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Hilti (A): Fleet Management?

In 1999 Marco Meyrat, General Manager of Hilti in Switzerland, received a visit from one of his key account managers, who told him, "I have good news and bad news." At the time, Hilti was Liechtenstein's largest manufacturing company and one of the largest power tool producers in the premium segment globally. The good news was that Hilti had just landed a major new contract from Batigroup, then the largest construction company in Switzerland. The bad news was that the contract would put demands on Hilti that it had never before faced.

Batigroup was a loyal and strategically important customer for Hilti. But managing hundreds of power tools had put significant strain on Batigroup's operations. Thus, it had requested a holistic tool management system. Batigroup wanted to outsource all processes related to the management of its tool fleet, including administrative activities, maintenance, and financing. In the past, power tool demonstrations by Hilti salespeople had led to the sale of just one or two power tools per call. Batigroup's request, however, presented an opportunity to sell contracts rather than individual tools. A single contract might result in the provision of hundreds of tools to a customer. Thus, a scalable business model built on this foundation could result in more than a simple key account project for Batigroup. On the other hand, Hilti already had a successful and profitable strategy. Aside from this one potential deal, there was no real pressure to innovate its business model to allow for the kinds of services that Batigroup had requested. This was not an agreement to jump into lightly.

Over the next few days, Meyrat visited Batigroup and some of its construction sites, witnessing firsthand the difficulty of managing so many tools. However, before he considered the opportunity further, he wanted to hear the input of Pius Baschera, Hilti's CEO. Luckily, Baschera was currently on one of his yearly visits to the Swiss market organization. During these visits, he worked to strengthen Hilti's customer relationships, accompanying salespeople on their visits and speaking with customers about their needs. Because he had once been General Manager of Hilti Switzerland, Baschera was particularly interested in the Swiss market. His visit gave Meyrat the perfect opportunity to arrange another trip to Batigroup.

After their joint visit, which included meetings with Batigroup's CEO and CFO, Baschera and Meyrat drove back to Hilti's headquarters in Schaan, Liechtenstein, discussing their observations on the way. Baschera was impressed by Meyrat's enthusiasm and shared his belief that Batigroup's request could represent a major opportunity for Hilti. However, he too worried about the difficulty inherent in managing thousands of power tools on the customer's behalf.

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In 1995, the year after Baschera took over the firm, Hilti's sales had exceeded $2 billion for the first time, and profit had increased at a rate of almost 8%.[1] Nevertheless, Hilti had recently found itself losing ground to competitors in the realm of small tools. Increased commoditization of certain product segments loomed on the horizon. If Hilti were to consider a fleet management business model, Baschera and Meyrat would need to carefully develop a specific solution, studying the operating model and the competitive environment. While a successful venture might open up entirely new possibilities for Hilti, a costly mistake could damage both of their careers, not to mention creating a major setback for the company itself.

Having discussed their concerns, the two executives fell into a contemplative silence. After several moments, Baschera said, "One thing's for sure—a lot of people are going to be closely watching our next move."

Hilti's Position in the Tool Market

Hilti's size, scope, and reach had expanded significantly since it began as a family-owned business in 1941. Now Hilti produced power tools under its own brand. Its products included drills, saws, direct fastening systems (e.g., nails and studs and the tools to install them), and laser positioning systems.[2] It focused primarily on the commercial segment, rather than the segment of do-it-yourself customers.[3] One of Hilti's differentiating features was its direct selling approach, which the company had maintained since its foundation. While other companies, such as Bosch, also catered to the commercial segment, they did not use a direct selling approach. Nearly two-thirds of all Hilti employees contacted customers regularly. They had about 250,000 daily contacts around the world.[4]

To best target customers with the direct selling approach, trade and regional segments were meticulously separated according to their turnover and the potential they offered.[5] Within these customer segments, Hilti sales employees tried to reach as many people as possible who were involved in tool-purchasing decisions, from executives to architects to supervisors and tradespeople on building sites. The company's multichannel approach to sales included field workers, telephone support, Hilti centers, and an internet portal. It sent videographers to worksites to observe how customers conducted daily tasks and used its products. Even senior management spent some time with customers on-site.

Hilti's R&D department was one of the first to adopt a Lead User concept, which integrated customers deeply in the process of developing new tools.[6] Baschera explained that while competitors might have 1,200 or more researchers, "Hilti [was] able to achieve the same output with a lot fewer researchers because of its close and permanent customer interaction. Every innovation [was] born out of customer needs." (See **Exhibit 1** for a diagram of Hilti's strategy.)

