7 Implementing information technology across the globe

> Technology companies and global investors are beating a path to Israel and finding unique combinations of audacity, creativity and drive everywhere they look.[1]

If you mention a successful startup called Ness Technologies, there is a good chance that a US listener will assume it is one of those high-technology Silicon Valley companies. That listener would be mistaken. Ness Technologies is a multinational information technology (IT) services corporation, created in Israel in 1999. It is also the first company in this book that does not have its headquarters in the US.

This chapter will examine how the Israeli entrepreneurs who founded Ness dealt with the challenges of a global marketplace. Within five years of its founding, this Israeli startup became a leading company in its field with operations in Asia, Europe, and the Americas. Its rapid rise to prominence has fully justified its name, which means "miracle" in Hebrew. It did so by melding subsidiaries in countries with cultures as diverse as Bulgaria and Thailand into a global corporate culture, with a common set of goals and expectations that was held across national boundaries.

DEMAND FOR IT SERVICES RESHAPES THE WORLD

Ness Technologies is a provider of IT services to other companies. As such it didn't "invent" any basic technology. Like Ronald Stanton's Transammonia, its innovations took the form of a new

[1] D. Senor and S. Singer, *Start-up nation: The story of Israel's economic miracle* (New York: Twelve, Hachette Book Group, 2009), p. 11. This book contains a wealth of information about the Israeli environment for new business building.

business model and new approaches to international service. Unlike Transammonia, however, Ness operated in an industry characterized by the most rapidly advancing technology in history. Even those who lived through the rise of the computer can hardly believe how quickly and profoundly digital data processing has changed the way the world does business.

In just twenty years, between 1980 and 2000, corporations replaced the river of paper that had carried business forward for centuries with a stream of digital information flowing through wires. Computers and associated software flooded into offices to handle all aspects of business, including payrolls, supply management, customer billing, and everything in between. This transformation, from a paper-trail business model to a digitally wired one, required enormous investments in successive generations of hardware. Processors evolved from big, centrally located machines, accessed with "dumb" terminals, to networked business computers. When low-cost PCs became available most employees got their own.

As computers proliferated in every aspect of business, enterprises faced an urgent need to implement and manage their software and communications infrastructure. To satisfy this need companies began hiring IT specialists to configure and operate their systems. They soon faced a classic supply-and-demand problem. Because of the rapid growth in demand, skilled IT engineers were suddenly in short supply. Predictably, a proliferation of enterprising startups quickly emerged, offering contracted IT services to help companies meet the needs of their computer users.

Corporate IT infrastructures continued to grow in complexity as the technology advanced. Companies found they needed specialists to write software, install security systems to control access to data, and install and configure data networks, to name just a few areas of expertise. The arrival of the Internet in the mid-1990s greatly increased the demand for highly skilled IT specialists.

IBM was certainly the giant in the IT services industry throughout this period, but it was not alone. Many other companies,

both large and small, provided expertise to enterprises that lacked the internal skills to design, build, or maintain their IT infrastructure. Yet demand for IT specialists kept rising – as did the amount of concern about their cost.

Companies went looking for other sources of supply. They came to the realization that it was possible to have enterprise software developed and configured at lower cost by skilled engineers in countries with lower wages, such as India. Thus was born the offshore IT service model, with India at its center. Of course, the outsourcing of jobs from countries like the US and Britain to what used to be thought of as "third-world" countries attracted a lot of negative attention. But India's ascendancy as a nexus of outsourced IT services revealed a striking new truth about the developing world: countries that were once considered economic and technological backwaters were rapidly catching up to Europe and the US, especially where IT was concerned. They too had IT infrastructure problems that needed solutions – and they had skilled engineers who could provide those solutions. In fact, in every part of the world where demand existed, an army of startups was emerging to provide IT services. Most of them were satisfied to remain small regional companies focused on industry sectors important in their geographies.

Some Indian startups, however, built technical teams in India and sales organizations in the US and Europe to solicit business. A few startups there and elsewhere ultimately emerged as large multinational companies. Ness Technologies was one of these.

