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Commoditization: a threat or an opportunity?

A Case Study on IBM

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Abstract

The purpose of this work project is to analyze the concept of commoditization in the information technology industry (IT). It is based on a case study that describes how IBM, a successful company for more than seventy years, was affected by the commoditization of the personal computer segment in the early 1990s and the strategic transformation undertook by the company to overcome this problem. Furthermore, it is also emphasized IBM's decisions to exit commoditized segments and to shift its portfolio towards services and software, due to their major contribution in bringing the company back to its leading position in the marketplace.

Keywords: IBM, Strategy, Commoditization, Information Technology Industry.

Contents

Case Narrative

1. The rise of the Big Blue (1910-1970s)

On June 1911, three American companies - the Tabulating Machine Company, the International Time Recording Company and the Computing Scale Company – decided to merge to form the Computing Tabulating Recording Company (CTR). In 1914, Thomas J. Watson joined the company as general manager and one year later he became CTR's Chief Executive Officer (Nebeker, 2009). Although the tabulating business was a small and unprofitable segment for the company, Watson recognized that the expansion of the economy, the increasing sophistication of the accounting processes and complexity of the organizations would led to a significant increase in the demand for punched card tabulators, one of the early information-processing technologies (see **Exhibit 1** for more information about the punched card tabulator; Kim and Mauborgne, 2005).

Furthermore, very early on its history, CTR expanded its offices and plants across the United States. This domestic expansion was just the beginning of an internationalization process through South America, Europe, Asia and Australia. As a result of this intense period of international expansion, the company decided to change its name to International Business Machines Corporation (IBM) in 1924 (Tung, 2001).

The end of the 1930s and the early 1940s were a period of significant progress in the electronic computing area, particularly in the United States where the government supported the development of information-processing-related projects. Those projects involved both U.S. universities and firms such as National Cash Register, General Electric and International Business Machines Corporation, creating a base of knowledge, critical mass skills and experiences that were fundamental to the development of the first digital computers immediately after the end of the World War II (Chandler and Cortada,

2000). In fact, in 1946 it was commercialized the first digital computer, a mainframe called ENIAC (Electronic Numerical Integrator and Computer) that was developed by Presper Eckert and John Mauchly (Burg, 2001).

Even though IBM was part of the first projects to produce digital computers (Chandler and Cortada, 2000), it focused on developing large electronic business calculators. Thus, it was only in 1953 that IBM entered the digital computing business with the development of the **IBM 701** (Yost, 2005). During this decade it also introduced **IBM 650** Magnetic Drum Calculator, an intermediate size computer that became known as "the Model T of computers" due to its enormous success in the 1950s. IBM was not a first mover in digital computing, but it rapidly established itself as the world market leader in computer business (see **Exhibit 2** for the evolution of the market shares in electronic data-processing equipment). This was a result of the company's continuous investment in R&D to create new products, its exceptional marketing competence and its excellent sales teams and management structures (Mowery and Nelson, 1999).

IBM's dominant position was conserved during the following decades with the company's successive innovations in computing. One of these innovations came in 1964 when IBM announced the **System/360**, a family of computer systems based on the principles of *compatibility* and *scalability*. For the first time, a group of different-sized machines could run the same software and any of the wide range of IBM peripheral equipment such as printers, disk drives and memory units could be plug into without changing the whole installation (Ferguson and Morris, 1994). In addition, clients might move across the entire range of System/360 machines, as their processing needs increase. Although mainframe computers were highly used by large public and private organizations to manage the vast amounts of data, it had emerged the idea that the

computers could serve the needs of smaller enterprises that did not need such powerful machines. Consequently, in 1960 the Digital Equipment Corporation (DEC) introduced the first **minicomputer**, the PDP 1 (Morris, 2001). IBM, along with other companies such as Data General and Prime Computer, entered the minicomputer market with a line of products that became known as the midrange system (Lindgren, 2001).

Hence, during these decades IBM made fundamental contributions to the computer industry and played an important role in replacing the traditional electro-mechanical data processing machines for financial, manufacturing, engineering and other enterprise applications that helped firms to increase their performance (Yost, 2005).

2. The IBM PC: a Trojan horse inside Big Blue walls

The microprocessor revolution and the rise of the personal computer

The advances in the microelectronics led to the development of the first microprocessor in 1971, the Intel 4004. In the following years other companies namely the National Semiconductor and Motorola commercialize their own microprocessors. This innovation gave the possibility to create the first commercially available **microcomputer**, the Altair, which was launched by MITS in 1974. Two years later Apple introduced Apple I and in 1977 Apple II. In this same year, Commodore announced the Personal Executive Terminal (PET) and Tandy the TRS-80 (Estabrooks, 1995). By 1980, these three companies were leading the microcomputer market, Tandy with twenty-five percent of market share, Commodore with twenty-three and Apple with seventeen percent of share (see **Exhibit 3**).