Hilti created the market for premium power tools and strove to position itself as a premium supplier. Its high-quality, long-lasting tools would be essential for the success of fleet management, since tool repairs would have to be included in such an offering (and thus kept to a minimum). The median price of Hilti tools was above that of competitors. Since it had to offer superior technology to match its premium prices, Hilti put a strong emphasis on R&D.[7] Although product development was driven by headquarters, Hilti's individual market organizations were fairly autonomous. While following regional structures and guidelines, they often made independent decisions with regard to the best way to achieve their goals (e.g., the best way to market a new product). Such autonomy was especially true of markets with high market volume and profit contribution, such as Switzerland, which was considered a lead market for spearheading new projects.[8]

In 1999, the worldwide market for power tools was about 95 million units, or $19 billion.[9,10] The already highly cost-driven industry, which was marked by low margins and high inventory turnovers,[11] saw increasing price competition. Companies like Hilti that focused on heavier power tools, priced around $800, had relatively small portfolios, consisting of about 50–100 different products. In order to compete with the broad portfolios of other companies that were three to four times larger, they now sought to expand, offering light tools and smaller devices down to about $200, as well as common consumables and accessories for only a few dollars.[12]

In the late 1990s, Hilti faced increasing commoditization.[13,14] It was losing ground to competitors in the small-tool market, including those from low-cost countries like China. Hilti's sales force was built around live demonstrations that showcased the technological superiority of its products. However, in the case of basic tools like angle grinders, there was no motive to compete on innovative features or higher performance, and no reason for customers to purchase them from a premium brand. Since there was no need to demonstrate these products,[15] Hilti management had frequent discussions about the usefulness and relevance of the direct selling approach.

Meanwhile, rivals at the top of the market increased their M&A activities, growing in size and gaining higher market shares. A relatively small number of major players began to dominate the global market, resulting in an escalation of fixed costs. These firms strove to expand their product portfolios and optimize their quantity/cost ratios.[16] Larger companies such as Bosch benefited from higher marketing and R&D budgets, additional sales channels, and improved production cost profiles.[17] For example, in 1999, Bosch's consumer goods sector, which included power tools, spent about $161 million[18] on R&D. This represented less than one-third of Bosch's total R&D budget.[19] That same year, Black & Decker spent $91 million on product development,[20] as well as $223.7 million on advertising and promotion.[21] In comparison, Hilti's R&D expense for 1999 was about $77 million.[22] (See **Exhibits 2** and **3** for more of Hilti's financial data.)

Types of Players in the Power Tool Industry

Power tools were used in a broad array of commercial and industrial applications, most significantly in construction and remodeling.[23] They were essential to many steps at construction sites, including drilling and demolition, cutting and grinding, fastening and installation, and firestop and insulation.[24] Firms also began to offer engineering services, software, and value-adding services (e.g., lifetime services or guarantees). In contemplating a fleet management business model, executives at Hilti had to consider which competitors might also benefit from such a system. Three groups emerged as potential competitors in fleet management, each comprised of firms dedicated to supplying a construction site throughout the building process. These groups consisted of (1) sole producers of power tools, (2) fastening and installation experts, and (3) full-service providers and retailers.[25] (See the diagram in **Exhibit 4**.)

Producers of Power Tools

Producers of power tools designed and manufactured power tools in-house. They focused heavily on R&D (average R&D expenditure ca. 4.5%) in order to increase tool performance, add new features, and improve ergonomics.[26] Competition was based on the scope of a company's portfolio and accessories.[27] In 1999, the three largest suppliers of power tools together achieved a market share of about 60%.[28,29] The major players were Black & Decker (U.S.), Bosch (Germany), Techtronic (Hong Kong), Hitachi (Japan), Makita (Japan), Illinois Tool Works (U.S.), and Hilti (Liechtenstein). (See **Exhibit 5** for data on Hilti's direct competitors.) Several of these firms had more than sufficient cash to

finance a major undertaking such as fleet management. For example, in 1999 Bosch had $1.1 billion in liquid assets.[30]

At the same time, the industry had become highly globalized. There were hundreds of power tool producers around the globe,[a] and rivalry was fierce. Growth rates in Asia Pacific were high, and firms such as Techtronic were eager to internationalize and export to new markets,[31] including emerging markets such as Brazil, China, and Eastern Europe. Moreover, due to increasing price competition, larger power tool suppliers began investing directly in offshore production and foreign distribution facilities. In 1999, more than 50 nations possessed some manufacturing capability for power tools.[32]

Fastening and Installation Experts

Some firms were experts in fastening and installation activities at construction sites. They had expert knowledge of any activity that required special screws, nails, dowels, or adhesives. These experts covered construction steps such as mounting AC systems, installing fire protection devices, or mounting screws in concrete walls. They typically had an army of specialists and excellent R&D departments. They maintained direct contact with customers—a key competency for fleet management—and had an in-depth knowledge of highly technological requirements in new buildings. While these experts produced screws, nails, dowels, clamps, and other fasteners, with many patents in this field, they did not produce the power tools needed to mount such parts. Likewise, while Hilti produced some fastening and installation parts, it was not a fastening expert. It offered only a very narrow range of these products, focusing on the ones for which it could maintain a competitive advantage through superior technology.

