of internationalization, but with at least three quite different models -- or "three and a half" depending on how they are counted. All this in no more than 15 years of international expansion. It is the capacity to evolve at a global scale and to learn quickly from mistakes, that makes Acer of such compelling interest.

amongst which is the absence of inertial organizational structures holding back development in incumbent firms. The concept of backwardness as a source of competitive advantage was introduced by Gerschenkron (1962) and has been applied to firms from East Asia by Mathews and Cho (1999).

As firms expand internationally, they are forced to find solutions to the problem of global integration but are also under pressure to enhance local responsiveness. This is the fundamental dilemma facing firms which aspire to operate multinationally. See Prahalad and Doz (1987) for the original formulation of the dilemma, and Bartlett and Ghoshal (1989) and Ghoshal and Bartlett (1997) for an extended elaboration.
Acer’s evolution through several stages of internationalization is depicted in Fig 1. The corporation starts as a purely domestic operation, while it acquires the necessary capabilities to make its launch on the world. It evolves from this to a first phase of international expansion, with a centralized organizational structure. When this reaches its limits, Acer evolves to a second phase in which cellular business units (BUs) become the primary site of the corporation’s activities, interacting directly with each other and with external customers. This organizational architecture too reaches its limits, when the corporation evolves to a third phase, involving four global BUs, each again containing constituent BUs or cells. This can be expected to evolve to yet another form, or realization of the cellular architecture, when the time is ripe. Note how the degrees of interaction between Acer and the world multiply as one phase succeeds another. In its first internationalization phase, there is a single degree of interaction (Acer to the outside world). In the second internationalization phase, involving RBUs and SBUs, there are two degrees of interaction – inter-BU interactions, and Acer to the outside world. In the third internationalization phase, there are three degrees of interaction – intra-GBU; inter-GBU; and Acer to the outside world. It is these multiple degrees of interaction that enable Acer to keep the lid on exploding complexity as it expands to become a global corporation – complexity that degrades the performance of conventionally structured firms as they expand internationally.4

**Acer’s first phase: domestic operations**

Acer spent its first ten years of existence establishing itself as one of Taiwan’s leading high technology companies.5 In this first phase of development, the company’s

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4 This degradation of (conventional) firm performance as it expands beyond a certain size is a well-recognized phenomenon. See Geringer et al (1989) for a discussion of this theme. Acer’s cellular organizational architecture attacks complexity at its source, so that the constituent business cells continue to operate as if they are small firms.

5 Documentary sources for Acer’s business experiences include numerous magazine and newspaper articles over the years; a useful sketch of Acer’s experiences up to the mid-1990s in *Made in Taiwan: The
founders and senior managers learnt how to acquire organizational and technological capabilities; how to implement these in new businesses; how to build marketing channels and a branded business; how to implement cost controls and operating standards. In other words, in this first phase, Acer (not yet known as such, but trading under the name Multitech) acquired the character of a viable, self-sustaining enterprise.

In typical entrepreneurial fashion, Acer was established as a very small operation by Stan Shih and five associates, after he had acquired practical and technical knowledge of the Information Technology (IT) industry, and had been frustrated by poor management decisions in the companies he had worked for. Acer was founded as Hong Chi (a name which refers to Shih’s favorite game of GO, whose stratagems have been an inspiration for some of Acer’s own moves) with $25,000 capital and just 11 employees. The early years saw Shih and his engineers eking out an existence as a contract R&D company, utilizing their knowledge of microprocessors, and providing services to electronics firms which could benefit from the introduction of microprocessors but lacked the expertise to design them into their products. This inauspicious beginning evokes similar experiences in now-great enterprises like Hewlett-Packard, which also took several years to find its eventual business niche.

Acer’s early success was based on acting as Taiwan agent for U.S. microprocessor firms such as Zilog, whose products were used in the early 1980s by Taiwanese producers of electronic games. This burgeoning business was driven largely by intellectual property piracy (by the games producers, not by Acer) and it was stamped out by the Taiwan government in 1982. The effect was to drive many Taiwan firms towards personal computers, then getting started as a new industry. Shih was able to leverage technological assistance to design a proto-PC, the "Microprofessor," which was the company’s first successful own product, achieving substantial sales in Taiwan and abroad. It was in 1982 that the PC industry worldwide took a momentous turn, when Compaq demonstrated the world's first "IBM-compatible" machine at the Comdex trade fair, to great acclaim. This presented the fledgling Acer with a new kind of opportunity. Rather than pursuing its own proprietary architecture, as Apple and some other US firms were doing, and as the entire Japanese PC industry was doing, Acer could elect to become a low-cost producer of IBM-compatible machines, on its own account as well as under contract to other branded producers. Shih executed this strategic shift with great alacrity. Technological expertise was leveraged from outside the company, this time from Taiwan professors and from the country’s public R&D laboratories, the Industrial Technology Research Institute (ITRI). Shih’s company, now trading in English as

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By "leverage" is meant the practice of finding ways to access technological knowledge outside the company and internalizing it, to enhance the company's core knowledge and competence. This is the technological strategy that East Asian firms like Acer have been able to master to great effect. See Mathews and Cho (2000) for an extended discussion.
Multitech, produced Taiwan’s first commercial IBM-compatible PC. It has been the leading company in this industry in Taiwan ever since.

Entry into the PC business took the firm into mass production manufacturing for the first time. Over the course of several years Shih and his managers learnt the benefits of scale and speed, as well as the significance of brand and retail marketing channels. As the company’s sales abroad expanded, it was confronted with a potentially ruinous dispute with a U.S. firm that was also trading as Multitech. After much soul-searching, Shih eventually decided to abandon this brandname, and start internationally afresh with a new one.

How Shih and his senior managers went about this task reveals their understanding of the significance of brand as a corporate asset -- even before the company had acquired any significant international exposure. There were two options: fight the case, and try to hang on to the name Multitech, or start again with something new. A quick search of the trademark literature and records revealed that the U.S. firm had indeed registered the name Multitech not only in the U.S.A. but in several European countries as well. A trademark legal dispute could drag on for years, and could ultimately prove to be extremely expensive. It put all Shih’s grand plans for internationalizing – for realizing his Dragon Dream – in jeopardy. So he bit the bullet and went for the alternative option. His company’s new internationalization push would be accompanied by a new name.

The international marketing and advertising agency, Ogilvy & Mather, was commissioned to come up with options. They generated hundreds of four-letter possibilities, evaluating them for readability, memorability, and English-language connotations. After prolonged discussion, within O&M and amongst the Taiwan company’s managers, the name “Acer” was chosen. It is a Latin word, meaning sharp or pointed, giving the brand a vanguard feel to it, an edge. It contains the word “ace” which means the strongest card in the deck. It also began with the letter “a” meaning it would be placed first in most directories, a nice advantage for trade fairs and technical exhibits and telephone listings. (Acer precedes all its major competitors, such as AST, Compaq, Dell, Fujitsu, HP, IBM, Sun, Toshiba.) “Apex” was another strong candidate, but it suffered from the disadvantage that it was already used as a brandname in some countries, creating multiple connotations and further potential legal disputes. The clear advantage of “Acer” was that it was completely new.

These factors were all taken into account in settling on the name. This in itself was an exercise in “geocentric” management, since the Chinese approach to creating English-language brands is utterly pragmatic, without regard to any home-country preferences. Then there was a logo to go with the name. For this, O&M contracted with an Australian design house well known for its company icons. Again numerous options were tried, before Shih and his managers settled on the now-familiar four-letter Acer – with the large initial “A”, followed by “ce” in lower-case and a final “R” in upper case.

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7 Acer encountered many intellectual property hurdles along the way, which are fascinating but not directly related to the firm's internationalization. See Chen (1998) and Shih (1998) for details.
This is highly distinctive (and adopted with an eye to catching counterfeiters who might put the final “r” in lower case) and when combined with the sharp-pointed chevron in blue and red, created a very satisfying and heavily coded image -- as shown in Fig 2. This was Shih’s new coat of arms, announced with much bravado at a press conference in Taipei in September 1987.8

![Acer logo, 1987](image)

Fig. 2 Acer logo, 1987

This brand and logo have been built with single-minded determination ever since. A wholly-owned retail chain of PC stores, named *AcerLand*, was built in Taiwan to accelerate sales as well as promote the brand. By Acer’s tenth anniversary, it was Taiwan’s leading IT firm; Acer was a household brand in Taiwan, and Shih was a local hero, the recipient of numerous national prizes. But internationally, Acer was seen, if it was noticed at all, as just another Taiwanese PC “cloner.” This is what Shih was determined to change.