Israel: Technology company incubator

Ness, of course, was different. It was an Israeli company, which prompts the question, why start such an ambitious venture in Israel? Israel is a small country with a population to match: only 7.5 million people in 2011. That is quite a contrast to India, which has a population of 1.2 billion. And it is a relatively new player in technology. Not so long ago oranges and flowers were key Israeli exports, not software or medical products. Today the country can boast a remarkable

record of technical innovation and entrepreneurship. It was ranked fourteenth out of 125 countries in the 2011 Global Innovation Index, published by INSEAD.[2] Its economic clout extends far beyond what its small size would predict. In 2009 Israel exported goods and services valued at 35 percent of GDP, ranking it above Germany (34 percent), China (24 percent), and India (13 percent).

Israel developed as a technology powerhouse largely due to the need to ensure its national survival. It took a sudden French boycott of defense sales during the 1967 war, after years of close collaboration with French industry, to wake the country up to its vulnerability. Because of the boycott, the government decided that it could no longer rely on the importation of strategic defense products. It launched a massive program to foster internal industrial development and build a technology-based economy.

Trained engineers and scientists are the basis for any technology sector, and Israel was fortunate in having the resources to develop engineering talent.

- There are several outstanding universities, plus many private colleges.
- The country has benefited from the immigration of many engineers and scientists, particularly from the former Soviet Union.
- Young engineers can gain practical experience in technical organizations run by the Israel Defense Forces, which employ young people during their mandatory military service.

It is worth expanding on this last point. Israel Defense Forces draftees take rigorous tests for the opportunity to work on defense-related product development. When those who are selected leave the service they are well qualified for an industrial career. Many either start companies of their own or join existing startups.

Israel's focus on education and training has produced an unusually talented and experienced pool of software and hardware engineers. Their presence has attracted many major foreign

[2] www.globalinnovationindex.org/gii/main/analysis/rankings.cfm, accessed September 16, 2011.

corporations to open engineering centers and product development facilities in Israel, among them, Intel, Motorola, and Siemens.

In addition to its support of technical education and training, the government has taken an active role in encouraging the creation of innovative new companies. The Office of the Chief Scientist of Israel provides modest amounts of seed capital to technology startups that are deemed to be promising. Companies that survive the seed stage then seek funding from venture capital funds or large corporations. There is a healthy venture capital industry in Israel. In 2009 Israel ranked first in venture capital investment as a percentage of GDP at 0.43 percent. This compares, for example, to 0.08 percent in China and 0.2 percent in the US.[3]

Most Israeli startups eventually get acquired, but some remain independent and become publicly traded companies. Over 100 Israeli-originated firms are listed on US stock exchanges, the largest number of any foreign country. Many others are listed on the Tel Aviv exchange.

With a deep pool of engineering talent, an abundance of entrepreneurial spirit, a solid legal system, and a history of intellectual property protection, Israel is a good place to build innovative businesses or develop products for the global marketplace. So when Warburg Pincus encountered an opportunity to invest in an Israeli company, we paid attention.

HOW NESS TECHNOLOGIES BEGAN

Our opportunity to invest in Ness Technologies came through Morris Wolfson, an experienced American investor in Israeli businesses, who had acquired a small Israeli IT services company in 1997. He realized that he needed an experienced, professional investing partner to build it into a major company. We were introduced to Wolfson through a mutual friend, and began to discuss the idea of

[3] Data from NVCA and EVCA, quoted in C. Dickson and O. Shenkar, *The great deleveraging: Economic growth and investing strategies for the future* (Saddle River, NJ: FT Press, 2011), p. 181.

acquiring several IT services companies in Israel and merging them to create the foundation for a global business. We had been investing extensively in IT businesses in a number of countries. Given what we had heard of the business climate in Israel, we thought this was an idea worth exploring. So we went on a fact-finding trip there.