A key fastening and installation expert was Fischerwerke, a family-owned, medium-sized firm in Germany. Fischerwerke specialized in the business segment for systems repair. It offered over 14,000 products and provided solutions for almost every repair problem. The firm targeted a wide range of customers, from do-it-yourself customers and skilled trade workers to key account partners.[33] Some producers of power tools, such as ITW, also competed with Fischerwerke in this realm. ITW had a high level of knowledge of both its products and their application at the worksite. Like Fischerwerke, it provided custom-made designs and extensive advice to its customers.[34] In addition, both firms were characterized by their close contact with customers for key account projects through their sales force.

Full-Service Providers and Retailers

Full-service providers and retailers were both trading companies, rather than manufacturing firms. They offered complete product portfolios for construction jobsites. They were generally big in size but did not manufacture products or do any significant R&D. Instead, they competed on the basis of convenient ordering and delivery services and proximity to customers. Their core capabilities included the sourcing of machinery, tools, and equipment from various manufacturers and the distribution of those items to construction companies and sites.[35]

Full-service providers differed from retailers in that they offered construction services and solutions in addition to distributing products. Their portfolios ranged from fastening technology to power tools, helmets, and other gear. The German firm Würth, which had sales of $4.2 billion in 1999,[36] was one of the major full-service providers. It focused on business-to-business (B2B) sales within its core market of Western Europe, which comprised 85% of its sales.[37] Würth distributed a variety of low-priced

[a] For instance, a cluster of small, niche power tool manufacturers in the area of Stuttgart, Germany, alone included brands such as Metabo, Festool, Mafell, AEG Electric Tools, and C. & E. Fein, each with revenues of less than 300 million euros.

products used for assembly, maintenance, and repair in the automotive, metalworking, and woodworking industries.[38] Its portfolio comprised almost 200,000 products, but it manufactured only 5% of what it sold.[39] Würth's goal was to "own the job site." It had a dense network of stores to ensure high local proximity to the customer. It began to imitate Hilti's direct selling model and employed a direct sales force that was larger than Hilti's. Würth focused on small and medium-sized firms, and had strong customer relationships.[40] It enhanced its offerings by providing after-sales services and insurance for stolen equipment.

Most power tool manufacturers used retailers as their main distribution channel. Retailers like Lowe's and Home Depot targeted the home improvement market, including both B2B sales (e.g., to construction companies) and business-to-consumer (B2C) markets. Both Lowe's and Home Depot were giants, achieving revenues of $15.9 billion and $38.4 billion, respectively, in 1999.[41,42] In European countries, there were many smaller domestic retailers not comparable to the large U.S. chains. In developing countries, the majority of purchases in the power tool industry were made through small retailers.[43] None of these retailers provided significant service offerings such as repairs or training.

Customer Behavior

In 1999, commercial users accounted for about 73% of power tool sales.[44] This customer group demanded multifunctional products with special features. They wanted products that could be used for a variety of applications, such as hammer drills. These customers sought quality, durability, and ease of use, and were generally willing to make higher investments in exchange for longer product life and low maintenance cost. The residential B2C market, representing the other 27% of the market volume for power tools, was comprised of do-it-yourself customers. These customers had lower usage rates and less interest in new technologies. They based their purchases more on price and less on high-performance features.[45]

Generally, professional customers (e.g., construction companies) paid little attention to the purchase of power tools, even regarding them as c-parts.[b] On average, professional customers spent only about 2% of their construction budget on power tools, with much of their spending allocated to labor, materials, and large equipment costs.[46] While firms like Caterpillar offered large and complex machinery worth millions of dollars to reasonably sized construction sites, these sites comprised only some $40,000 worth of power tool sales ($400 per tool on average, including heavier tools around $800 and lightweight tools and commoditized products around $100). Large customers, like Batigroup in Switzerland, owned tool fleets consisting of around 600 power tools. In 1999, Hilti provided only 37% of Batigroup's tools, despite having the capabilities to be its sole supplier. All other tools were purchased from different manufacturers.[47] Since Hilti provided Batigroup with premium heavyweight tools, which cost more than the average, it achieved a share of customer wallet of around 50%.[48]

Hilti's traditional business model, in which firms owned their power tools, meant that construction companies were responsible for all activities related to the management of tools. However, the construction site managers were busy with their core business. Unpredictable bills and administrative processes due to repairs and replacement of tools interrupted the work and diverted the focus away from core tasks at the construction site. A customer with a fleet of 100 tools processed an average of 56 tool-related invoices—such as purchases, repairs, and exchanges—each year.[49] The average cost of processing each invoice was approximately $15.[50] With fleet management, Hilti expected that

[b] C-parts are machine parts with a relatively low value and secondary importance, such as the screws and nuts in a kitchen mixer.

customers would avoid 80% of these costs.[51] In addition, fleet management could help reduce delays on construction projects, which were frequently caused by the ineffective power tool management of construction companies.