Though IBM was successfully leading the mainframe market in 1980 (see **Exhibit 4**), it started to be pressured "from inside and outside the company to develop a more effective

strategy for the rapidly growing personal computer marketplace" (Estabrooks, 1995: 60). Consequently, it set up an independent design group to develop the company's version of microcomputer, the **IBM PC**, which was introduced in the market in 1981. In this process IBM contracted out the microprocessor to Intel and the operating system to Microsoft, breaking with the company's traditional strategy of self-developing the essential components of its products or protecting them through proprietary standards. Hence, IBM allowed Intel and Microsoft to sell or license the microprocessor and operating system to other PC manufacturers (Dolata, 2013).

This decision to adopt an open architecture can be explained by the pressure to get IBM's first microcomputer ready to sell on the market, the company's lack of insight into the importance that the PC would assume in the information-technology industry and IBM's antitrust battle with the Justice Department (Mills and Friesen, 1996), which began in 1968 and "created a legacy of competitive caution within IBM - particularly against smaller firms" (Ferguson and Morris, 1994: 88).

IBM entered the Personal Computer as a second mover, nevertheless the company soon dominate this new market segment and established a leading position concomitantly in the whole hardware sector – mainframes, minicomputers, microcomputers (PCs) and peripherals (see **Exhibit 5** for IBM's market share in 1985).

Commoditization

The introduction of the PC in the market came with a set of challenges for IBM. Firstly, the decision to use an operating system and a microprocessor from third parties opened opportunities for numerous computer manufacturers to develop IBM-compatible PCs (clones) and to sell them at lower prices in a highly competitive market (Dolata, 2013). Secondly, IBM was not used to commercialize such a high-volume low-margin product

and its traditional customer base consisted of management information systems engineers and not small businesses and individuals (Mills and Friesen, 1996). Thirdly, there was also an important change in the distribution channels with IBM's decision to subcontract the sales of the personal computers to retailers such as Computerland and Sears Business Centers (Ferguson and Morris, 1994).

As a result, a strategy that seemed to work until the mid-1980s was revealing its problems. The PC's open architecture led to a rapidly spread of clone manufacturers such as Compaq and Dell. These companies were able to produce PCs in a shorter period of time and sell them at lower prices (Estabrooks, 1995). As the competition increased and customer became more informed and incurred relatively low costs to change suppliers, the personal computer value dropped and it progressively became a commoditized segment in IBM's portfolio (Reimann et al., 2010). At this point it was clear that the company had lost control over a market that once it completely dominated.

3. Trapped: the financial impact of PC commoditization

In the early 1990s, IBM was experiencing severe difficulties. The USA economy went into recession at the end of the 1980s. It was not a severe downturn but to some extent it affected negatively the IT industry due to the fact that many corporations decided to postpone their investments as a way to protect themselves from this period of uncertainty (Ward, 2004). IBM's sales revenues were decreasing in its most important segment, the hardware, and the company's costs in all segments were increasing (see **Exhibit 6** for IBM's financials). Consequently, IBM reported losses for the first time in three consecutive years (1991-1993) including an $8.1 billion deficit in 1993, the largest annual loss in US corporate history (see **Exhibit 7** to analyze the net income of the leading

American PC manufacturers; Lazonick, 2010). Furthermore, IBM's stock price dropped significantly, especially in 1993 (see **Exhibit 8** for the company's stock price evolution), there was a cut in the dividend payment (see **Exhibit 9**) and a credit downgrading from AAA to AA- by Standard & Poors (Ward, 2004).

In 1993 John Akers, the IBM's CEO for the last eight years, announced his retirement. Therefore, the company created a committee to search for a candidate to the position left by Akers and according to Jim Burke, head of this committee, the company needed an effective leader more than a technologist (Gerstner, 2003). On the first of April 1993, Louis Gerstner became officially the company's CEO - "I said yes. In retrospect, it's almost hard for me to remember why. I supposed it was some of Jim Burke's patriotism and some of Tom Murphy's arguments playing to my gluttony for world-class challenges. At any rate, we shook hands and agreed to work out a financial package" (Gerstner, 2003: 17).

4. Strategic Transformation: fighting back the commoditization trap

We need leadership and a sense of direction and momentum, not just from me but from all of us. I don't want to see a lot of prophets of doom around here. I want can-do people looking for short-term victories and long-term excitement.

Louis Gerstner, CEO, International Business Machines Corporation, 1993.

