Project Report:

Product to Service Inflection Point

Chandana Bonthu

Greg Wease

Ashish Mishra

Monticha Khammuang

Nikesh Gajavelly

Anna-Lena Lentz

Paul Atkinson

ETM 520: Management of Technology and Engineering

Prof. Kocagoglu

Fall term 2013

Table of content

1 Introduction

In today business situation, many companies are moving from a product-oriented to service-oriented business model. This project focuses on how a technology-driven company determines if it needs to change from utilizing a product-centric sales model to a service-oriented sales model? Using IBM as the base model, we will describe the process that drove an innovative technology product company to a turnaround that resulted in their becoming a primarily a provider of technology services. We will apply this model to other companies (Xerox, Rolls Royce, Siebel and Oracle) which have been in similar situations and identify characteristics that drove the decision to follow or eschew IBM's model. Using documented successes of these companies' strategies as a guide we will try to identify characteristics and factors that can help technology managers faced with this decision. In addition, we will analyze the servitization of the technology industry sector and document future trends.

The team will start with a detailed literature review. We will study IBM specifically, because we will use this company as our baseline starting point. In addition, we will include past market research studies and identify 5-6 other companies that have followed a similar transformation pattern. Finally, we expect to identify market conditions that indicate (a) when to shift to a technology service company or (b) focus on technology product improvements. We expect to identify corporate characteristics that will enable the decision-making process.

2 Literature Review

2.1 Theories

We know that many companies such as IBM, Intel, Ford, Nokia, Procter & Gamble, Scotts, SAP and Oracle moved away from traditional product offerings to generating greater revenues from the service side.

The underlying question is why they moved from a product to service sales model. The answers can be express as follows:

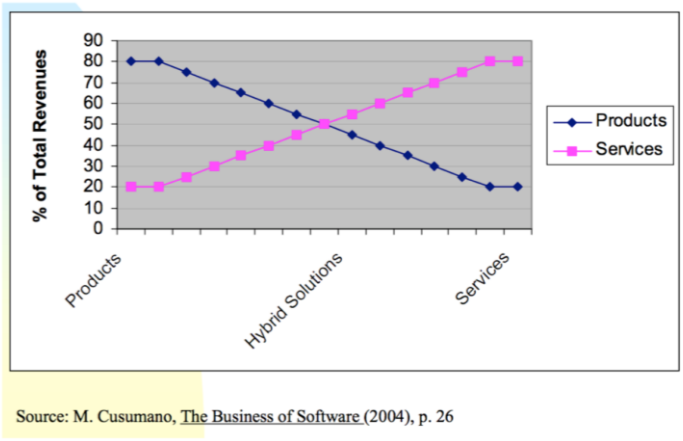
1. **To enhance customers' needs**: Company finds the way to better understand 'the client'. If there's one headline message, it is that 'It's about the client'. When the company realizes the importance of this statement, then every behavior, process, action and tool can be aligned to support that goal. Companies know that customers not only need products but also seeking for additional function that it offers to them. Companies also know these needs and start to consider the solution that can help them to meet needs of customer and services solution is the answer.[1]

2. **Major source of revenue**: Moving from products to services helps companies generate greater revenues after products are bought, because services are often sold at higher margin than products and provide an ongoing stream of future purchases.[1]

3. **Differentiate themselves from their competitors:** Adding services into existing products is the way to create it own selling point. This can add value to products and also increase the ability to compete with competitors. [2]

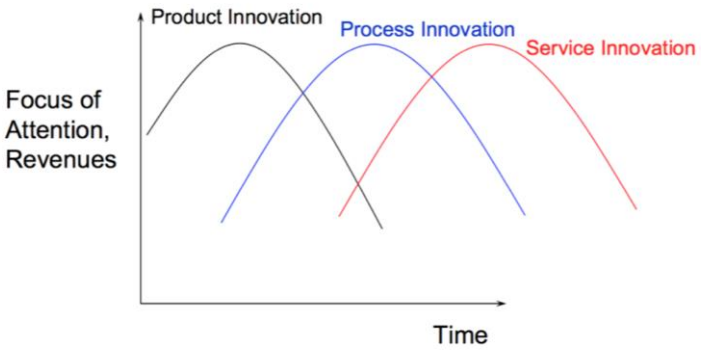
4. **Market saturation / Product life cycle** : Micheal A. Cusumano [3] explained in the IEEE 2008 journal that service innovation is an aspect of the life cycle that might affect software and some other industries. For example, if the product design has become a commodity – widely available and low price around the world with little differentiation and after a company has wrung maximum efficiency out process improvement - then management might turn its attention to services. The graph is shown in figure 1 and 2.