Our first step was to meet Raviv Zoller. A former officer in the Israeli Navy, Zoller was a certified public accountant and the founder of an investment bank focused on technology businesses. He was familiar with the IT industry and was working with Wolfson. He would be the driving entrepreneur of the new venture, morphing from investment banker to CFO of Ness and finally to its CEO. Zoller had identified five companies with outstanding technology and established market positions, one of which had already been acquired. He believed that these firms, consolidated under a unified management, would provide the core of a leading IT services company in Israel. Once a solid local base was established, international expansion would be a real possibility.

We visited each of the candidate companies, met their managements, and reviewed their projects, capabilities, and finances. Their combined revenues in 1999 were $94 million with a profit of $7.5 million. They were selected because, taken together, they covered many of the most important and valuable IT services, including enterprise networks, custom software development for defense systems, and IT system integration for banks, telecommunications carriers, hospitals, and utilities. Table 7.1 summarizes their size and areas of practice.

We then talked to their major customers, who confirmed our favorable impression of the quality of their work and the productivity of their engineering staffs. We were sufficiently impressed that we decided to participate in funding Ness Technologies.

Assembling a senior management team was the first step. Over a period of six months we recruited three senior-level executives to launch the company. Aaron Fogel, former Director General of the Israel Ministry of Finance, became the chairman of the board. Yaron

Table 7.1 *Israeli acquisitions that started Ness Technologies*

Year acquired	Company name	Business type	No. of employees
1999	Gilad	Software development and system integration	340
1999	Conthal	Information technology services	310
1999	Advanced Technology	Software development and system integration	650
1999	IPEX	System integration	350
1999	IPEX ISI	Software development	40

Polak, a seasoned and highly respected executive who had built a software company that had gone public on NASDAQ, became CEO. Raviv Zoller became CFO and Chief Operating Officer.

Putting the pieces together

Merging companies is never easy, but merging five entrepreneurial companies at one time is best qualified as "Mission: Impossible." The fact that it was done successfully is a tribute to the skills of the management team we had recruited.

We felt it was essential to establish a common culture for the new company. That would be difficult to do with employees scattered among five facilities. Hence, the initial step in the integration process was to move most of the 1,690 employees to a single location. Fortunately, attractive office space became available in a new Tel Aviv industrial park, and everybody moved to that facility practically overnight.

Moving to nice new quarters was the easy part of integration. It was much harder to decide which managers to retain so we could create a coherent business organization to unify the original companies. As central functions such as finance, personnel, and marketing were

staffed and business units were defined, some managers lost their jobs, while others were promoted to greater levels of responsibility. Making such wrenching personnel decisions is always difficult and disheartening. Israeli culture made it more stressful than usual.

Israel is a close-knit society. As people's jobs were either threatened or eliminated, their friends and relatives anxiously sought to talk to me about the situation. They waited for me in the hotel lobby during my frequent visits to Israel. They told me that the people losing their jobs were actually the best people there, and that Ness was starting down a ruinous path. Would I not reverse management's decision and keep those talented folks in the company?

Of course I could do no such thing. The process of integration would work only if the company's investors backed its management's decisions. The subsequent progress of the company suggests that they picked the right people. It took just over a year to complete the major consolidation process, after which Yaron Polak left Ness to become a venture capitalist.

Raviv Zoller became CEO in mid-2001, just in time to tackle the next phase of the project: leveraging the assembled resources to grow the company's market share in Israel, in preparation for international expansion. Zoller put new service initiatives in place, built relationships with the biggest potential customers in Israel, and built the Ness brand – all while making the company profitable.

Ness had a roster of established customers, but it needed to acquire new ones. It faced fierce competition not just from small companies, but from big multinationals such as IBM and Accenture. It won business on the basis of both quality and price against these formidable opponents, rapidly earning a reputation as a quality vendor. Soon it had emerged as the leader in the domestic market.

Zoller also demonstrated considerable promotional talent. He picked former US president Bill Clinton to be the featured speaker at the Ness annual customer meeting, which he had instituted as a brand-building opportunity. Clinton was very popular in Israel, and this event won Ness a great deal of national press coverage.