Gerstner (2003) defined that IBM's strategy would be transforming the company into the foremost integrator of technologies to help its customers envision, design and build end-to-end solutions. So, in 1993 IBM began "one of the largest reengineering projects ever undertaken by a multinational corporation" (Gerstner, 2003: 63-64) that involved a

cultural and organizational transformation (see **Exhibit 10a** for IBM's ninety-day priorities and **Exhibit 10b** for Gerstner's expectations).

Despite the increasing pressure to split IBM into several operating units, the company's CEO argued that "given IBM's scale and broad-based capabilities, and the trajectories of the information technology industry, it would have been insane to destroy its unique competitive advantage and turn IBM into a group of individual component suppliers" (Gerstner, 2003: 61). Hence, he decided to **keep the company together**, a new direction that became known as "One IBM" (Austin and Nolan, 2000).

In order to solve the company's precarious financial situation and **get costs under control**, Jerry York was hired. As a result, "York and Gerstner approved layoffs of over 75,000 employees in the early 1993" (Applegate et al., 2005: 6), they ended with the "complex transfer pricing system that led IBM divisions to expend effort on internal negotiations and accounting games" and "sold off some non-core business, including the Federal Systems Company" (Austin and Nolan, 2000: 10). Furthermore, IBM had one of the most complex structures in the world with twenty separated business units and twenty-five data centers (Gesmin et al., 2011). Therefore, Louis Gerstner pulled divisions into larger business groups and formed the **Corporate Executive Committee** (CEC), whose responsibility was focusing on the company's corporate strategy and its turnaround, and created the **Worldwide Management Council** (WMC) that aimed to define and implement international strategies and operations. Moreover the sales divisions, which used to be organized by geography and product, were integrated into global sales teams (Applegate et al., 2005) and each of them was divided into customer relationship managers and product specialists (Austin and Nolan, 2000). In addition, Gerstner intended to rebuild IBM as a **customer-oriented organization**. Hence, he assigned

customer accounts to each team and challenged them to visit their biggest customers in the following few months. The purpose of these visits was to encourage executives to listen to customer's problems and complaints and find ways to satisfy their needs and requirements (Harreld et al., 2007).

By 1993, "IBM had more than seventy ad agencies, each working on its own and without any central coordination" (Gerstner, 2003: 88). In order to create **one common brand message** for all IBM products and services around the world, the company consolidated its advertising agencies into a single one, Ogilvy & Mather (DiCarlo, 2002).

One year later, it was also instituted a significant change in the company's **compensation system**. Firstly, employee compensation was tied to the performance of the firm rather than exclusively to a particular division or unit performance. Secondly, it was introduced the variable pay to emphasize that "if the company could pull off its turnaround, each and every one of them would share in the rewards" (Gerstner, 2003: 101). Thirdly, stock options were offered to IBMers in order to reinforce the idea that compensation would be based on the performance of the company and workers interests would be aligned with those of shareholders by tying performance to share price. Lastly, IBM benefits programs were cut back (Gerstner, 2003).

Additionally, there was a **strategic transformation in the company's portfolio** (see **Exhibit 5** and **Exhibit 11** for a comparison of IBM's position in the market in 1985 and in 1996) as it was emerging the idea that "over the next decade, customers would increasingly value companies that could provide solutions – solutions that integrated technology from various suppliers and, more important, integrated technology into the processes of an enterprise" (Gerstner, 2003: 123). Furthermore, with the commoditization of one of IBM's most important segments - the hardware – the company needed to move

its portfolio into a more balanced range of high-value offerings. For IBM it meant that the company would not only focus on **growing the services and software businesses**, but it would also divest "low-margin product lines and technologies like memory chips, technology components, printers, displays and personal computers" (Kralingen, 2010). Hence, to reinforce its position in the software business, IBM acquired two important software companies, first Lotus Development Corp in 1995 and nine months later Tivoli Systems (Geisst, 2006).

Finally, at a time when most corporations underestimated the value and importance of the Internet, IBM defined that **e-business** would be its new growth strategy (Applegate et al., 2005).

Moving ahead: from a manufacturing to a services company

The new century brought a transition in IBM's leadership, Louis Gerstner was replaced by Samuel J. Palmisano, who became IBM's chief executive officer in 2002 (Lyons, 2005). In this same year, IBM purchased PwC Consulting aiming to have the necessary resources and capabilities to offer its customer integrated business solutions through the new business unit that was created - IBM Business Consulting Services (Kirkpatrick, 2004). Additionally, in an attempt to focus on more profitable segments, IBM sold off its disk drive manufacturing business to Hitachi in 2002 and its PC business to Lenovo, the Chinese maker of personal computers, at the end of 2004. Moreover, in 2007 the company spin off its printing division to Ricoh due to the intense competition that the company was encountering, especially from HP and Xerox (Hill and Jones, 2012).