Much of the cost related to power tools occurred because of the repair process. Costs for a single repair could add up to 50% of the price of new tools.[52] Specialized drilling machines were very costly, and broken drilling machines caused heavy losses in the construction business, since workers could not carry out their work without them. In the case of repairs, service parts and providers were often not quickly reachable. The construction site manager had to return the tool to the technical center or central warehouse of the construction company for damage assessment, after which the construction company would either repair the tool or send it to the power tool supplier for repair. (See **Exhibit 6** for a diagram of the repair process.) The average repair time was up to 11 days, and tools were often unavailable when most needed.[53] Repairs also involved several costly logistical and administrative steps.[54] Consequently, many days were wasted due to broken equipment. On average, a customer with a fleet of 100 tools experienced a total of 41 episodes of tool downtime per year.[55] The average cost per downtime was $17.[56] Hilti estimated that FM would decrease that downtime by about 50%.

Under the extant business model, customers often clung to their products for too long and spent more money on repairs than they would have paid for a new product. Moreover, power tools showed efficiency losses if they were not maintained regularly. A worn-out tool reduced productivity drastically.[57] Hilti estimated that, under the current model, a customer with a fleet of 100 tools experienced a loss of efficiency of 763 hours each year due to a lack of new tools.[58] Because customers in a fleet management program would use newer tools, Hilti estimated that fleet management would reduce this loss of efficiency by 50%.[59]

Hilti observed that its customers used power tools of many different brands. This meant increased costs as the companies found it difficult to standardize the repair and maintenance processes. In addition, the profusion of cheap, battery-powered hand tools left worksite tool tables scattered with mismatched components from different manufacturers.[60] Furthermore, perhaps as a result of power tool commoditization, construction workers viewed tools as virtually disposable.[61] Tools were often stolen at construction sites, as they were not stored properly. Frequently, the construction sites did not differentiate between losses and thefts. In a five-year period, a loss of around 15%–25% of tools was common.[62] In addition, while a precise tabulation of the hidden costs related to power tools in a construction firm generally did not appear in any accountancy, these hidden costs significantly exceeded the investment and regular maintenance costs of a tool.[63]

Overall, maintaining and transporting hundreds or even thousands of small tools was burdensome to customers, who struggled to manage their fleet of tools over the course of a project. As Hilti's Pius Baschera said, "Tool management is a pain. A construction crew's purpose is to build a house, not manage tools."[64] Hilti estimated that with fleet management, worker productivity while using tools would increase by about 3%.[65] On average, a customer with a tool fleet of 100 tools had 35 workers at the construction site, working about 224 days a year at $35/hour.[66] Workers used each tool for an average of about 1.5 hours each day.[67] This meant that fleet management could prevent efficiency losses of more than $10,000/year for such a customer.[68]

Contemplating Fleet Management

In response to Batigroup's request, one option for Hilti was to attempt to develop fleet management as a parallel or alternative business model. Under such a system, customers would have the option of purchasing permanent "tool availability," rather than individual tools. This would delegate to Hilti the responsibility of supplying, repairing, and replacing tools, as well as providing coverage in the event of theft. Hilti would also need to find a way to cover temporary peak demand or the punctual need for specialized tools. This type of offering could lead to increased performance for customers due to less downtime, and to greater safety, since Hilti would provide modern, well-maintained tools.

The team at Hilti began to outline the potential fleet management offering in more detail, including the following aspects:

- Full financing of the fleet.
- Monthly billing, same price guaranteed.
- Free maintenance and calibration of tools.
- Free loaned machines during repair downtimes.
- Free tool collection and delivery services.
- Provision of temporary power tools at a daily rate exclusive for fleet management customers (e.g., in the event of peaks or for tools that were not part of the fleet).
- Provisions for theft: coverage of 80% of the outstanding monthly rates, while the customer had a deductible of 20%. (A prerequisite was that the customer must provide a police report.)
- An online tracking system and comprehensive inventory management.
- Renewal and recycling of tools at the end of the defined usage time (typically two to five years).

The team analyzed how a fleet management system with a high customer penetration rate of Hilti tools (100% share of customer wallet) could positively impact Batigroup's tool park. They concluded that Batigroup's tool park could be reduced by 7% in a fleet management contract. Moreover, the higher the share of customer wallet, the higher the tool exchange rate offered by Hilti, and the lower the average tool age and tool exchange age.[69]

In the past, Hilti had sold tools, spare parts, and maintenance services directly. The fleet management revenue model, in contrast, would replace large lump sums of income with regular smaller payments. Assets would disappear from customers' balance sheets. The basic structure of leasing contracts could be readily adapted from the automotive industry, as the customer had monthly expense payments instead of full up-front investments.[70] (See **Exhibit 7** for an exemplary calculation illustrating how fleet management compared to traditional sales methods.) Nevertheless, this would represent a seismic shift in the way Hilti did business. It was likely that many customers would be resistant to this change, and even if they weren't, adopting fleet management would involve hundreds of legal and financial nuances, many of which Hilti had hardly begun to contemplate. Should Meyrat and Baschera really propose retooling an entire business, when they already had a model that worked?