By 2002 Ness could count many leading Israeli banking, industrial, and defense firms among its customers for IT software and solutions. It had annual revenues of $167 million and a 13 percent market share in Israel, slightly ahead of IBM. It was time to look overseas for growth opportunities.

INTERNATIONAL EXPANSION

Ness Technologies was conceived from the start as a global company. Now it had to execute on that vision. Its strategy was to develop an innovative business model for international expansion, particularly into India, that maintained the integrity of regional operations, yet integrated them into a worldwide resource for IT services.

There were several ways to penetrate foreign markets. One approach was to establish sales offices in various countries, have them solicit projects locally, and execute the work in Israel. This strategy was rejected. It would take too long for an unknown newcomer like Ness to gain credibility in a new country. Instead, we decided that Ness's expansion strategy had to be based on the acquisition of well-established IT service companies in our geographies of interest. As known quantities, these companies would make initial market entry easier. We would then enhance their competitive position with technology transferred from Israel.

All business is local

Given this approach, it was clear that retaining senior management in each of these companies was the key to successful mergers. We knew that acquisition by Ness could hurt a company's relationships with local industry, utilities, and government agencies. These customers would be concerned about contracting mission-critical IT services to a foreign provider.

Therefore, the operating paradigm for the acquired companies was to continue to "look local" while offering, wherever appropriate, Israeli technology as a competitive edge. Each company would continue to have local management, and we would keep the folks

who had relationships with customers in place on sales and service teams. Since these local companies would be Ness Technologies business units, however, we would standardize operating practices across all of them as much as possible. This included, among other things, training and technology implementation. In addition, each local Ness unit would be able to access resources at other locations to meet customer needs.

In short, the success of Ness Technologies was to be built on a network of companies that offered the consistent business practices and technical resources of a multinational, yet maintained a local presence with local management in the countries where they operated. These basic principles drove the company's later spectacular growth. Its biggest innovations, however, came about when putting its principles into practice.

Ness goes global

When the word got out through investment bankers that Ness was looking to expand beyond Israel, a large number of companies in various countries around the world quickly identified themselves as candidates for acquisition. The entrepreneurs who had started these small companies realized that they were too small to compete against larger rivals over the long term. At this point the only issue was selecting appropriate acquisitions. Ness narrowed the field by looking at GDP growth in the countries under consideration to assess the economic opportunities there.

One of the regions that appeared attractive was Eastern Europe. This region had developed a number of rapidly growing economies after the fall of the Iron Curtain. Having analyzed local competition, the nature of the potential customer base, and the availability of native talent, Ness focused on APP Group, a company in the Czech Republic. A startup with 180 employees, APP had received Warburg Pincus funding when it started in 1990. In the interim it had established itself as a quality provider of IT services to the local utilities, government agencies, and manufacturing enterprises. It was

a perfect fit. Through its relationship with Warburg Pincus, Ness kicked off its expansion program by acquiring the APP Group in September 2002.

In line with the overall Ness strategy, APP's senior management continued to run the business after the acquisition. APP provided Ness an entry into the whole East European region. It eventually grew to nearly 1,000 engineers providing IT services in Slovakia and Romania as well as the Czech Republic.

Off-shore challenges

By 2003 the IT services industry was facing the acceleration of the trend noted above: using engineers from countries with lower wages, such as India, to reduce IT support costs. With the cost of local engineers on the rise, thanks to a growing demand for IT talent in the developed economies, this had obvious appeal.

At Ness Technologies, responding to increasing customer demand for cost control became a subject of strategic discussion. Its opportunity to develop an innovative solution to the problem came about through another major acquisition, this time of Apar Holdings in India, another Warburg Pincus investment. Apar was started by Indian entrepreneurs in 1998. Its business model was quite different from that of Ness. Instead of having intellectual property of its own, Apar sold IT engineering services to enterprises on a daily or annual contract basis. Indian engineers worked for its customers either in India or on location in the US, Singapore, and the UK. The company had 1,200 engineers, with a core group of 300 located in India. The others were deployed in other countries and moved to meet customer demand.