These agreements were aligned with the company's goal to shift its portfolio range from the so-called commodity products to services and software business (**Exhibit 12** for the evolution of the relative importance of each segment in IBM's revenues).

5. Results and prospective

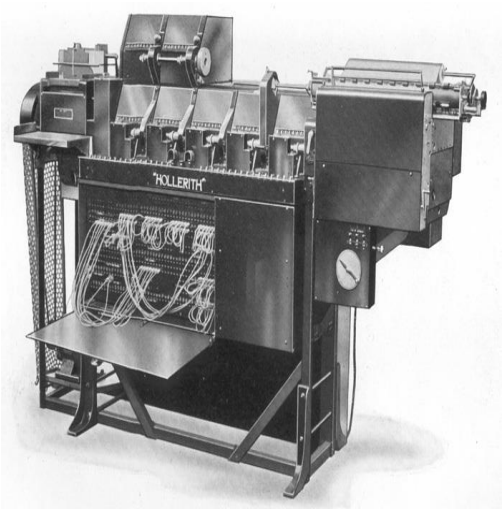
IBM increased its sales revenues in services and software, which in 2000 were $33 billion and $12.5 billion respectively (see **Exhibit 6** for the evolution of sales revenues in each segment). In addition, IBM regained its profitability after reporting losses for three consecutive years (see **Exhibit 7**) and in just two years the company was able to recover from the significant drop in its stock share price (see **Exhibit 8**; Lazonick, 2010). The company changed the mix of its business from hardware to software and services and is focused on business intelligence and analytics, service-oriented architecture and cloud computing. Moreover IBM, as a globally integrated enterprise, is leveraging its scale to capture new growth opportunities through the company's Smarter Planet initiative.

Virginia Rometty, IBM's Chairwoman and Chief Executive Officer, summarizes the company's past and future challenges:

> Today, another new wave is sweeping in — powered by Big Data, analytics, mobile, social and cloud. We anticipated this several years ago with our point of view on building a Smarter Planet - a world that was becoming instrumented, interconnected and intelligent. Now, the IT environment is moving from monolithic applications to dynamic services; from structured data at rest to unstructured data in motion; from PCs to unprecedented numbers and kinds of devices; from stable to unpredictable workloads; from static infrastructure to cloud services; and from proprietary standards to open innovation. This shift plays strongly to IBM's historic position in enterprise computing. So we are, as we have so often done in the past, reshaping our investment, innovation and market strategies to lead. (IBM, 2012)

6. Appendices

Exhibit 1 - Punched Card Tabulator



The punched card tabulator was invented by Herman Hollerith to assist in processing data for the 1890 U.S. Census. This machine collected and counted data more rapidly and accurately than the manual processes. Soon it started being used in businesses and for nearly a century it played an important role in helping organizations dealing with inventory and accounting processes.

Source: Aspray, William (Ed.), Computing Before Computers, Iowa State University Press, ISBN 0-8138 0047-1 (1990), Chapter 4.

Exhibit 2 - Installed Base of Electronic Data-Processing Equipment: Market Share U.S.

(% of the Retail Sales Value)

Year	IBM	Sperry Rand	Honeywell	RCA	Burroughs	CDC
1955	56.1	38.5	-	5.1	-	-
1957	78.5	16.3	0.3	0.8	3.9	-
1959	74.5	17.8	1.2	1.4	4.2	-
1961	69.3	15.5	2.0	3.0	2.6	2.2
1963	69.8	11.2	1.8	3.5	2.6	4.0
1965	65.3	12.1	3.8	2.8	3.6	5.4
1967	68.1	10.6	4.7	3.2	2.9	5.7

Source: Honeywell, Inc. v. Sperry Rand Civil Action 4-67, Civ. 138 US District Court, 4th Dist. Minn.

Exhibit 3 – Microcomputers: Worldwide Shipments in 1980

Company	Volume (Units)	Percent (%)
1. Tandy-Radio Shack	111,000	25
2. Commodore	102,120	23
3. Apple	75,480	17
4. Hewlett-Packard	26,640	6

Source: International Data Corporation 1981 *Computer Industry Briefing Session*, p.D-8.

Exhibit 4 - Computer Mainframe: Worldwide Shipments in 1980

Company	Revenues ($millions)	Percent (%)
1. IBM	10,650	62.4
2. Sperry Univac	1,410	8.3
3. Burroughs	1,000	5.9
4. NCR	480	2.8

Source: International Data Corporation 1981 *Computer Industry Briefing Session*, p.C-3.