Figure 1 : Product Life Cycle model



Source: M. Cusumano, The Business of Software (2004), p. 26

Figure 2 : Different Evolution Curve



Additionally, according from S-Curve, we know that in the early stage of introducing new product to market, there is a rising trend of sell volume. Then the graph become steady at this

point we realize that product is going to reach a maturity point call and become "Commodity product". And then the trend of graph is declined. If company ignore or don't do any action, they will loss their revenue. This is the reason why many company try to add Services into their products at early or middle stage of their product life cycle. S-Curve is shown in figure 3.

Figure 3 : S-Curve

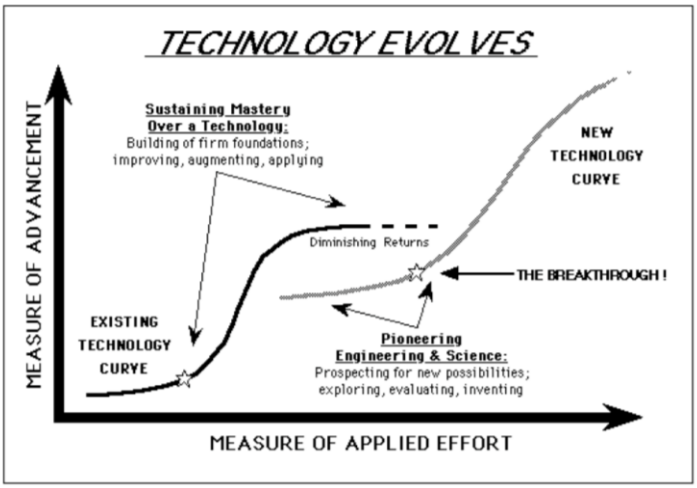
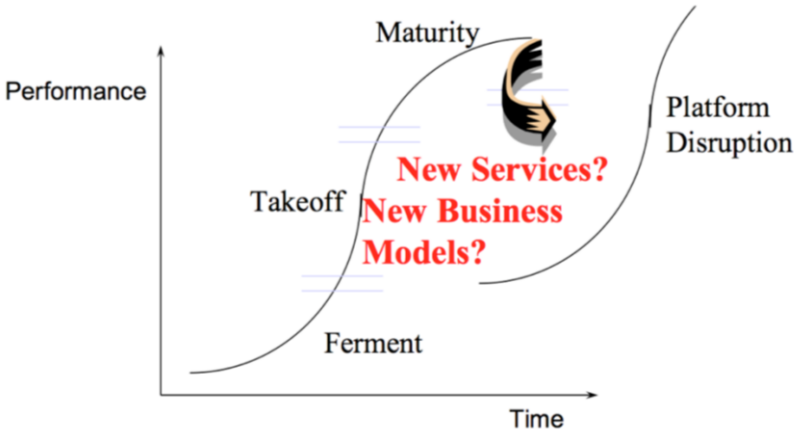


Figure 4 : S-Curve



5. **Effects from emerging disruptive technologies**: When the new technology is introduced to the market, the transition seems to create not only the demand for the product but

also for services. For example, in figure 5, after the emergence of Internet technologies, there are new business models generating "Monthly fees" which account for 89 where as traditional products got 30. In addition, from emerging of Internet technologies, new business models containing services can be found as data in figure 6.