A merger with Apar represented a change from the existing Ness business model, but added management and engineering talent in India, and promised access to new customers. We decided that combining the companies was appropriate, and completed the merger of Ness and Apar in 2003.

At the time of the merger we recognized that Apar's business model had to change. It suffered from a basic problem: when Apar

engineers were involved in software development, customers had no assurance of the continuity of staff assigned to their projects. And since there were a lot of comings and goings of engineers on the assigned projects, there was little assurance that intellectual property would be protected either.

Shashank Samant, a software engineer trained in India but with extensive international experience, joined Ness as a manager during the Apar acquisition. He came up with an idea for a totally different business model: the "managed laboratory." His idea was to offer corporate customers their own "managed laboratories" for software development, consisting of a team of engineers contracted on a long-term basis, all located in India. Working together in a dedicated facility, they would function as part of the customer's IT organization, even though they were actually Ness employees. The customer would define the software projects, and the head of the managed lab would report to the customer's IT department head. Ness was responsible for training, recruiting, and all employee personal matters. Customers would get the continuity they needed, and with a dedicated team reporting directly to the customer's IT group there would be more control over IP.

Ness embraced this idea. Samant became head of the managed lab business, splitting his time among India, the US, and Israel. He molded the organization and developed the management structure that made the business successful. The managed lab model proved attractive to medium-sized software companies in the US and Europe who wanted the benefit of low-cost software engineering but could not afford to build their own facilities in India. Ness provided them with a dedicated staff that operated as part of their organization in terms of project oversight. To make the service more attractive to companies who might be interested in eventually operating their own facilities, Ness also offered an option under which it would transfer its managed lab staff to the customer.

This model offered clear benefits to Ness, too. First, the customer paid staff costs plus a fee for the service, assuring profitability.

Second, the contractual nature of the IT services made the business more predictable. Instead of hiring engineers in anticipation of potential future projects, the company could plan manpower utilization consistent with its current billings.

As a clear "win-win" situation for buyer and seller, the managed lab model was quickly embraced by customers across the US and in Europe. Ness's first managed lab customer contracted for 200 engineers in 2003. By 2006 Ness was operating fifty such facilities, employing a total of 3,000 people and generating $120 million of profitable revenues annually.

Although the first managed lab was in India, the concept worked wherever wages for engineers were lower than those in the developed countries. Ness also used engineers in Eastern Europe to provide this service to clients in Western Europe.

Cultural considerations

Building the India operation was a lesson in cultural adaptation. As our Israeli management team did not have an easy time managing the rapidly growing Indian operation; management talent had to be recruited locally. It became evident that the key to success was having Indian senior management with prior experience in the US, an appreciation of the local culture, and an understanding of modern IT technology.

Staffing problems posed another serious challenge. Local competition for talent was (and is) intense. At Ness and similar companies, turnover of engineers in Bangalore, the technology capital of India, was between 20 percent and 30 percent annually, compared to less than 10 percent in Israel or Eastern Europe. Such turnover rates put great stress on the efficiency of an engineering organization and make training an ongoing headache. In fact, recruiting qualified engineers, even in an increasingly competitive Indian market, was the easy part. It was much harder to retain the talented ones in a market where wages were rising at a rate of about 10 percent a year (much faster than elsewhere) and employers were beginning to

compete on the basis of fringe benefits, the offer of exciting projects, and opportunities for personal development. Once good engineers were on staff, their enthusiasm had to be kept high to retain them by offering opportunities for professional growth.

The staff stayed young, and increasingly included women with young children, so special provisions had to be made for them. Ness became used to providing benefits such as meals, transportation, and even visits by doctors to the Ness facilities to discuss family medical needs and provide access to treatment as needed.

GOING PUBLIC AND AFTER

After APP and Apar, Ness made a number of smaller acquisitions to increase its global footprint. International sales and marketing for all these units was conducted by a staff of 200 professionals. The strategy of leveraging technology skills globally was showing results. For example, Ness developed and delivered a novel IT system to a pharmaceutical company in Switzerland using engineering teams from Europe and Israel. Similarly, a global delivery service for an international law firm was implemented by teams from Israel, the UK, and India. The service was made possible by a proprietary information management system, developed by Ness engineers, that allowed users around the world to share information and work collaboratively on projects.