Exhibit 5 – Top Four Companies: Market share (%) in 1985

Rank	Mainframes		Minicomputers		PCs (Microcomputers)		Peripherals	
	Firm	%	Firm	%	Firm	%	Firm	%
1	IBM	59.8	IBM	34.2	IBM	46.7	IBM	48.0
2	Sperry Rand	8.1	Digital	15.6	Apple	13.6	Digital	10.6
3	Fujitsu	6.9	HP	10.3	Olivetti	7.5	Burroughs	6.1
4	NEC	5.2	Wang	8.5	Tandy	6.8	Xerox	5.9

Source: Chandler, 2001: 118-8 and 223-4.

Exhibit 6 – IBM's Financials ($millions)

	1980	1985	1990	1992	1994	1996	1998	2000	2003	2006	2009	2012
Revenue												
Services	4,425	11,536	11,322	14,987	16,936	22,310	28,916	33,152	42,635	48,247	55,128	59,453
Hardware	21,788	38,520	43,959	33,755	32,344	36,634	35,419	34,470	28,239	22,499	38,300	43,014
Software	-	-	9,952	11,103	11,346	11,426	11,863	12,598	14,311	18,204		
Financing	-	-	3,785	4,678	3,425	3,054	2,877	3,465	2,826	2,379	2,331	2,040
Other	-	-	-	-	-	2,523	2,592	1,404	1,120	94	-	-
Total Rev.	**26,213**	**50,056**	**69,018**	**64,523**	**64,051**	**75,947**	**81,667**	**85,089**	**89,131**	**91,423**	**95,758**	**104,507**
Cost												
Services	2,181	4,689	6,617	9,481	11,404	16,270	21,125	24,309	31,903	34,972	37,146	39,166
Hardware	7,968	14,911	19,401	19,698	21,300	22,888	24,214	24,207	20,401	14,175	13,606	13,956
Software	-	-	3,126	3,924	4,680	2,946	2,260	2,283	1,927	2,693		
Financing	-	1,503	1,579	1,966	1,384	1,481	1,494	1,965	1,248	1,182	1,220	1,087
Other	-	-	-	-	-	1,823	1,702	747	634	107	-	-
Total Cost	**10,149**	**21,103**	**30,723**	**35,069**	**38,768**	**45,408**	**50,795**	**53,511**	**56,113**	**53,129**	**51,973**	**54,209**
Net Income	**3,562**	**6,555**	**6,020**	**-4925**	**3,020**	**5,429**	**6,328**	**8,093**	**7,583**	**9,492**	**13,425**	**16,604**

Note: In the first quarter of 2007, the company changed the presentation of revenue and cost in the Consolidated Statement of Earnings to reflect the categories of Services, Sales and Financing.

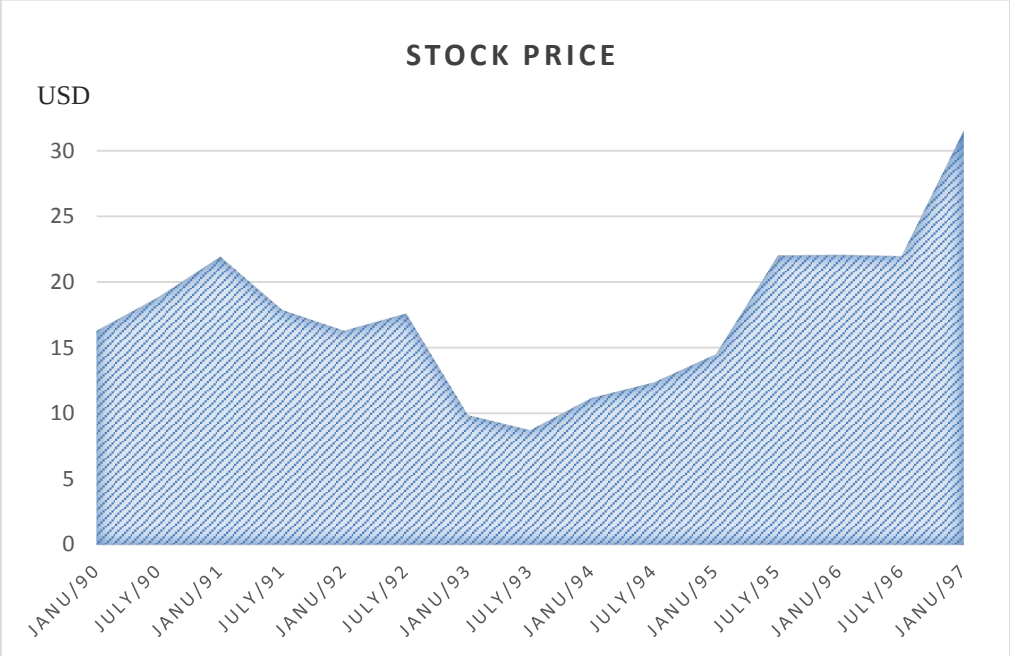
Source: IBM Annual Reports.