*Acer’s “Dragon Dream”: Internationalization, stage 1: centralized model*

By 1986, Acer was already an internationalized company, in the sense of earning more than half its revenue outside Taiwan. But this was from export earnings. Stan Shih’s vision was of a totally internationalized company, operating in markets around the world. This he called the “Dragon dream” which carries connotations in Chinese of ambition, vision and nobility. He startled his company, then earning a substantial $400 million in revenues, with an audacious ten-year internationalization plan, in which annual revenues for the group would expand more than tenfold, to reach $5 billion. This plan was actually in two parts. In the first five years, the company would grow at 35% per year, to reach revenues worldwide of $1.6 billion by 1991. It would then consolidate and continue at a moderated 25% annual growth, to reach $5 billion in revenues by 1996. These targets were greeted with derision in Taiwan at the time, both inside the company and outside. Yet as it turned out, Shih was over-optimistic in his first phase predictions (Acer reached just under $1 billion in 1991, a year of losses) but conservative in his second-phase prediction, which saw Acer’s revenues soar to $5.8 billion by 1995.

Shih believed that to succeed internationally it was necessary to abandon many of the features that had proved successful in Acer’s domestic expansion, such as a relaxed approach to managerial initiative, rapid diversification, and multiple systems of partnership, in favor of a tighter and more centralized approach. Acer’s model of internationalization was patterned on what Shih took to be the superior examples

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8 See Chen (1997) pp 177-184 for further details.
available at the time – such as IBM, Hewlett-Packard, or Compaq. The more relaxed style of allocation of responsibilities that had propelled Acer to national dominance in Taiwan in its first ten years, were abandoned in the quest for global scale. A new Chief Executive was appointed, recruited from IBM, who brought with him the ideology, as well as many of the practitioners, of what we might call “serious management.”

This phase had its successes. Acer did indeed become a global PC company to be reckoned with. It did indeed become established in the U.S. market, in both PCs and mini-computers (through two expensive acquisitions, of Counterpoint and Altos). It spread its marketing presence throughout the emerging markets of Southeast Asia and Latin America, as well as securing a foothold in Europe. Its production facilities in Taiwan showed great manufacturing capabilities and flexibility in churning out PCs for a variegated world market. It widened its spread of activities to encompass more components, including motherboards and the key component of memory chips, through the creation of a DRAM-fabricating joint venture with Texas Instruments.

But this global scale was bought at great cost. Acer’s financing was stretched to the limit, and the revenues did not expand as needed to cover the interest charges and repayments. The U.S. acquisitions proved to be mistakes, which drained cash flow for years. The expansion into new lines of business, such as DRAMs, further stretched the company’s fragile financial resources. By 1990 Acer was facing severe difficulties and by 1991 it was in financial crisis.

At this point the Acer story could have come to a premature close. Acer's efforts to become a player in established markets and in many technologically advanced industries simultaneously were over-ambitious. Some other way was needed. The centralized, breakneck speed model had been tried, and had failed. It represented an approach to international management that Shih and his colleagues had seen as being the necessary "medicine" to make Acer into a global competitor. It was "serious management" -- but it had brought the company to its knees. Shih had to find another way, or face extinction – or at the very least, retreat from his global aspirations and resume a career as owner of a domestic Taiwan company that had a substantial export portfolio.

Acer's internationalization phase 2: a new “client-server” model

It was at this point that Stan Shih stepped forward and resumed executive responsibility for the group. He initially offered his resignation as company chairman, to take responsibility for the mistakes, but the Board rejected this. He then stepped back into the chief executive's role, and initiated a fundamental rethink of Acer's internationalization strategy and organizational methods. This led to a series of innovations, such as the reconceptualization of Acer's business units as "clients" and "servers" interacting in a non-hierarchical manner, combined with fundamental reengineering of the company's newly internationalized operations. Sweeping organizational changes that had been planned by the earlier regime but not brought to
fruition were implemented, along with a series of daring and imaginative organizational innovations. Stan Shih “reinvented” Acer, and through tireless argument and persuasion, carried his senior management group with him. What emerged was a global group divided into several business units, with responsibilities allocated either for production of PCs or for specialized components, or for sales in a specific region of the world.

The idea behind this organizational architecture was that it would encourage initiative and responsibility on the part of the business groups themselves. It was initiative and responsibility that had been found wanting in the first, highly centralized phase. The production-oriented business units would supply the marketing-oriented business units, with both being responsible for their own profit and loss statements, and both responsible for growing their business as rapidly as possible. For the production units (SBUs) this meant taking on extra OEM business and selling through multiple channels, while for the marketing business units (RBUs) it meant driving hard to build market share and expand into new markets rapidly, frequently through the use of partnerships and joint ventures with existing and promising distributors.

This was Acer’s new “cellular” organizational template, in which each business cell had substantial autonomy for its own profit and loss accounts, its own investment and marketing, and in which the cells interacted directly (rather than via a central hierarchy) through negotiated contracting relationships. It was this interaction between cells that inspired Shih to dub this a “client-server” organizational model, appealing to the computer argot of the managers of the Acer group. The “client-server” analogy was based on the fact that the SBUs would “serve” the RBUs as clients, while the relations could also be reversed (as in a computer network) when for example RBUs took new product initiatives and enrolled the SBUs as clients – a process tested to its limits by the experience of producing the innovative Aspire PC by the RBU, Acer America.

The cellular organizational architecture achieved by this phase of Acer's restructuring is shown in Figure 3. This depicts the major RBUs like Acer America, Acer Europe or Acer Computer International interacting with external customers as well as with the SBUs supplying them with product, mainly Acer Inc and Acer Peripherals Inc. These SBUs also have their external customers in the form of OEM orders from major PC vendors such as IBM.
The client-server model (or "cellular" architecture) was complemented by major initiatives in the reengineering of logistics, patterned on the “fast food” model where PCs would be assembled close to their final market using the “freshest” components – rather than being shipped as fully built PCs from Taiwan. This fast food model was directly linked to the autonomy of the RBUs, who were responsible for forecasting demand in their own sales territories, and for managing credit and inventory matters there.

A third element was the abandonment of forced entry into new markets via subsidiary formation or acquisition, towards a more graduated but still accelerated form of market entry via partnership with key distributors. This led Shih to characterize Acer as adopting a distinctive “national” identity in each market thus entered. This third element, involving local partnerships, was complemented by a powerful push to create Acer as an international brand and as the unifying factor for the whole group. These complementary strategies, based on Acer’s highly decentralized structure, were captured by Stan Shih in his pithy phrase, “global brand, local touch.” It is the counterpart to the theoretical problem enunciated by management scholars as the “global integration – local responsiveness” dilemma.

The SBUs in this structure were given a global charter to pursue their own expansion -- and they acted on it. The principal SBUs, Acer Inc (AI) and Acer peripherals Inc (API) both internationalized their production and logistics operations. API opened major new production facilities in Malaysia and China, while AI opened a vast new production complex at Subic Bay in The Philippines. Acer's SBUs were fast acquiring the global reach that Stan Shih had envisaged for them.

The new RBU-SBU organizational structure resolved many of the bottlenecks created by the first centralized structure, and liberated new energies in the Acer group, fuelling rapid international expansion and revenue growth. Worldwide sales grew from U.S.$1.9 billion in 1993 to $5.8 billion in 1995, powering Acer into the top seven branded PC companies (and into the Top Five overall) in the world. It looked as though everything was going right for Acer. Shih took his ideas of radical decentralization further through the formulation of the “21 in 21” concept, meaning that Acer group
companies would publicly list, separately and independently, on stock exchanges around the world -- so that the group would come to consist of at least 21 separately owned entities by early in the 21st century. This is quite different to the normal MNE organizational model where headquarters is constantly feuding with national subsidiaries for control. The group would be tied together by common operating systems, interactions, common brand and common goals. His ideas of devolved ownership as a means of resolving the motivation problem for the workforce were also taken further, with the share of employee ownership in Acer operations increasing to over 30 percent overall. Shih boasted that as his own shareholding in Acer declined, he became richer – because the value of the group as a whole was growing so fast.