Figure 5 : Web-based enterprise software vendors

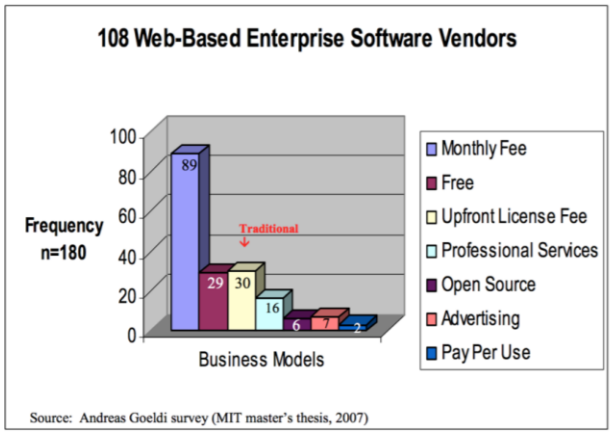
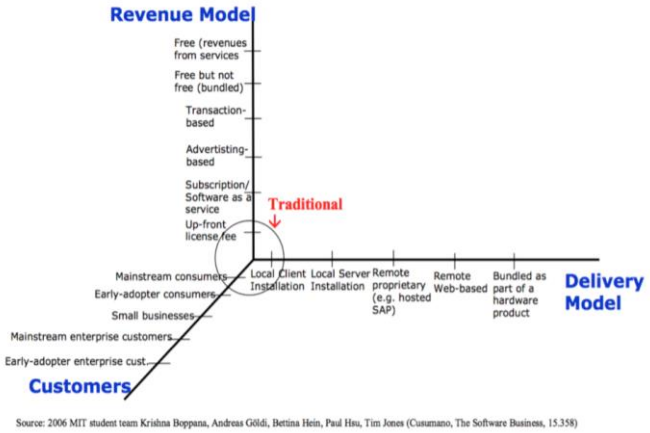


Figure 6 : New business model



c) What is the process & challenging points of moving to Services?

Rogelio Oliva and Robert Kellenberg [4] and Dr. Min Ding, Dr. Gerald Susman, Klein Dr.

Anthony Warren [5] explained the similar stage of moving from Products to Services. They said that there are 3 stages of this transition:

Stage 1: Service embedded in product scale: This stage is driven from the needs of companies to improve their quality and performance. Companies start to move to services sector under products' roof. They monitor the effectiveness and efficiency of service delivery. Finally at this stage company can set up transparency factors that will be used to monitor success and failure of this transition, as well as improve the quality of existing services that can increase trust among their clients.

Stage 2: Services provided to the installed base: This stage is driven from the needs of a company to create the global service infrastructure together with customer satisfaction and thwart off potential competition. At this stage, many successful companies separate service sector from process sector and build an infrastructure to respond to local service demands. Lastly, companies recognize the need for a well-run functional service organization as a means to establish itself in market.

Stage 3: Services based on customer relationship: The purpose of this stage is to increase utilization of service infrastructure and system integration capabilities. Companies will analyze operations risk, create a distribution network and develop consulting capabilities. As a result, companies can then become a professional service provider.

There are many challenging points at any stage of transition (product to service). Stephen Brown and team [6] as same as Rogelio Oliva, Robert Kellenberg [4] listed these challenging points into five topics:

1. **Customization:** Companies have to optimize for both customized solutions and continue to be profitable. The key to success is to balance customization and standardization.

2. **Capabilities:** Companies should evaluate the ability of existing sales resources such that they have enough internal support to take care for both product and service deliverables. To enable this transition, many companies hire additional sales support as well as joint ventures with new partners.

3. **Organizational structure:** Companies should make a decision about where to put the services in organization. It's difficult because these product units and service units are totally different in both their tasks and their culture. Most successful companies separate service units from product units.

4. **Culture:** Originally, product companies focus on engineering and technology but service companies focus on customer's benefit. At this point, top management should give strong support to service departments as well as organize the service section.

5. **Collaboration with customers:** Many companies have different ways to communicate with customers, such as customer surveys and customer feedback. However, many companies are missing collaboration between the company itself and the customer. Companies create great opportunities by collaborating with its customer base and increase customer satisfaction and loyalty. Customers can then provide recommendations to other potential customers thereby increasing overall sales and lower cost associated sales costs.

2.2 IBM specific based research

2.2.1 IBM company background

IBM is one of the largest companies in the world with 435,000 employees and is ranked number 9 of the most profitable US-companies by Fortune in 2012 [8].

IBM, which stands for International Business Machines Corporation, is a multinational company in the technology and consulting business. The American company was founded through a merger of several companies in 1911 under the name Computing Tabulating Recording Company (CTR) [8]. Prior to this, in 1888, Hermann Hollerith founds TMC (Tabulating Machine Company) [19]. The company was re-named in 1924 into IBM.

IBM changed its organization and product portfolio many times during its history. In the first years after the foundation, the main products have been commercial scales, industrial time recorders, meat cheese slicers, tabulators and punched cards. In 1964, IBM System/360 was sold as the first computer system family [8].