Exhibit 7 – Net Income for the Leading American PC Manufacturers ($millions)

Year	IBM	Hewlett-Packard	Apple	Compaq	Dell
1990	5967	739	475	455	27
1991	**-2861**	755	310	131	51
1992	**-4965**	549	530	213	102
1993	**-8101**	1177	87	462	-36
1994	3021	1599	310	988	149
1995	4178	2433	424	893	272

Note: From 1991 to 1993 IBM reported losses that totaled $15.9 billion.
Source: Annual Reports.

Exhibit 8 – IBM's Stock Price Evolution (USD)



Source: Yahoo Finance.

Exhibit 9 – IBM's Dividend Payment (USD)

Period	1985-88	1989-92	Feb/May 93	Aug/Nov 93	1994-95	1996	1997	1998
Value	0.275	0.3025	0.135	**0.0625**	**0.0625**	0.0875	0.10	0.11

Source: Yahoo Finance.

Exhibit 10a - IBM's Ninety-Day Priorities

- Stop hemorrhaging cash. The company was close to running out of money.
- Make sure it would be profitable in 1994.
- Develop and implement a key customer strategy for 1993.
- Finish right-sizing by the beginning of the third quarter.
- Develop and intermediate-term business strategy.

Source: Adapted from Louis Gerstner, "Who Says Elephants Can't Dance?", pp. 24-25.

Exhibit 10b – Gerstner's Expectations

- Redefine IBM and its priorities starting with the customer.
- Give IBM's laboratories free rein and deliver open, distributed, user-based solutions.
- Recommit to quality, be easier to work with and reestablish a leadership position.
- Listen to customers and deliver the performance expected.

Source: Adapted from Louis Gerstner, "Who Says Elephants Can't Dance?", pp. 47-48.

Exhibit 11 – Top Four Companies: Market Share (%) in 1996

Rank	Mainframes		Minicomputers		PCs (Microcomputers)		Peripherals		Services	
	Firm	%	Firm	%	Firm	%	Firm	%	Firm	%
1	IBM	27.2	IBM	27.5	IBM	16.2	IBM	18.4	IBM	28.9
2	Fujitsu	25.8	HP	15.9	Compaq	14.1	HP	17.9	EDS	18.3
3	NEC	19.7	Compaq	14.4	Fujitsu	12.3	Seagate	14.0	HP	12.0
4	Hitachi	9.4	NEC	9.1	Toshiba	9.9	Canon	12.0	Digital	7.6

Source: Chandler, 2001: 118-8 and 223-4.

Exhibit 12 – Relative Importance of Each Segment in the Company's Revenues (%)

	1980	1985	1990	1992	1994	1996	1998	2000	2003	2006	2009	2012
Services	16.88	23.05	16.40	23.23	26.44	29.38	35.41	38.96	47.83	52.79	57.57	56.89
Hardware	83.12	76.95	63.69	52.31	50.50	48.24	43.37	40.51	31.68	24.60	40.00	41.16
Software	-	-	14.42	17.21	17.71	15.04	14.53	14.80	16.06	19.91		
Financing	-	-	5.49	7.25	5.35	4.02	3.52	4,08	3.17	2.60	2.43	1.95
Other	-	-	-	-	-	3.32	3.17	1.65	1.26	0.10	-	-

Note: In the first quarter of 2007, the company changed the presentation of revenue and cost in the Consolidated Statement of Earnings to reflect the categories of Services, Sales and Financing.

Source: IBM Annual Reports.

Discussion Questions

I. What accounted for IBM's decline in the early 1990s? To what extent was IBM's failure a result of its strategy?

II. Explain the commoditization concept introduced in the case. What were the strategies that IBM adopted to deal with it? In your opinion what other strategies could have been implemented?

III. Develop a SWOT analysis regarding IBM's current situation.

Teaching Note

Despite the large number of studies about IBM, most of them were developed through the perspective of strategy formulation and implementation, leadership and managing organizational change. In fact, these are all important aspects to be analyzed and this work also addresses some of them. Nevertheless, the relevance of this case study is reflected in the way the concept of commoditization is emphasized and its connection with IBM's crisis in the early 1990s, which is an approach that has not been explored in previous works.

Therefore, this case study could be an interesting tool to introduce students to the concept of commoditization, explore how it can affect the success of a corporation and analyze the possible strategies that can be adopted to overcome this problem, in courses such as (Corporate) Strategy, Consulting, Leadership and Change Management.

Discussion Note

I. What accounted for IBM's decline in the early 1990s? To what extent was IBM's failure a result of its strategy?

There are both endogenous and exogenous factors that were responsible for the decline of IBM in the early 1990s. An economic recession affected the world major economies (Applegate and Harreld, 2009) and this situation influenced negatively the demand for IT products and services, due to the fact that during the periods of uncertainty corporations are in general less willing to make large investments (Ward, 2004).