Exhibit 1 Hilti's Strategy in 1999

Aspirations

To achieve profitable growth above and beyond the trend of the relevant worldwide construction markets

Vision: To be the leading supplier of high-quality selected tools and fastening systems for professional customers in the construction and building maintenance industries

Advantage

- Premium price for a technologically superior product

Scope of Advantage

- **Customer scope:** Focus on commercial segment (B2B) only
- **Product scope:** Focus on high-quality products – tools for measuring and aligning; drilling, chiseling, and demolition; cutting and grinding; fastening and installation; firestop and insulation
- **Geographic scope:** Global
- **Vertical scope:** Vertically integrated design, manufacturing, and distribution (sell directly to customers). Outsourcing of non-core activities. 20% make, 80% buy. Produced in-house parts that differentiated via cost or quality advantage, or needed IP protection

Values

- Commitment
- Integrity
- Responsibility
- Trust
- Tolerance
- Respect for others
- Willingness to learn and change

Distinctive Activities

Firm Infrastructure	**Governance and Organization** •Family company: 88% of voting shares held in the Martin Hilti family trust •Corporate HQ in Schaan, Liechtenstein •"Think globally, act locally"	**Finance and Accounting** •Internationally diversified asset allocation •Cash-rich position •60-day accounts receivable collection period •Relatively low working capital requirement •Discrete transactions for each sale **Legal** •Simple, straightforward sales contracts
Human Resources	•13,190 employees •Performance-based incentives: salespeople compensated based on sales volume •Long-term career growth opportunities	•Continuous training – Focus on how to demonstrate tools in front of clients, emphasizing their technical capabilities •3-day culture training program for all employees, with emphasis on shared values
R&D	• Lead User concept: Development of products based on understanding of real customer needs • Individual business units & marketing organizations develop tailored products mixes to strengthen their market positions • Methodical, in-depth R&D process - geared toward creating most advanced tools possible • Product lifecycle of up to 8 years	
	Operations	**Sales**	**Service**	**Communication**
	• Production plants and R&D centers in Europe, America, and Asia • Flexible working hour models in plants • Global sourcing	• Direct selling • Live product demos • Contact with all decision makers and influencers • Close customer relationships • Premium pricing • Each local sales organization determines its own sales/marketing approach & priority customer groups	• Warranties • Telephone support, Hilti centers, internet portal for customer support • Reactive repairs: Fix tools after they break and are sent back to Hilti (see Exhibit 6)	• Communication efforts occur before sales, and are centered on explaining technical advantages of tools

Source: Casewriter; Hilti annual reports; Ralf W. Seifert and Kerstin Langenberg, "Hilti (A): Gearing the Supply Chain for the Future," IMD International No. IMD545 (Boston: Harvard Business School Publishing, 2008), p. 5.

Exhibit 2 Hilti Financial Highlights, 1993–1999 (all financial data in millions)

	1993		1994		1995		1996		1997		1998		1999	
	CHF	*USD*	CHF	*USD*	CHF	*USD*	CHF	*USD*	CHF	*USD*	CHF	*USD*	CHF	*USD*
Net sales	2,136	*1,441*	2,275	*1,736*	2,025	*1,753*	2,211	*1,639*	2,580	*1,772*	2,630	*1,907*	2,814	*1,761*
Cash & marketable	N/A	*N/A*	1,255	*958*	1,282	*1,110*	385	*285*	383	*263*	402	*292*	706	*442*
Financial fixed assets	N/A	*N/A*	30	*23*	27	*23*	1,130	*838*	1,266	*869*	1,519	*1,102*	1,484	*929*
Depreciation	139	*94*	132	*101*	116	*100*	128	*95*	136	*93*	140	*102*	139	*87*
Operating income	147	*99*	219	*167*	171	*148*	140	*104*	194	*133*	226	*164*	261	*163*
Net income	173	*117*	168	*128*	193	*167*	204	*151*	226	*155*	262	*190*	321	*201*
Cash flow	312	*210*	300	*229*	310	*268*	332	*246*	362	*249*	401	*291*	461	*288*
Equity	1,439	*971*	1,530	*1,167*	1,633	*1,414*	1,857	*1,376*	2,013	*1,382*	2,197	*1,593*	2,470	*1,545*
Long-term liabilities	653	*441*	731	*558*	674	*584*	684	*507*	567	*389*	604	*438*	694	*434*
Short-term liabilities	461	*311*	510	*389*	464	*402*	575	*426*	607	*417*	613	*445*	655	*410*
Capital expenditures for tangible and intangible fixed assets	169	*114*	129	*98*	171	*148*	174	*129*	138	*95*	156	*113*	152	*95*
Tangible and intangible fixed assets	710	*479*	685	*523*	645	*558*	696	*516*	653	*448*	653	*474*	684	*428*
Financial investments	32	*22*	30	*23*	27	*23*	1,130	*838*	1,266	*869*	1,519	*1,102*	1,484	*929*
Total current assets	1,813	*1,223*	2,058	*1,570*	2,108	*1,825*	1,300	*964*	1,276	*876*	1,242	*901*	1,652	*1,034*
Cash as of Dec 31	936	*631*	1,097	*837*	1,128	*977*	173	*128*	168	*115*	179	*130*	507	*317*
R&D expenditure	68	*46*	70	*53*	73	*63*	76	*56*	82	*56*	96	*70*	123	*77*
Number of employees	11,490		11,600		11,220		11,600		12,110		12,700		13,190	

Source: Hilti annual reports; Capital IQ.