At the end of 2003, Ness had a total staff of 4,300 employees serving over 500 customers, including Lockheed Martin, Coca Cola, Citibank, AT&T, Israel Aircraft Industries, the Israel Defense Forces, Pfizer, American Express, and Czech Telecom. No single customer represented more than 5 percent of revenues. There was a high level of customer satisfaction, indicated by the fact that, at the end of the year, 80 percent of the following year's business was with the same customer base as the prior year. Clearly the company's management was doing a lot of things right, and it was on a solid footing to continue its global success.

By the end of 2003 the company had accomplished a great deal of what we had hoped to see. Revenues had grown 23 percent annually since inception, to $226 million. The company was profitable and doing business in fourteen countries. It was time to consider an IPO. In September of the following year, the company had its IPO on NASDAQ, selling $140 million of its shares.

At the end of 2006, Raviv Zoller decided to leave the company to resume an investment banking career. He was replaced by Sachi Gerlitz, an executive with extensive international business experience. By then the company had 8,900 employees and was on a clear growth path. It was ranked among the top thirty IT service companies globally by the Brown-Wilson Group, a respected industry consulting firm. Its revenues had increased from $474 million in 2006 to $563 million in 2007. Israeli revenues accounted for 48 percent of the total.

A business of this type is affected by business cycles. As a result of the global recession of 2008, revenues declined in 2009, stabilized in 2010, and resumed growth in 2011 to $620 million. In 2011, the company was taken private by the private equity group of Citigroup Inc.

LOOKING BACK

Building a successful multinational services company is perhaps the most difficult management task entrepreneurs can face – especially starting from a small country. Such a business succeeds only if it learns how to share resources globally while maintaining a common internal culture and uniform operating principles. It must also adapt to the cultures of the places it does business without compromising common corporate goals. Internal regional politics also pose a threat if management interests are not aligned. Without a common operating methodology, each region can easily become a fiefdom that optimizes its business results at the expense of the company as a whole. An employee reward system must be put in place across the

entire organization that encourages collaboration among disciplines and geographies.

How the management at Ness was able to avoid the pitfalls and build a successful organization will reward consideration by any entrepreneur with global ambitions. Their approach can be summed up as follows.

- Careful selection of acquisitions to meet strategic objectives: adding desired geographical coverage and skills to the company.
- Retention of the most talented senior managers in acquired firms to help build the local business. There was no attempt to import Israeli management into overseas locations.
- Immediate installation of financial management and control systems in acquired companies, to integrate them into the corporation and allow timely and accurate reporting of business activity.
- Frequent, prolonged visits by senior Ness management in the various regions to work with the local staff. In a remarkably short time this interaction developed a common culture in which international collaboration was accepted as the best means of generating business. This effort was greatly helped by an annual meeting where the fifty top company managers met to review the annual plan. The location changed each year – Bangkok, London, New York, Bangalore, Prague – so that local employees had the opportunity to meet company managers from various countries. Such meetings are a valuable venue for building personal relationships – over twenty nationalities were typically represented among the managers.
- Leveraging the company's diverse skills to serve the needs of international customers in different locations. To further this effort the company developed proprietary information-sharing technology that allowed resources throughout the company's operating regions to address customer needs.
- Rigorous enforcement of a code of conduct – a necessity when operating in some countries where bribery is a common method of acquiring business.

Ness Technologies blazed a new path from its very beginning because its founders designed the company from the ground up to be

an international enterprise. They used acquisitions to give it a global reach, and created an innovative business model to attract customers. The strategy for leveraging Indian talent is particularly noteworthy in this regard. They also developed approaches to unifying the company's operations, creating a common corporate culture, and leveraging its worldwide resources to serve major corporations.

In the next chapter we will look at how three Chinese telecommunications startups, operating only in China, dealt with entirely different problems.