Internally, IBM's decision to build the PC on the basis of an open architecture and without controlling the distribution channels enabled other firms to offer equivalent technologies. The main result was IBM's lack of control over the PC market and its **commoditization** (Samuelson, 2006).With the significant increase in **competition** and fierce price wars that emerged, **c**ustomers started to choose personal computers mainly based on price and companies' profits shrank.

Contrary to IBM, its main competitors ran very lean operations and operated more efficiently (low-cost manufacturers). In 1992, the IBM **cost disadvantage** was about US$200 to US$1,000 per PC (Wong, 1994). Furthermore, IBM made a **market analysis mistake** by underestimating the importance that the personal computer would have in the information-technology industry. Additionally, due to the company's **size**, **complexity** and its **excessive confidence,** based on the great success that the company achieved during the previous decades, IBM became **inflexible**, preoccupied with **its own view of the world**, it **moved too slowly** and it **lost touch with customers**.

Thus we can conclude that along with the economic recession, the company's strategy and the decisions that were made around the PC were responsible for the company's failure in the early 1990s.

II. Explain the commoditization concept introduced in the case. What were the strategies that IBM adopted to deal with it? In your opinion what other strategies could have been implemented?

According to Andrew Holmes (2008) commoditization is a natural business process that started long ago on the production lines of the factories of Northern England and spread to several industries such as telecommunications, airlines or information technology (IT) industries. Regarding the history of IT industry, Carr (2003) argued that in each stage of its development, there was greater standardization of technology and homogenization of its functionalities. He also defended that it has been characterized by an increasing interconnectivity and interoperability. The combination of these factors have led to the commoditization of certain segments in this industry, which means that "product differentiation is difficult, customer loyalty and brand values are low, and sustainable advantage comes primarily from cost (and often quality) leadership" (Weil, 1996).

As it is described in the case, in the mid-1980s the PC became increasingly cheap and less distinguishable among different manufacturers, customers could easily switch between suppliers, the technical replication cycle got shorter and competition was based on prices. The PC became a commoditized business.

Hence, to overcome this problem IBM designed and implemented a strategic transformation that led the company to move from a computer supplier to a solutions provider. It remixed its business by exiting commoditized segments and strengthening its position in high value and relationship intensive segments of the industry – services and software. It purchased Lotus Development Corporation, Tivoli Systems and PwC

Consulting. Through these acquisitions, IBM got the necessary capabilities and resources to explore the software segment and provide integrated business solutions to its customers. Furthermore, the company's decision to sell its loss-making PC division to Lenovo, the disk drive business to Hitachi and the printing division to Ricoh were particularly important to the reduction of the company's exposure to commoditized business. Additionally, IBM believed that the Internet would be a "powerful integrating platform for doing business inside a company and across business networks" (Applegate and Harreld, 2009: 4). Therefore, it was the first business-to-business (B2B) company to incorporate the Internet in its strategy. This whole transformation reshaped IBM's culture and enhanced the company's efficiency with major changes in its organizational structure and in the way most processes were carried out.

Regarding the other possible strategies IBM could have maintained its presence in the hardware business by adopting a strategy of product differentiation, similar to Apple's approach. Hence, in order to differentiate from PC clones and regain profitability from ailing business units, IBM would need to design and manufacture products with high standards of quality; invest on the uniqueness of their functionalities, features and services; commercialize them mainly through the company's own distribution channels and keeping control over their key components. The combination of these elements with one of its most important intangible asset - a strong brand reputation – would enable the company to provide customers with a superior experience and satisfy their needs and expectations by offering products that clients would highly value and consequently would be willing to pay more for them. However, this would mean undermining the hardware and software compatibility around the IBM PC standard platform. The market would not tolerate such a move, as can be demonstrated by one natural experiment. IBM tried to

move in that direction in the early 1990s, launching the Micro Chanel Architecture (MCA) architecture, a new microprocessor (PowerPC) and a new operating system (OS/2). This move to proprietary platforms was not followed by the market for PCs, where clones already dominated (Whittaker, 2004).

III. Develop a SWOT analysis regarding IBM's current situation.

The SWOT analysis is an important tool to identify internal and external factors that can affect positively or negatively the success of a company by analyzing its strengths, weaknesses, market opportunities and potential threats (Ferrell and Hartline, 2012).

Main Strengths

IBM has built a **strong brand status** worldwide. It has consistently ranked as one of the world's most innovative, profitable, and sustainable brands. As a result, it is perceived as a technological leader compared to its competitors. This reputation certainly influences consumers' buying decisions towards the acquisition of IBM's products and services and reinforces its image (Interbrand, 2012).