Notes: 1. Uses the December 31 exchange rate for each year, from the Oanda currency converter: https://www.oanda.com/currency/converter/. 1995 1 CHF = 0.86580 USD; 1996 1 CHF = .74118 USD; 1997 1 CHF = .68663 USD; 1998 1 CHF = .72516 USD; 1999 1 CHF = .62570 USD.

2. From 1996 onward, financial investments include securities, which serve the group as a long-term investment (previously, they were shown as current assets).

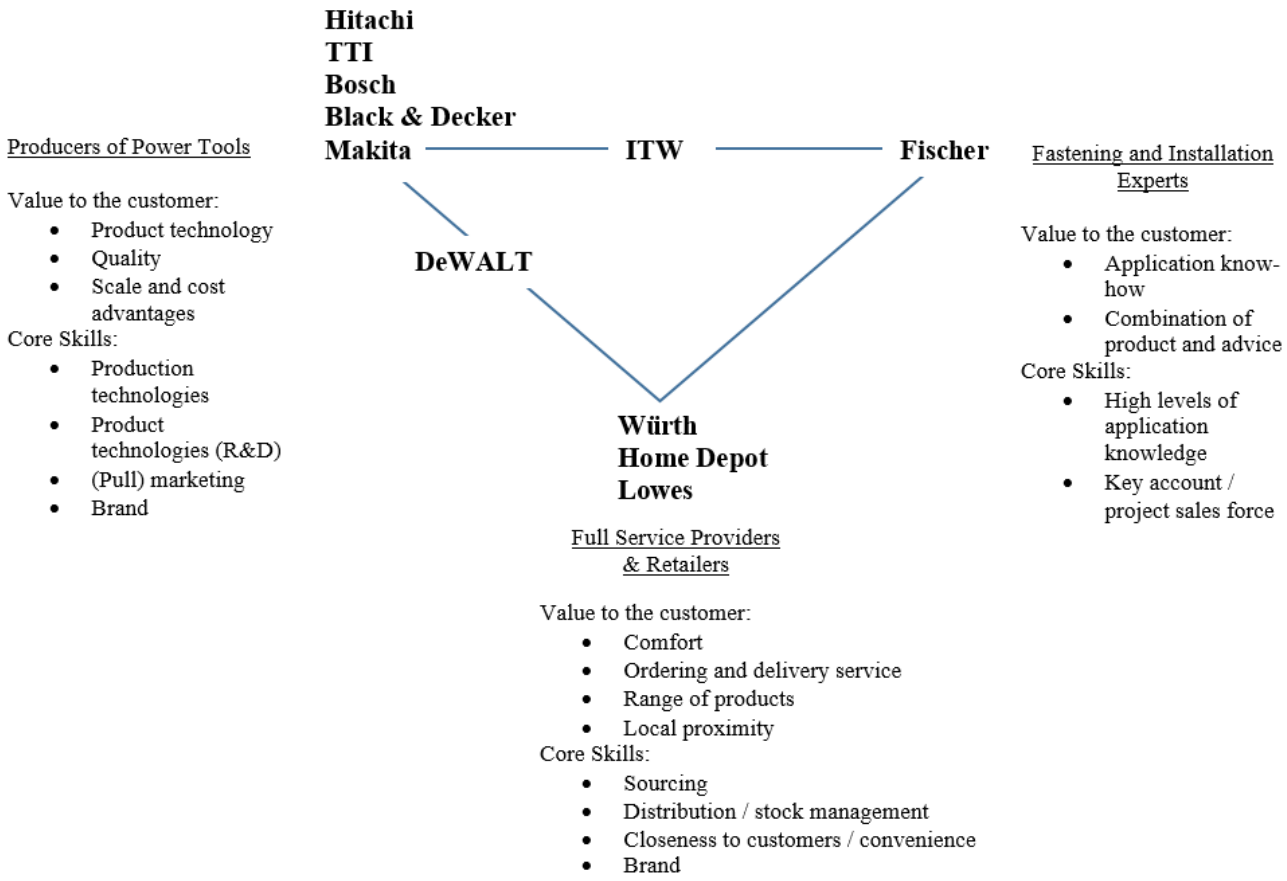
Exhibit 3 Hilti Balance Sheets, 1994–1999 (all financial data in millions)