![Fig. 4. Acer revenues worldwide 1993-1998](image)

But this rapid growth came to a halt in the mid-1990s. Sales worldwide in 1996 were $5.9 billion, barely more than the 1995 total, and edged up to $6.3 billion in 1997 and $6.6 billion in 1998, as shown in Fig. 4. The Acer growth machine had ground to a halt. What was causing the problem?

Many factors could be blamed for this poor performance. There was a general difficulty faced by all leading PC firms in the conditions of hypercompetition that prevailed; few if any were making profits, particularly in the retail sales channels where Acer was focusing its efforts. (U.S. firms like Dell and Compaq were protected from the most vicious price wars in the retail sector by their strong sales to corporate customers.) There was the worldwide downturn in the semiconductor industry, and particularly the

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9 See Birkinshaw (1997) and Birkinshaw and Hood (1998) for many examples of these conventional tussles between MNE headquarters and subsidiaries. Acer’s organizational architecture completely bypasses such problems.
The memory chip sector, which dragged down Acer’s overall performance. The Asian financial crisis could also be implicated, in tightening credit conditions on Acer and depressing demand in its Asian markets. But even with all these excuses, Acer’s organizational model must still carry some of the blame.

The particular “cut” of responsibilities associated with the RBUs and SBUs meant that initiatives taken anywhere in the Acer structure involved extensive negotiations if they were to be realized. RBUs which tried to develop new products, as Acer America did with the Acer Aspire, were frustrated by their having to coordinate so many players, SBUs for design and production and RBUs for marketing around the world. The SBUs in turn were frustrated by the fact that they did not have direct access to customers in the principal markets, but had to rely on the intermediary efforts of the RBUs – which they saw as sometimes being less than satisfactory. The main SBUs like Information Products and Acer Peripherals developed their own “second” brands such as Aopen and Vuego precisely to get around this problem of the intermediation of RBUs.

Furthermore, the successful reengineering of Acer’s worldwide logistics in the form of the fast food model, which had given Acer undoubted competitive advantages when first introduced, was rapidly emulated by its competitors. Pretty soon it became industry practice to emulate Acer in shipping components and modules for assembly close to final market. Acer’s efforts to introduce further efficiencies in its logistics model were likewise frustrated by the multiple organizational boundaries that supply chain management had to deal with. Organizations that were structured much more centrally, like Dell and Compaq, appeared to gain an edge in terms of continuous process reengineering to improve logistics efficiency.

Thus while the RBU-SBU cut had played a stimulating role in opening up new markets and accelerating expansion, it was now widely seen inside Acer as holding up further growth. It was generating unnecessary organizational bottlenecks. Acer had expanded worldwide to the point that it needed to consolidate, and reinforce the coordination and integrating mechanisms that had not kept pace with the autonomy and independence generated within the RBU-SBU structure.

In 1997 Stan Shih initiated a fundamental reappraisal of Acer’s organizational model. A top-level brainstorming session was held in Lungtan, at Acer’s futuristic Aspire Park, in November, attended by over 100 of Acer’s senior managers around the world. (Note the contrast between this open way of dealing with a problem and the usual behind-the-scenes decision-making in the conventional divisionalized corporation.) After much discussion it was concluded that the SBU-RBU version of the client-server model, while giving Acer great flexibility and facilitating rapid expansion, was failing in generating and sustaining a strong identity for the global group. Integration, such as in driving efficient linkages between RBU and SBU development of brand focus, was failing. There was too much energy being consumed in RBU-SBU negotiations, and not enough on promoting the business as a whole or on dealing directly with customers and their needs. In particular, the possibility of negotiating global deals with global customers, which was in the offering when Citicorp approached Acer for a comprehensive PC supply and
servicing contract, was dashed due to the inability of RBUs to coordinate their pricing models and customer service standards. Thus it was the multiplying incompatibilities between RBUs and SBUs that was identified as the key problem, in need of an organizational solution.

**Transitional organizational remedy: a global matrix**

Early in 1998, Shih and his senior managers ushered in a transitional organizational remedy to the perceived problems with the RBU-SBU structure. This involved a reorganization of some of the business “cells” and the introduction of new systems for global coordination. The gaps in coordination and the lack of product focus “end to end” across the entire value chain, was remedied initially by the attempted introduction of a global matrix.

Firstly, new global “lines of business” were created and overlaid across the existing RBU-SBU structure, in an attempt to provide focus for the key worldwide products of the group and reconnect with customer requirements. These “lines of business” were made the responsibility of senior managers, accountable direct to the chairman, and grouped into three “major business groups” that encompassed information products (ie PCs), peripherals and semiconductors, plus a fourth “cross-business” category of all other businesses started at one time or another by Acer but which no longer fell within the three main business areas.

Secondly, the corporate headquarters were beefed up to provide a stronger global focus on such functions as internal information technology infrastructure, global brand management and global logistics. In all these areas the RBU-SBU structure had led to loss of focus and proliferation of incompatibilities. It was time to rein in this profusion and get some global anchorage for Acer’s now far-flung operations. Finally, a new Corporate Executive Committee was established to take charge of this process of consolidating Acer’s corporate functions, and effecting the coordination that had been lacking. The CEC was made up of seven of Acer’s most senior corporate executives. It was to meet more frequently, and carried more authority, than the earlier twice yearly Summits attended by heads of all business units.

Courageous as it was, this structural reform of early 1998 suffered from a lack of commitment on the part of Acer’s senior managers, who saw – quite correctly – that this organizational template would create the familiar problems of cross-responsibilities associated with matrix organizations. Confusion continued to reign; revenues refused to improve; and the SBUs still chafed at their lack of access to their global customers. A more drastic and radical restructuring was clearly called for, driven this time by the CEC itself.

**Acer’s internationalization phase 3: creation of a set of global business units**

To the great credit of Stan Shih and his senior managers, the defects in the transitional matrix structure were quickly identified and action taken to correct them. The
key issue, namely a break with the RBU-SBU structure altogether, was seen by all as the necessary next step. With apparently little discussion, Acer’s senior managers quickly decided on the next global structure. Thus was launched a much more radical organizational reengineering that broke with the RBU-SBU template altogether, replacing it by a cluster of global business units.

A new structure, implemented from the middle of 1998, created a new “cut” of Acer’s expanded global activities. In place of a manufacturing and marketing oriented “cut” there was now a consolidation into four product-focused global business units, covering computer-related activities; peripherals; semiconductors and services, with again all the offline businesses grouped eclectically into a non-core cluster called XBUs. The cellular architecture of Acer’s global operations remained unimpaired, indeed strengthened. The various business cells, which by 1998 numbered over 40, were grouped into four global business units, or “supercells” -- as well as the cross-business unit (XBU) cluster -- thus enhancing and consolidating their common objectives without jettisoning the autonomy and initiative that flowed from the basic cellular architecture.

The American and European RBUs disappeared in this reorganization, to be absorbed by Acer Information Products in a new, global business unit called Acer Information Products Group. It incorporated the IP group within Acer Inc, as well as spin-off businesses such as Acer Netxus, Acer Neweb, and Acer Softech, as well as the former RBUs Acer America and Acer Europe. A second global business unit, Acer Peripherals Group, was formed by Acer Peripherals together with its spin-offs, Acer Display Technology (a very successful new business producing LCD displays for notebook PCs), Darfon Electronics and Acer Media Technology. These two GBUs remained the core of Acer’s current revenue-earning capability.

A third global business unit was made up of the combined RBUs which had acquired separate legal quoted identities, particularly ACI (based in Singapore), ACLA (Latin America), Acer Sertek (Taiwan) and AMS (China) together with spin-off businesses such as AAsoft, AOpen, Servex, Weblink, VisionTech and HiTrust. In typical pragmatic fashion Acer turned these businesses into the core of its new thrust towards starting completely new service businesses, including Internet service providers, on-line gaming services, on-line media content providers (such as games and audiovisual material) and future oriented e-commerce businesses.