To sustain this reputation and its position in the market, IBM spends over $6 billion a year for **R&D** to focus on high-growth and high-value opportunities. These investments have enabled the company to develop key innovations and to maintain U.S. patent leadership for twenty consecutive years.

Additionally, over the last thirteen years, IBM has acquired more than one hundred and forty companies in strategic areas such as analytics, cloud, security and commerce. These acquisitions have enabled the company to strengthen its leading position in software and consulting businesses and to reinforce its **competency in acquisitions** (IBM, 2012).

Moreover, IBM has a **diversified portfolio** that includes hardware, software and services. This diversification has led the company to explore the higher profitability of software

and services and protect itself from the negative trends in hardware market by adjusting the importance that each segment assumes in the company's portfolio. Furthermore, the company has the possibility to combine in its offerings a mix of hardware, software and services; and consequently provide customer with a wide range of solutions that satisfy their needs and requirements (IBM, 2012).

Main Weaknesses

Due to its **size** and **complexity** IBM's development cycles tend to be longer than its competitors, which implies that the company takes more time to react and respond to customers' needs and expectations as well as to the industry fluctuations (Gerstner, 2003). Although the dimension of a company and its resources are considered important, they are no longer the determinants of success. Instead, innovation, flexibility and adaptability stand out as the most important attributes to succeed (Adams and Brock, 2004).

Main Opportunities

IBM can benefit significantly from exploring new **cooperative relationships** with local institutions and corporations in the places where the company plans to enter and even where it is already operating. For instance, by using global partnerships in Africa, IBM has been able to won strategic contracts that facilitate the company's entrance and expansion in regional markets (Frier, 2013).

Furthermore, today innovation is predominantly the product of a **collaborative process** that involves customers, institutions and even other firms. In fact, in hardware IBM has co-developed with Sony and Toshiba. In software it has embraced with Linux and other **open-source** software, which has given IBM new platforms to build some of their high-growth applications. These processes of collaboration have led the industry to grow faster

and helped the company to replace the profits lost to commoditization (Cravens and Pierce, 2012).

Moreover, IBM has significantly benefited from its investments in **emerging markets** with high growth potential, such as India, Brazil, China, Russia and more recently Africa. Hence, the company sees a great opportunity in reinforcing its position in these markets and continuing its geographic expansion to other emerging countries, where it has the chance to explore new sources of growth, enhance its capacity, develop talent and deepen its R&D capabilities (IBM, 2012).

Finally, by developing a **close relationship with customers**, IBM can get insights on customers' needs and on the future of the industry. Thus, more than be just a supplier IBM should be a partner (Applegate and Harreld, 2009).

Main Threats

IBM is facing **intense competition** not only from large players, but also from an increasing number of small and highly specialized firms. In the consulting and outsourcing industry it competes with Electronic Data Services (EDS), Accenture, Capgemini and low-priced outsourcing companies, especially Indian firms such as Tata Consulting Services, Wipro and Infosys. In hardware and software business IBM faces competition from Hewlett-Packard, Dell, Sun Microsystems, Oracle and Microsoft (Hill and Jones, 2012).

Other important threat is the **economic crisis** that began in 2007 and had a negative impact in some economies that, even today, are struggling to grow. This situation will continue to affect IBM's revenues due to the fact that sales depend on institutions and companies' willingness to invest in IT infrastructures, which is normally a decision that is postponed during periods of slow economic growth (Ward, 2004).

Conclusion

This case study demonstrates that the commoditization of a particular segment included in the portfolio of a corporation can pose a serious threat to its survival in the industry where it operates. In fact, in the early 1990s IBM was living the most severe crisis in its history, which was triggered mainly by the commoditization of the personal computer. To overcome this situation, IBM reduced its exposure to commoditized segments, reshaped the company's efficiency with major changes in the company's organizational structure and in the way most processes were carried out. Since then, IBM has focused on higher-margin business (services and software) and it has continued to innovate and reinvent products and services to satisfy demanding customers with sophisticated needs and high expectations. It has explored new geographic markets and focus on business performance and open standards. IBM not only managed to differentiate from its main competitors, but it also became competitive and ensured its long-term sustainability by transforming itself from a hardware manufacturing firm into a global service provider and software company. IBM is a great example of a company that not only survived, but thrived and reestablished its leading position in the information technology industry.

The main lesson we can take from this case study is that commoditization is a serious threat that may affect big and small firms in different markets and industries, nevertheless it can also be an opportunity for corporations to reinforce their core capabilities, to enhance their efficiency and to strengthen their position in the market. Therefore, what is really important is that companies prepare themselves to live in a dynamic world, adapt to the challenges that cross on their way and have the resources and motivation to make the necessary strategic changes in their structure and culture, such as IBM did.

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