	1994		1995		1996		1997		1998		1999	
	CHF	*USD*	CHF	*USD*	CHF	*USD*	CHF	*USD*	CHF	*USD*	CHF	*USD*
Assets												
Intangible fixed assets	12	*9*	12	*10*	14	*10*	14	*10*	31	*22*	37	*23*
Tangible fixed assets	672	*513*	632	*547*	682	*505*	639	*439*	622	*451*	646	*404*
Financial fixed assets	30	*23*	27	*23*	1,130	*838*	1,266	*869*	1,519	*1,102*	1,484	*929*
Total fixed assets	714	*545*	671	*581*	1,827	*1,354*	1,919	*1,318*	2,172	*1,575*	2,168	*1,357*
Inventories	350	*267*	339	*294*	357	*265*	317	*218*	292	*212*	322	*201*
Trade accounts receivable	375	*286*	380	*329*	432	*320*	447	*307*	438	*318*	510	*319*
Other receivables	44	*34*	70	*61*	79	*59*	72	*49*	61	*44*	70	*44*
Cash & marketable securities	1,255	*958*	1,282	*1,110*	385	*285*	383	*263*	402	*292*	706	*442*
Accrued income & prepayments	35	*27*	38	*33*	47	*35*	57	*39*	49	*36*	45	*28*
Total current assets	2,058	*1,570*	2,108	*1,825*	1,300	*964*	1,276	*876*	1,242	*901*	1,652	*1,034*
Total assets	2,773	*2,116*	2,780	*2,407*	3,126	*2,317*	3,194	*2,193*	3,414	*2,476*	3,819	*2,390*
Equity												
Share capital	100	*76*	100	*87*	100	*74*	100	*69*	100	*73*	100	*63*
Participation capital	40	*31*	40	*35*	44	*33*	44	*30*	44	*32*	44	*28*
Capital reserves	108	*82*	108	*94*	156	*116*	156	*107*	156	*113*	156	*98*
Retained earnings	1,114	*850*	1,193	*1,033*	1,353	*1,003*	1,487	*1,021*	1,635	*1,186*	1,849	*1,157*
Net income	168	*128*	193	*167*	204	*151*	226	*155*	262	*190*	321	*201*
Total equity	1,530	*1,167*	1,633	*1,414*	1,857	*1,376*	2,013	*1,382*	2,197	*1,593*	2,470	*1,545*
Liabilities												
Bonds	400	*305*	400	*346*	400	*296*	300	*206*	350	*254*	350	*219*
Long-term bank borrowings	67	*51*	55	*48*	56	*42*	37	*25*	23	*17*	58	*36*
Other long-term liabilities	20	*15*	10	*9*	9	*7*	6	*4*	6	*4*	6	*4*
Provisions	245	*187*	209	*181*	218	*162*	225	*154*	225	*163*	281	*176*
Total long-term liabilities	731	*558*	674	*584*	684	*507*	567	*389*	604	*438*	694	*434*
Short-term bank borrowings	157	*120*	154	*133*	212	*157*	215	*148*	224	*162*	199	*125*
Trade accounts payable	102	*78*	82	*71*	100	*74*	103	*71*	96	*70*	92	*58*
Other short-term liabilities	125	*95*	123	*106*	130	*96*	112	*77*	112	*81*	132	*83*
Accrued liabilities	125	*95*	105	*91*	133	*99*	177	*122*	182	*132*	232	*145*
Total short-term liabilities	510	*389*	464	*402*	576	*427*	607	*417*	613	*445*	655	*410*
Total liabilities	1,241	*947*	1,138	*985*	1,259	*933*	1,174	*806*	1,217	*883*	1,349	*844*
Total liabilities and equity	2,773	*2,116*	2,780	*2,407*	3,126	*2,317*	3,194	*2,193*	3,414	*2,476*	3,819	*2,390*

Source: Hilti annual reports.

Note: Totals may not be exact due to rounding. This exhibit uses the December 31 exchange rate for each year, from the Oanda currency converter: https://www.oanda.com/currency/converter/. (For exchange rates, see **Exhibit 2**.)

Exhibit 4 Types of Players in the Power Tool Industry



Source: Casewriter.

Exhibit 5 Data on Hilti's Direct Competitors, 1999 (in million USD)