A fourth global business unit was made up of Acer’s semiconductor activities, which were consolidated as the Acer Semiconductor Group. This was made up of Acer Semiconductor Manufacturing Inc (ASMI: the former TI-Acer joint venture, now owned entirely by Acer), a semiconductor testing house, ATI, a packaging and assembly house, TSTC, a memory chips module producer, Apacer, and the IC design house, ALI. This group badly needed to acquire some consistency and direction; its flagship, ASMI, was drifting without a clear strategy after the sudden withdrawal of Texas Instruments from the venture (precipitated by TI’s decision to withdraw globally from the DRAM business). As it turned out, this group was to have a short existence, being disbanded in
Finally a fifth unit was made up of assorted business units ("cells") that did not fit into the four GBUs. This structure is shown in Fig. 5.

The key difference introduced by this new organizational structure was that it provided the two core business groups, covering IT products and peripherals, with direct control over the entire value chain of their global businesses, from design, through production, logistics, sales and marketing, to customer support. It was the absence of this kind of “end to end” responsibility which had chafed in the previous structure. To reflect this new customer-centric organizational design, the AIPG was vested with a new Branded Business Unit whose responsibility was to steer the IP group away from OEM and third party business (which had been building up in the mid-1990s) towards supporting the basic Acer brand, with renewed emphasis on customer requirements and customer support. Likewise Acer Peripherals was able to reengineer its operations towards gaining control over the entire value chain, and it created a series of internal product divisions which gave the same “end to end” customer focus.

The losers in this restructuring were the two principal RBU's, Acer America and Acer Europe, which now lost their separate identity. For some senior managers within these regions, this was perceived as a loss of status and as a restriction of career opportunities, so there was some attrition. This is the inescapable price to be paid in any global restructuring: some will be seen to gain and some will be seen to lose. In fact, the

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**Fig 5 Acer global business units 1998**

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AIPG group has enhanced American and European marketing and customer support operations, around the core created by the former RBUs, while Acer Peripherals has created two new marketing and customer support subsidiaries, Acer Peripherals America and Acer Peripherals Europe. In their first year these new entities were able to break even, and were making profits in their second year. This is the proof that Acer can be profitable in these advanced markets provided it gets its marketing channels and customer focus right.

The new Acer structure represented a further evolution of the basic cellular organizational architecture. The new GBUs could best be conceived as new “super-cells” which provided a new level of coordination of the individual business units, or cells, which now numbered more than 50. The new cut represented a necessary consolidation of the global group, which had expanded rapidly during its RBU-SBU phase. Organizational architectures are like “skins” which can be grown, and discarded. Acer had discarded its first global “skin” and quickly discarded its matrix successor, and was now trying on its third. This is a process that can be expected to last for as long as Acer survives and thrives as a successful company.

**Next phases of Acer’s international organization?**

No organizational structure remains relevant indefinitely. The business world in which the firm operates changes – and in the case of the IT industry, where Acer is located, it changes very rapidly. Thus the GBUs designated in the mid-1998 restructuring of Acer will no doubt need to be changed in the early years of the 21st century, and then changed again, and again. Indeed they had already been changed in 1999, so that there were six GBUs, designated as AIPG, API, the two services BUs, as well as a new Acer Digital Services Group (incorporating various internet service company and software initiatives) and new Acer SoftCapital Group, incorporating venture funds such as the Acer Technology Venture Fund, Acer Capital and Hontung Venture Capital. The Acer semiconductor activities were no longer coordinated in their own GBU, but were listed separately as elements of "cross-business" units.10

The year 1999 also saw the two separately listed RBUs – ACI headquartered in Singapore, and ACLA headquartered in Mexico City – reabsorbed into AIPG through privatization, with Acer Inc buying out the existing public shareholders. This was undertaken in recognition that stand-alone RBUs no longer were compatible with the new GBU structure, and their independence frustrated attempts by AIPG to achieve systematic “end to end” efficiencies and customer contact all around the world. The RBU-SBU structure had served its purpose in the early 1990s, but by the late 1990s it was an organizational obstacle to further streamlining of Acer’s worldwide operations.

The 1998/99 emphasis on product lines associated with “computers” and “peripherals” and “semiconductors” and “services” may need to be changed within a few

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10 Acer retreated from management of its memory chip operations in mid-1999, handing over a major ownership share, and full management control, to the Taiwan semiconductor leader, Taiwan Semiconductor Manufacturing Corporation (TSMC). However other parts of its cellular business units retained an active interest in semiconductors, such as Acer Laboratories Inc (ALI).
years to one with a more pronounced product market focus. This might, for example, translate into four or five global groups covering communications products (including cellular phones, data switches and chipsets and associated software); graphics and display products; computing products (with associated semiconductors and software) and internet products and services. This would finally spell the end of “peripherals” as a separate category, as well as semiconductors and services, integrating them all within the same group of related products. It would bring Acer’s focus clearly on related groups of products and their customers – more or less as Sony’s restructuring in 1999 into four worldwide product-related divisions achieved.

These are issues for the future. For our purposes, the point is that Acer’s cellular organizational template makes such adjustments relatively painless, and it encourages continuous processes of adaptation between bouts of major worldwide restructuring. It is this capacity to sustain continuous adjustment without wholesale "restructuring" that is one of the principal advantages, and most interesting features, of the global cellular system perfected by Acer.

By the end of the 1990s, Acer had globalized its production, logistics, marketing and customer support operations. Its activities spanned the globe, concentrated in 17 manufacturing sites operated by all of the major GBUs, including Information Products, Acer Peripherals, and their various spin-offs such as Acer Display Technologies (ADT), Acer Testing (ATI) and Acer NeWeb. These are shown in Fig. 6.

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<tr>
<td>1</td>
<td>IPG</td>
<td>Acer Inc.</td>
<td>Hsinchu, Taiwan</td>
<td>Motherboards, Housings, Mobile Systems, Component Products, Consumer Products</td>
</tr>
<tr>
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<td>Acer Information Products (Philippines), Inc.</td>
<td>Subic Bay, Philippines</td>
<td>Motherboards, Add-on Cards, Housings</td>
</tr>
<tr>
<td>3</td>
<td>API</td>
<td>Acer Peripherals, Inc.</td>
<td>Taoyuan, Taiwan</td>
<td>Monitors, Multimedia TV, CD-ROM drives, Scanners</td>
</tr>
<tr>
<td>4</td>
<td>API</td>
<td>Acer Peripherals (Suzhou) Co., Ltd.</td>
<td>Suzhou, China</td>
<td>Monitors, Keyboards, Scanners</td>
</tr>
<tr>
<td>6</td>
<td>API</td>
<td>Acer Peripherals Mexicana, S.A. de C.V.</td>
<td>Mexicali, Mexico</td>
<td>Monitors</td>
</tr>
<tr>
<td>7</td>
<td>ADT</td>
<td>Acer Display Technologies, Inc.</td>
<td>Hsinchu, Taiwan</td>
<td>Plasma Panel Display, LCD Module</td>
</tr>
<tr>
<td>8</td>
<td>DFE</td>
<td>Darfon Electronics Corp.</td>
<td>Taoyuan, Taiwan</td>
<td>Flyback Transformer</td>
</tr>
<tr>
<td>9</td>
<td>ASMI</td>
<td>Semiconductors Manufacturing, Inc.</td>
<td>Hsinchu, Taiwan</td>
<td>DRAM, Logic IC, Consumer IC</td>
</tr>
<tr>
<td>10</td>
<td>Ambit</td>
<td>Ambit Microsystems Corp.</td>
<td>Hsinchu, Taiwan</td>
<td>Power module, Smart battery gauge/charge, Backlight, Inverter, Modem</td>
</tr>
<tr>
<td>11</td>
<td>ALI</td>
<td>Acer Laboratories</td>
<td>Hsinchu, Taiwan</td>
<td>Core Logic IC, MPEG II</td>
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</tbody>
</table>
Fig. 6. Acer group: worldwide manufacturing sites, 1999

Questions and issues raised by Acer’s story

The Acer story generates a flood of questions. How typical is its experience? How do the cellular interconnections developed within Acer differ from those associated with other kinds of structures? What are the organizational and strategic characteristics that Acer shares with other global latecomers like Ispat, Li & Fung or Daewoo? What are the costs and difficulties associated with the global cellular cluster organizational architecture?

We shall be seeking answers to many of these kinds of questions in subsequent chapters. The 1998 four-part Global Business Unit structure and the 1999 six-part GBU structure provided an opportunity for Acer to resolve many immediate problems, such as generating and maintaining a customer focus for its principal business cells, end to end across the value chain within each GBU. It stimulated corporate renewal through new cell creation; and it helped to sustain corporate coherence through coordination, e.g. via standardization; and it enhanced corporate identity, such as through global brand promotion. Here we consider the issues of customer focus, and spinning off of new business ventures, as well as the evolution of Acer towards the goal of "21 in 21."

Customer focus: end to end across the value chain

The principal goal of the global restructuring was to generate a customer focus for the major business units, giving them “end to end” control over their value chain, from product development, through production, logistics, sales and marketing to customer support.
The former IP group, which became the AIPG Global Business Unit (GBU), saw its fortunes take off as a result of the restructuring. It was able to place a new emphasis on its global branded business as opposed to the OEM work and third party branded work (e.g., under the Aopen brand) which it pursued in the mid-1990s out of frustration with the intermediation of the RBUs between itself and the markets. Its new Branded Business Unit gave it unprecedented capacity to track its sales and customer service performance, and build a worldwide picture of this that was simply not feasible when the marketing was divided into several RBUs. The absorption of Acer America and Acer Europe as marketing arms of AIPG has enabled a fresh approach to be taken to integrated marketing and product development of products such as the Acer Aspire. It was its continuing efforts to sell the Acer Aspire through retail channels in the U.S.A. that led to losses, caused by poor channel selection rather than defects in the product. This was corrected in 1999, when AIPG switched out of the retail channel – where no large PC firm had been making profits – to focus sales instead on the government/education and small business sectors. The same effect can be seen in the Acer Peripherals GBU with its restructuring into global product divisions each with control over their logistics “end to end.”

**Corporate coherence: coordination through standardization**

The counterpart to the restructuring into four GBUs and the autonomy they enjoyed was the important role to be played by the global headquarters in terms of coordination and standardization of Acer operations. Acer acquired a Corporate Executive Committee (CEC) which began to meet monthly, and stamp its authority on processes of standardization. The CEC systematically worked through the development of globally consistent procedures and corporate operations, where it was perceived that lack of consistency was leading to loss of business or loss of focus. This was not consistency for its own sake, as a purely bureaucratic objective. It was a consistency that ensured global focus and compatibility between operations in different BUs.

The November 1997 crisis summit called to discuss Acer’s organizational problems identified these multiplying inconsistencies as one of the principal issues where some kind of global coordination and standardization was essential if the group were to hold together. The four areas singled out for immediate attention were global brand management (discussed separately below); IT infrastructure for the group’s internal operations and customer support; customer service standards (such as warranty provisions); and logistics. Subsequently logistics was taken over by the AIPG as its own area of needed standardization, since logistics issues impinged most directly on its BUs.

**Acer's continuous "budding" of new business ventures**

One of the most striking features of Acer's structure, which grows along with its constituent parts and operating cells, is its propensity to spin off -- or "bud" -- new business ventures as its managers recognize and identify opportunities. Consider the case of the new businesses initiated by one of Acer’s principal business cells, Acer Peripherals Inc. The API business unit has renewed and extended its operations through new business
spin-offs, which now constitute a global cluster in their own right: the Acer Peripherals Group (APG). API raised considerable cash reserves from its IPO in the mid-1990s, and these enabled it to finance the spinning off of new ventures, together with supplementary finance from other members of the Acer group and some strategic outside investors. (Acer’s venture capital fund, Acer Capital, has been an important contributor to each of these new ventures.) API has created a group of firms with complementary but distinctive activities. Its strategy in doing so provides a fascinating counterpoint to the wider Acer group's strategy of creating new businesses.

**Darfon Electronics**

The first spin-off was a company called *Darfon Electronics* (named in this way to make it quite distinct from Acer). The core business around which this venture was formed was flyback transformers (FBT), a key component in monitors. But the head of API, K.Y. Lee (one of the original collaborators with Stan Shih at the beginning) held back from initiating the venture with this as its sole business, and built up its core competences through technology transfer from the parent API, until it could be launched with four product lines: flyback transformers; other specialized transformers such as SMD transformers for LCDs; spindle motors; and multi-layer chip capacitors and inductors. It is still a small company, with revenues in 1999 of around US$50 million, growing to US$80 million in the year 2000.

The interesting point about this new venture launch is that it was established with full regard to its sustainability. The parent company API has transferred all its initial technology; it has transferred almost 100 skilled staff across; it provided 100% of the initial finance (although the company is now owned 35% by its employees). In 1999 Darfon was doing around 60% of its business with API (supplying transformers etc) and a further 10% with other Acer companies and around 30% with external companies, some of which are Acer competitors. API chief K.Y. Lee expected Darfon to do less than 50% of its business with API by the year 2000. This is further evidence of its being launched as a sustainable, stand-alone business.

The interest in this lies in the fact that the APG is replicating the new venture spin-off practices engaged in by the Acer group as a whole, but with even greater attention to the details of sustainability and self-sufficiency. Thus the APG, like the AIPG, can be viewed as a global group following a similar trajectory to that of the Acer group as a whole, but with some highly significant differences.

New business creation provides the opportunity to focus on a new and promising line of business, undistracted by the wider concerns of the parent organization. This is its clear and tangible goal. But it also provides the intangible benefit of creating new avenues of advancement for management staff who might be held back by the Chinese norms of seniority, which make it difficult for younger, more talented managers to be given responsibilities over their seniors. But if they are transferred into a new business, then they can hire their own management staff and can be given every incentive to prove their excellence. This has been a powerful factor in the successful expansion and development of the Acer Peripherals group and of Acer as a whole.
Acer Display Technologies

The second new venture was Acer Display Technologies (ADT). There is a long history to API's efforts to become self-sufficient in monitors and displays. As early as 1994 an attempt was made to launch a monitor-producing subsidiary, but these efforts were aborted. Further efforts led in 1996 to the launch of ADT as a small venture to get a foothold in flat panel display technology. It started as a pilot operation producing plasma display panels (suitable for wall TVs) using technology and skilled staff transferred across from ERSO, the LCD-specialist laboratory at ERSO. The financing was initially 100% from API until the ITRI investment arm, ITIC, put up a 10% equity contribution to help the venture get started. Then in 1997 ADT, along with other Taiwanese firms, engaged in serious discussions with Japanese firms to transfer the key TFT LCD technology needed to produce flat panel screens for Notebook PCs. By March 1998, ADT had reached agreement with IBM (Japan) for the transfer of the required technology.

Moving into production of TFT LCDs necessitated a huge level of investment, comparable to the levels needed to build semiconductor wafer fabs. Capital for the new venture was raised from Acer affiliates as well as from Taiwan sources. Employees themselves account for around 15% of investment, and there are some outside investors -- a Japanese fund and a US firm, Capital Investment. The venture raised a credit facility on top of this. The first LCD plant was being built by ADT in early 1999. It was thought unlikely to need the full amount of the funds raised. This is again an illustration of the cautious approach followed by Acer in its financial dealings, even at these very high levels of investment -- an approach which makes it improbable that Acer could fall into the same indebtedness trap that snared Korean firms.

Again API transferred skilled staff across to ADT as well as its initial investment capital and technology. The CEO is H.B. Chen, who made his name within API as head of the Malaysian production facility at Penang. The business model that drives ADT in its early years is to develop as a supplier to two customers only -- API and IBM initially. External customers are likely to follow. Thus again it is evident that ADT has been established with careful attention being paid to ensure its sustainability. Given current projections for demand for flat panel displays worldwide, ADT could well become one of the largest operations within the Acer group in the next few years.

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11 The plasma display panels are not being produced in commercial quantities as yet, waiting for the technology and market to mature.
12 Capital of US$380 was raised from API itself (48%) and from Acer Inc (8%), together with 8% from Taiwan investment agencies such as the China development Corporation (which also invested earlier in the TI-Acer DRAM joint venture).
13 This credit facility amounted to US$220, from a syndicate of 20 banks, giving total up-front investment (debt plus equity) of US$600 million. This was beyond the level of "start-up" finance, and indicated how far and how fast API's involvement in display technology had moved.
14 The author visited this facility in 1995.
**Acer Media Technologies**

A third spinoff has been *Acer Media Technologies Inc* (AMTI). At the time of writing this was still a very small venture, but again with big potential. It aims to take APG into the expanding area of optoelectronic storage media such as rewritable compact discs and digital video discs (DVDs) – based on API's growing sophistication and capabilities in production of CD-ROMs. AMTI was formed only in the latter half of 1998, with initial capital of US$8 million provided by API itself (50%), outside investors (10%) and again employees taking up 40% of the equity. The small staff of around 20 engineers are highly skilled: no fewer than six have PhDs! They were transferred across from API before the company was formally launched, for 12 months of intensive training in the new optoelectronic technologies.