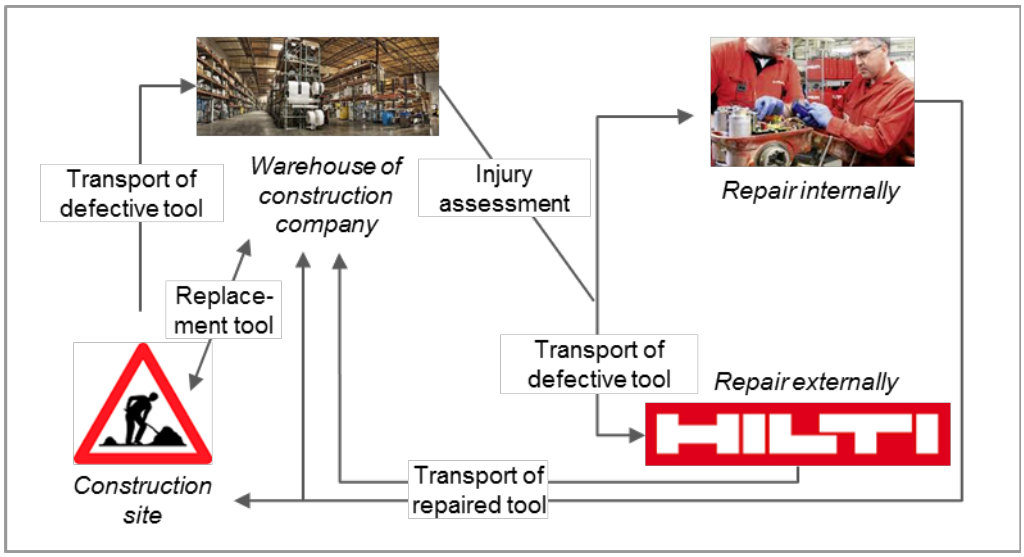
	Hitachi (Corporate parent)	Robert Bosch GmbH (part of Bosch Group)	Makita	Black&Decker (including Dewalt)	Techtronic Industries	ITW
Origin	Japan	Germany	Japan	USA	Hong Kong/China	USA
Type	Conglomerate	Conglomerate	Power tools manufacturer	Power tools manufacturer	Power tools manufacturer	Global diversified manufacturer
Net Sales	70,112	15,794	1,630 (Total domestic 357)	4,520	348 (Power tools 203)	9,333
Operating Income	(299)	452	125	536	25	1,405
Net Income	(2961)	353	29	300	22	841
Employees	328,351	194,335 (Bosch Group)	7,546	22,100	>6200	52,800
Percent Domestic Sales			22%	N/A	(-> North America: 79%)	N/A
Percentage of Power Tools Activities	N/A	N/A		70% of sales (rest from hardware and home improvement, and fastening and assembly systems)	58%	

Subsidiary/Division	**Hitachi-Koki**	**Consumer Goods and Building Technology, Bosch Group**
Net Sales	1267 (Power tools: 706) (Total domestic 911)	6,390
Operating Income	14 (Power tools: (24))	N/A
Net Income	(16)	N/A
Employees	N/A	N/A
Percent Domestic Sales	72%	

Exchange rates (1999): ¥113.78=USD 1 1.84 DM =USD 1 7.76 HKD = USD 1

Source: Data extracted from Hitachi, 2000 Annual Report (Tokyo: Hitachi, March 31, 2000); Bosch, 2002 Annual Report (Stuttgart, Germany: Bosch 2002); Bosch, 2000 Annual Report (Stuttgart, Germany: Bosch, 2001); Robert Bosch GmbH, 1999 Annual Report (Stuttgart, Germany: Bosch, 1999); Makita, 2000 Annual Report (Aichi, Japan: Makita, 2000); Black & Decker, 1999 Annual Report (Baltimore, Maryland: Black & Decker, December 31, 1999); Techtronic Industries, 1999 Annual Report (Hong Kong: Techtronic Industries, 1999); Illinois Tool Works Inc., Annual Report 1999 (Glenview, Illinois: Illinois Tool Works, 1999). Exchange rate data from https://www.oanda.com.

Exhibit 6 Standard Procedure for Repairing a Broken Tool without Fleet Management



Source: Casewriter's visualization based on interview with Arndt Paul, June 13, 2016.

Exhibit 7 Estimated Yearly Cost Comparison of Conventional Model and Fleet Management for a Customer with a Tool Fleet of 100 Tools (as calculated by Hilti for customer presentations)

	Fleet Management	Conventional Model	Assumptions underlying the Conventional Model
Fleet management price	$20,311	$0	
Costs for new tools per year	$0	$10,400	Customer uses 100 tools, has 4 spares, replaces quarter of fleet each year. Each tool costs $400
Depreciation costs for old tools	$0	$7,800	Portion of fleet that is not new (104-26 = 78 tools) depreciates fully over four years
Capital lock-up	$0	$520	104 tools x $200 (= capital value of half- depreciated tool) x 2.5% (= assumed cost of capital)
Repair	$0	$3,000	15 repairs per year x $200 per repair (= half the price of a new tool)
Theft	$120	$600	3 thefts per year x $200 per theft (= value of a half-depreciated tool)
Tool calibration	$0	$150	10 calibrations per year x $15 per calibration
Batteries and chargers	$0	$325	3 batteries per year @ $65 each + 2 chargers per year @ $65 each
Total direct cost	**$20,431**	**$22,795**	

Source: Customer data specifications and calculation method are based on a Hilti presentation titled "Geräteparkanalyse: Bestandsanalyse und Optimierung Ihres Geräteparks" ("Equipment park analysis: Inventory analysis and optimization of your equipment park").

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