Comparable new businesses have been launched in other parts of Acer's global cluster. Acer Information Products group, itself a global corporation, has also been active in launching new spin-offs. These include: *Acer Neweb* - a consumer communications company created by IPB; *Nexcell* - an investment by IPB in a new business of potentially great interest to Acer (long-life batteries for portable PCs); and *Acer Netxus*.

Complementing the creation of new business ventures as a continuous feature of Acer's organizational model is its dispersed ownership and public listing of major business cells on stock exchanges around the world. Stan Shih announced his "21 in 21" goal with much fanfare in 1994. This was greeted by the press at the time as a radical and extremely interesting organizational model. How well has the model fared since then, and what are the intentions as Acer enters the 21st century?

**Is 21 in 21 still the goal? Acer as a global cluster**

By the end of 1999, Acer had eight of its business units listed on local stock exchanges. The first of the new listings was ACI, in Singapore, in September 1995. Since then, ACLA has listed in Mexico; and API and Acer Sertek have listed in Taiwan. In 1998, Ambit Microelectronics went public – Acer’s 6th IPO. In 1999, it was expected that ALI would go public, and Acer TWP (Third Wave Publishing) – the 7th and 8th IPOs. Both have the potential to become global corporations and contribute actively to the Acer group worldwide. Counting Acer Inc, which listed in Taiwan in 1988, this made eight listed companies by the end of 1999. The process of listing is proceeding. Future potential listings include AOpen; AcerNet, and many of the new internet and software services firms.

It has to be admitted that Stan Shih’s target of 21 listings by early in the 21st century is going to be difficult to meet. Public listing has turned out to be far more arduous an exercise than even Stan Shih could have anticipated. The reason is not just the complexity and demanding nature of the information to be made available to Stock Exchange authorities prior to listing -- which has certainly been a factor. The real issue is organizational. Acer’s cellular structure, which gives it advantages and benefits in so many ways, tells against it in the process of public listing. How is this so?
The essential assumption in a public listing is that the company seeking public quotation is in control of its own destiny. In order to protect potential shareholders, the applicant company has to show, in great detail, that it operates in an independent and autonomous fashion, without danger of some external party intervening to siphon off capital raised by the public listing. Thus, listing requirements are very strict on this point, pertaining to corporate control, and are very suspicious of any hint of external linkages. Thus the Acer cellular structure, with its complex interlocking equity holdings and operational linkages, arouses a great deal of suspicion. Cellular structures and public listings on several Exchanges just do not go well together.\(^{15}\)

In making the “21 in 21” announcement, Stan Shih assumed that companies with local majority shareholdings would have no difficulty in listing on local exchanges. This has proven to be wide of the mark. The initial listing of ACI revealed how demanding and scrupulous the Stock Exchange authorities would be. In the end, ACI listed in Singapore with 64 percent of equity in the hands of Acer Inc; 15 percent held by employees; and 22 percent in the hands of Singapore investors. It was the presence of Singapore-based investors that eventually swung the decision to list in Acer’s favor. ACLA likewise had to include local investors in its Initial Public Offering (IPO) in Mexico City -- but this experience was easier, because it was a joint venture with a genuine local partner taking 51 percent of the equity.

The project to list Acer America on the New York Stock Exchange, proved to be most problematic of all. The NYSE is in a real sense the financial capital of the world, and so it is unthinkable for a subsidiary to be listed in the absence of its parent company. Thus to list Acer America on its own was not an option. The lack of profitability of Acer America precluded listing in any case. This problem has now been overtaken by the absorption of Acer America into the new AIPG created in 1998. But Acer as a whole at the end of the 1990s still lacked a public listing on a major stock exchange such as London, New York or Frankfurt -- a blow for the global aspirations of the group.

The difficulties encountered by the cellular organizational form in seeking public listing, are not confined to the requirements of Stock Exchange authorities. Institutional investors, likewise, face difficulties when confronted by cellular corporate entities. Take the case of a pension fund based in the USA which would like to invest in “Acer” as a growing PC force. Where does it place its investment? In Acer Inc, which is currently listed only on the Taiwan Stock Exchange. In ACI, which is listed in Singapore, or ACLA, with its joint listing in Mexico City and Miami? Should it spread its investment across several of Acer’s cellular entities -- and if so, in what proportions? These are genuine issues which the cellular organizational form raises, and needs to resolve.

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\(^{15}\) Divisionalized firms faced this dilemma and solved it by incorporating as a single “holding company”; Stock Exchange requirements were doubtless an important factor in the evolution of this organizational form. This is a case of institutional shaping of an economic outcome.
The “21 in 21” vision is intact. What has changed is that purely regionally based companies, like ACLA or ACI will no longer be formed. All Acer group companies that list should have global expansion potential. This clarifies the nature of the “global cluster” aspect of the Acer group. It is a corporation with global reach, constituted by independent companies which all, at least potentially, have global reach themselves.

Financial transparency associated with dispersed ownership

Dispersed ownership of Acer not only underwrites its cellular character, but also plays an important role in enforcing operational transparency on the group. It has the interesting effect that it eliminates any tendency towards “transfer pricing” or tax evasion or any other of the unsavory deals in which traditional multinational enterprises have engaged in the past.16

Reference was made above to the financial sources of API’s spin-offs. Acer is quite transparent about this matter – another feature which differentiates it strongly from divisionalized firms where all capital budgets are approved by central headquarters and finance raised by the same headquarters. Acer on the contrary backs each new business cell with independent sources of finance, frequently raised from outside the group. This is seen not only as a smart way of raising finance, and keeping a cap on the financial exposure of the group itself, but also a way of involving external investors as quasi “auditors” of Acer’s operations.

One of the features of the independence of Acer group members is that they are expected to raise capital for themselves, frequently through bringing in outside investors. This is not viewed within Acer as a dilution of control. One of the regular practices is for an Acer affiliate to start a new venture with financial backing from the parent as well as other Acer group companies, plus one or two outside investors. This is how Acer Display Technologies (ADT) was started by API, for example. The China marketing company, AMS, was also established as a new venture with investments from Acer Sertek, ACI and Acer Inc.

The effect of this is that each Acer company needs to keep its own books – P&L accounts, balance sheet -- and pay its investors a fair return on their shareholding. Thus Acer is not only an unusual multinational enterprise (MNE) in its global organizational structure, but also in its financial transparency. It cannot afford to manipulate transfer prices to minimize tax liability, for example, because this would upset its financial responsibilities within each operating entity. The goal of public listing also constitutes in itself a financial discipline which would eliminate any possibility of manipulation of revenues, costs or prices. This is a very important aspect of Acer’s global structure which has been part of Stan Shih’s vision all along.

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16 One of Stan Shih’s overriding objectives has always been to keep debt levels for the Acer group as low as possible, consistent with desired global expansion. It is of interest that Acer in its first years in Taiwan got by without any bank loans at all, because of its ability to raise capital from its own employees who became shareholders.
As financial controller for the group as a whole, it is George Huang’s responsibility to track the financial operations of the various constituent entities. His job is quite different from the kind of financial oversight effected by a corporate HQ in a divisionalized firm. There the HQ monitors financial aggregates with a view to enforcing certain performance norms. In Acer’s case, by contrast, the relative autonomy of the different groups means that they monitor their own performance and maximize it to the extent of their own abilities. The financial oversight is to ensure that certain norms such as debt-equity ratios are not being exceeded, and that fair returns on shareholdings are being paid. In each case, Acer is not imposing rigid rules, but ensuring that performance falls within the ballpark for that segment of the industry.

In operational terms, the most important aggregates tracked by the corporate HQ in Taipei are lines of credit being extended, and inventory levels – since in the PC industry, these are the critical variables which can mean the difference between profit and loss. These are operational variables, where the corporate HQ is interested in ensuring that they fall within reasonable guidelines which are known to all. Again this is a very different kind of exercise from the familiar “managing by the numbers” that one encounters in the typical divisionalized firm.

Acer then maintains “control” over its dispersed operations without resorting to the usual administrative means for doing so, namely centralized authority and divisional subservience. This has the interesting implication that many of the “global” competitive strategies discussed in the management literature, which call for subsidiaries to make sacrifices on behalf of the organization as a whole (for example underselling a global competitor in one market in order to dissuade it from entering another market), thus appear to be beyond the reach of Acer, with its global financial accountability and transparency. Whether this is indeed the case (or whether, alternatively, many of these strategies are in practice less important than they are claimed to be) is a matter to which we shall be paying great attention in subsequent chapters.

**Management preconditions for success of the Acer model**

The management of Acer's new ventures, and of the internationalization process itself, calls for quite different management and organizational skills than those found in conventional MNEs. There needs to be a tolerance for ambiguity; a capacity to work with guidelines that leave a margin for initiative and for on-the-spot correction; and above all a capacity to understand what motivates the actions of other managers in the Acer group companies, so that initiatives will not be cut off prematurely and new businesses, such as those budded off by AI and API, will be allowed to flourish. We consider many of these issues in the chapters that follow, and particularly in Chapter 7 on the workings of the cellularity principle. Here it is convenient to point to the kinds of issues that other scholars have raised as they start to interest themselves in Acer's organizational innovations.
Management scholars around the world are now interested in Acer’s organizational innovations. Questions are raised as to the efficacy of the innovations, and the management capabilities and assumptions that must underpin them. For example, Acer’s successes raise questions of the form:

- What management practices and organization processes are required to integrate and control emerging networks of loosely-linked cross border organizations?
- How can counter-cultural management norms and practices be effectively transplanted? How are “fusion models” affecting the quality of management?
- What management tools and change processes are most effective in executing radical transformation of embedded business models and organizational capabilities? How fast can such processes occur in large, cross-border organizations?

The term “counter-cultural” management norms refers to the transfer of Acer’s organizational innovations, such as the client-server organizational architecture, and the RBU-SBU structures, into Acer’s North American operations. By “fusion model” is meant the capacity of the latecomer, like Acer, to take all previous organizational models and “fuse” them or blend them into a more efficient form, without the institutional baggage that incumbent multinational enterprises carry with them. The issue is: how well does such a “fusion model” travel? And if it is based on cultural assumptions that work in an emerging market, like Taiwan, will it also work in the situation of an established market, like the U.S.A.?

The first question refers to the need for effective coordination mechanisms to be put in place when traditional hierarchical and divisionalized means of control are dispensed with. It implies that Acer paid insufficient attention to this issue, and the criticism is answered in the way that Acer is applying much tighter global standards and procedures under its new GBU structure. Of course it remains to be seen how effective these new standardization and coordination initiatives will turn out to be.

The second question refers to the kinds of management norms that are needed to drive new organizational models like that employed by Acer. One way of answering this is to

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17 The strategic and organizational innovations developed by Acer are of such interest that they have attracted the attention of business schools around the world. Cases on Acer have been prepared at INSEAD, at the Ivey School of Business in Canada, and at Harvard Business School in the U.S.A. See Prescott C. Ensign, “Acer in Canada,” Teaching Note 8-97-MO4, Richard Ivey School of Business, University of Western Ontario, 1997; Christopher Bartlett and Anthony St. George, “Acer, Inc.: Taiwan’s rampaging dragon,” Case N9-399-010, Harvard Business School; December 30 1998; and ibid, “Acer America: Development of the Aspire,” Case N9-399-011, Harvard Business School, December 30 1998.

18 Bartlett presented the new Acer cases at a Research meeting staged by the Harvard Business School in Hong Kong, early in January 1999, with comments offered by Acer chairman and founder, Stan Shih. On this occasion Bartlett posed these three questions to the Acer organizational experience.

19 The picture is complicated by Acer's having evolved through several organizational forms, including a highly centralized model prior to its adoption of the RBU-SBU client-server structures of the first half of the 1990s, and then a newly structured global business unit model in the later 1990s. Which of these is to be the subject of "fusion"? As Acer evolves, so it accumulates its own institutional and organizational baggage, and so sheds its early character as a "latecomer." This is why rapidity of internationalization is so important for a firm like Acer.
look to the norms dubbed “stretch, trust, discipline and support” by Bartlett and Ghoshal. They are certainly called for in managing the global cellular organization of the kind developed by Acer. But there is something else, beyond this, which is perhaps captured in the notion of “fuzziness.” Managers in Acer’s structures need to be comfortable with a degree of ambiguity and fuzziness in the way in which their roles are specified and their performance measured. This certainly sets limits to its spread, in a way which is worth elaborating.

The third question refers to the transfer abroad of new management practices, and the influence on this of organizational processes. It implies that Acer’s approach is likely to face difficulties in propagation. But a strong case can be made that conventional models face even greater difficulties. The clearest comparison is between Acer as a somewhat “messy” structure, growing organically in partnership with different firms, and thus acquiring some of their characteristics in the process, and Dell Computer, which is a clearcut American operation, highly controlled and divisionalized, now propagating itself around the world in the image of its American parent operation. Dell’s success is based on its efficiency in supplying PCs quickly to its US customers, through direct sales. Insofar as this model can be replicated in other countries, Dell’s strategy of cloning itself through wholly owned national subsidiaries appears to be working. But there is little adaptive capability within the Dell model. It does not seem well suited for China, and even less so for India. The Acer approach, by contrast, is to adapt to the national conditions in these countries through partnership, while retaining a strong grip on its production and logistics operations worldwide. Acer's organizational approach emphasizes this balance between local adaptation and partnership with global coordination; it is potentially a more robust or resilient model of internationalization. But of course its success is bound up with a host of other business and strategic decisions.

**Fuzziness of the cellular model: Conditions governing its success**

Compared with the clarity and unambiguous tracing of lines of authority and accountability in the divisionalized model, the Acer cellular organizational model appears “fuzzy.” The responsibilities of business cells are not clearly defined, nor are territorial jurisdictions clearly demarcated. Some BUs have overlapping product portfolios. This is all part and parcel of an organizational model which emphasizes autonomy and initiative, and fast decision making by managers who have a stake in reaching commercial accommodation with each other.

The fuzziness of the cellular model means that it can be operated only by people who are motivated to take the responsibilities and initiatives envisaged. If they are simply waiting for orders, then the clear lines of accountability of the divisionalized model are better suited to their disposition. But if they wish to expand markets or product lines, then a fuzzy structure which maximizes their autonomy -- within broad operating guidelines and limits -- is just what they need.

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20 See for example the discussion of management context in Ghoshal and Bartlett (1997): 153.
21 See the description by Michael Dell himself in Dell and Fredman (1999).
The fuzziness of Acer’s cellular model is also ideally adapted to the demands of the fast-moving IT industry. The trends towards fragmentation of products, and the specialization of leading merchant suppliers such as Intel and Microsoft in components, rather than systems, means that an organizational model which can mirror or complement this fragmentation must have an advantage. This certainly seems to be the case with Acer -- and it is the reason why leading IT firms such as Hewlett-Packard are devolving responsibilities into “cell-like” business units in place of conventional divisions.

The fuzziness of the Acer model means that managers who operate within it have to be “comfortable with ambiguity.” This is not an easily learned trait -- especially for managers reared in the divisional school of responsibility and accountability. Yet senior managers within Acer seem to thrive on the discretion and autonomy that fuzziness provides.

The “messy” weblike character of Acer’s expansion

Acer’s pattern of growth is strikingly life-like, or “weblike”, in its patterns of parallel and redundant activities, all of which taken together lend resilience and robustness to the total business. Whereas in a divisionalized firm, any hint of duplication is ruthlessly eliminated in the name of “efficiency”, in Acer it is tolerated in the name of devolution. All that is imposed -- but imposed strongly -- is a set of guidelines, setting the limits to parallel or duplicative efforts, and since 1998, a set of global standards concerning such matters as IT infrastructure, customer service, brand focus and logistics. Within these guidelines, Acer managers and their business cells can tolerate ambiguity and “fuzziness.” As noted above, this organizational model can only work where managers have a high degree of commitment and confidence that their initiatives, if successful, will be rewarded, while their failures (within reason) will be tolerated. As the scale and pace of change within the entity called “Acer” increases, no other organizational model seems to come close in terms of adaptability and effectiveness.

Will Acer remain unified as a group in the future? Will the group enter the corporate “Hall of Fame” as an integrated entity, which holds together despite its fissionary tendencies? This is something that cannot be predicted. But whatever happens to the group as a whole, Stan Shih has created a fascinating collection of companies, knitted together in fascinating and novel bonds of common interest and commercial transactions. This does seem to be a potent model of organization for the 21st century.

Concluding remarks

Acer has arrived as a global corporation, or rather as a cluster of global businesses, focused on IT, PCs, PC components, IT services and the Internet. This achievement was not won easily. Noone asked Acer to become a global player and join the world PC industry. It was not invited to the party. It had to muscle its way in, using an extraordinary variety of strategic and organizational innovations to do so. Nor was the achievement accomplished overnight. It took Acer several shots at the US market (like many internationalizing firms before it) and it took several global organizational models
before Acer could congratulate itself on its arrival. Nothing is predetermined in this most open-ended of processes as internationalization.

References


Appendix: Acer group companies 2001

Holding & Investment Businesses

Acer Group

Acer is committed to innovation, and to building a customer-centric organization. The recent reorganization is a gradual evolution of Acer's adaptability to the changing markets and adopts a simplified, focused and forward looking approach.

Major Member Companies:
- Design, Manufacturing & Service (DMS)
- Acer Brand Operation (ABO)
- Acer Communications & Multimedia (ACM)
- Components Business
- Channels Business
- e-Solution Business
- Venture Capital

Design, Manufacturing and Services

DMS will focus on manufacturing services with additional expertise in design and R&D that can help in diversifying its customer base. Acer Inc.’s DMS business differs from Electronic Manufacturing Services (EMS) because DMS has strong capabilities in design and R&D, which meet the requirements of many OEM customers. Eventually, DMS plans to expand its manufacturing capabilities beyond PCs to Internet appliances, servers, storage systems, as well as communication and networking products. DMS seeks to generate higher profitability and become a global leader for contractual manufacturing of the information technology and communication industries.

Major Member Companies:
- Acer Netxus, Inc.:
  design and manufacture of LAN/WAN products including NIC cards, hubs, switches, routers, ISDN and modems
- Acer NeWeb Corp:
  design and manufacture of wireless communication equipment

Software Business:
  design and sales of software products

Acer Brand Operation

Stan Shih, CEO

Simon Lin, CEO
ABO will ensure the global competitiveness of Acer branded businesses and will be able to utilize the best resources from both inside and outside Acer Group. ABO will focus on businesses that provide higher profitability while reinforcing its capability of e-services by expanding the strong foundations built by Acer Digital Services Corp. and Acer Sertek Inc.

Asia will be ABO's primary market but we will still focus on more profitable markets and products in both U.S. and Europe. With a clear business scope, ABO aims to become a top three player for branded PCs in Greater China in 2001 and hopes to break even in the U.S. and European markets in 2002.

ABO's long-term business strategy is to concentrate on the development of e-services and e-solutions. We have selected Greater China as our primary market to expand our business and this will be followed by expansion to other countries within Asia. Eventually, we want to become the e-channel leader in those selected markets.

Acer brand regional businesses:

- North America
- Latin America
- Europe
- India/Middle East/Africa
- Greater China
- ASEAN
- North East Asia
- Australia/New Zealand

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**Acer Communications & Multimedia**

Design, manufacture, and sales of mobile phones, scanners, LCD projectors, photo printers, CRT and LCD monitors, CD-ROM and CD-RW drives

**Major Member Companies:**

- **Acer Display Technology Inc.**
  - design, manufacture, and sales of plasma display panels and TFT LCD panels

- **Acer Media Technology, Inc.**
  - design, manufacture, and sales of rewritable media for optical storage

- **ADarfon Electronics Corp.**
  - design and manufacture of flyback transformers, ceramic capacitors, spindle motors, and keyboards

- **Darly Venture, Inc.**
  - investment arm of ACM. Evaluates and plans advanced technology investments in communications, the Internet and information products

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**Components Business**

**Major Member Companies:**

- **Ambit Microsystems Corp.**
  - designs, manufactures, and markets compact power and communications modules
- AOpen Inc.:
  design and manufacture and sales of computer components including motherboards, housings, optical devices and multimedia products

- Apacer Technology Inc.:
  designs, manufactures, and markets memory modules

- Acer Laboratories Inc.:
  designs and markets core logic chips, multimedia chips, and I/O controllers

- Taiwan Semiconductor Technology Corp. (TSTC):
  specializes in IC packaging services

- Pivotal Communications Inc.:
  experts in routers with built-in voice software and computer voice unified technologies

- Acer Testing Inc.:
  specializes in value-added IC testing services

- Formosoft:
  provides e-solutions for broadband and multimedia technologies

- Animeta Systems, Inc.:
  professional IP provider for embedded Linux Internet Appliance solutions; AniMeta developed GTK/embedded window system and SPARROW microbrowser, as the perfect fundamental building blocks for IA. Based on its core technology, AniMeta also provides OEM manufacturers & developers with ready-to-use IA solutions and certain customization services.

### Channels Business

#### Major Member Companies:

- **Acer Sertek**
  assembly, marketing, and sales of Acer brand products in Taiwan

- **Weblink**
  specializes in channel management for computer peripherals and software products.

- **Acer TWP Publishing**
  publishes and distributes books, magazines, software and CD articles

- **Servex**
  a reputable network of distributors and channel developers focusing on robust information technology products. The Servex Group has the know-how, the product line and the infrastructure to be your one-stop IT solution provider & channel partner.

- **Onking**
  provides digital services to consumers, sells digital appliances

- **PDA Hub**
  integrator for Internet marketing, through Internet website and retail outlets

### e-Solutions Business
Major Member Companies:

- Hitrust:
  specializes in Internet certification and authentication, plus payment gateway services.

- Acer Cyber Center Services
  provides Internet Data Center (IDC) services

- Acer Internet Services
  operates Acer's technology entertainment services website and Internet shopping mall

- EB easy
  B2B e-commerce services company providing buyer-seller matching services

- Pagic.net
  offers ISP services to corporate individual customers plus telecom services

- Acer msoft
  develops WAP software

- Acer e-Card
  promotes e-wallet; joint venture with Mondex

- VersionTech
  joint venture between Acer and Computer Associates (CA) for the distribution of TNG Unicenter in Asia Pacific

- CAA Online
  joint venture between Acer and Computer Associates for the deployment of ACCPAC in Asia Pacific

- Gurufarm.com Corp:
  a software company exploiting the Internet and creating opportunities for mutual interaction with the Internet community

- Acer iPull
  simple and Smart. iPull aims to approach the many problems facing internet business by providing the simplest, lowest cost, lowest maintenance solutions.

Venture Capital

Major Member Companies:

- Acer Technology Ventures - North America
  Acer Technology Ventures (ATV), a venture capital business unit of Acer Group, is responsible for making all high-tech venture investment decisions. We focus on early stage innovative software or hardware based intellectual property, and technology that enables new applications via the Internet platform.
  ATV's most recent fund, the IP Fund One, is a $260 million limited partnership fund. The fund is invested by Acer affiliated companies, Acer Group and ATV management team as well as external limited partners, such as China Development Industrial Bank, ABN AMRO Capital Investment Asia Ltd., Chase Capital Partners, Nomura/Jafco Investment, DBS Nominees Pte., Ltd., GIC Special Investments Pte., Ltd.

- Acer Technology Ventures - Asia Pacific
  ATV believes in entrepreneur partnerships and provides long term capital and management support to early stage and emerging growth companies-bridging technology and market, incubating ideas to public offerings and beyond. ATV's investments focus in semiconductors, communications, software innovations, hardware intellectual property and technologies based on the Internet platform.
Acer Capital Corp.
provides investment management services

Acer Property Development:
develops and operates the Aspire Park, the multi-functional park and employee housing project that integrates the functions and facilities of work, leisure and education

Acer Foundation
assists the industry in building core competencies to ensure success in today's competitive world markets.