IBM also experienced hard times: In 1993, IBM lost 8 Billion Dollars and was on the brink of collapse [17]. As a consequence, IBM changed from being a manufacture of hardware and mainframe computers to being a service provider. According to Eugene Zakharov, “IBM is fundamentally a different company compared to several years ago […] It was at the end of the 1990s that IBM realized that remaining competitive would require a shift to a different range of activities and services that would provide additional value to the clients" [9]. According to [17], IBM “[…] now focuses on outsourcing and other services that save clients money — a more profitable business model than selling hardware”.

Another important milestone towards a service business was the acquisition of the consulting branch of PricewaterhouseCoopers in 2002 by IBM [9].

Nowadays, IBM is the World's Top Software and Service Supplier by Employees followed by HP, Hitachi and Accenture, as shown in [10]. Another ranking confirms the successful transition of IBM to a service company. According to [11], IBM is "World's Top Business Service Brands, 2012" with a brand value of $75,532 million.

2.2.2 Transition model IBM

The History of IBM can be divided into 3 large phases: The mainframe phase, the service orientation phase and the global integration phase.

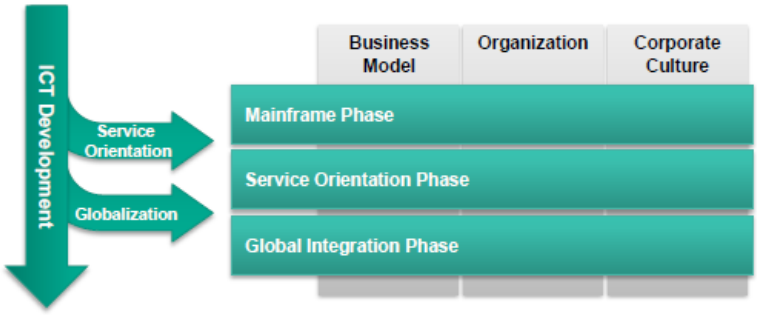


Fig.7

During the *mainframe phase*, the business model of IBM was centered around the /360 system which was invented in 1964. This was the first computer system which separated architecture from the product. At that time, IBM was known for his excellent R&D and it had around 70% market share in the 70/80s. The organization of IBM in that time can be denoted as product-centric [19].

In the following phase, the *service orientation phase*, IBM started to focus on customer IT needs rather than on products. During this transition, the foundation of services and the strengthening of the software business took place. To implement these changes, the organization switched to a solution-oriented approach and service and software unit has been separated. In other words, "'IBM Corporation' revolutions in the computer industry through non-hardware (Service-ware) depend services activities; consulting, financing, training, and so on and has fundamentally shifted their business from not only producing goods to offering a bundle of goods and services (Servitization)" [14] Technologies, which characterized this period, were the UNIX non-proprietary Personal computer and the invention of the internet [19].

In the last phase, the *global integration phase*, IBM succeeded in supporting the customer needs beyond IT. Furthermore, IBM tried to use resources globally in a more effective manner.

Tab. 2 Phases in IBM's development from around 1956

Phase	ICT-based innovation as the starting point	Implications for		
		Business model	Organization	Culture
"Mainframe" (ca. 1956–90)	Semiconductors, scalable computer systems for business applications, CMOS technology, RISC architecture	Product provider of scalable generic IT systems based on outstanding research and development	Product-centered marketing / sales silos	Focus on research and development, marketing and sales
"Service-orientation" (ca. 1990–2002)	Open UNIX architecture, personal computer, Internet	Service-oriented integrator of IT solutions from different providers to solve a client's problem	Solution-centered matrix: 1. Solutions 2. Industries	Focus on integration and market penetration
"Global integration" (since ca. 2002)	Commoditization of IT products, development of higher quality IT services, open source networks, Web 2.0	Provider of global services to boost clients' innovation and competitive capabilities	Global customer-centered matrix: 1. Industries 2. Solutions Globally integrated processes	Focus on utilizing global competences and on innovation and added value for customers

Fig. 8

Fig. 8 shows the model of IBM's transition to a service provider.

- **Research and Development:** "The firm's research and development was shifting its focus from technology invention to application of technology and on-demand businesses, which main concern is to response the customer needs and expectations timely" [14]

- **Procurement**: "IBM created its own globally integrated supply chain that provides a strategic advantage for the company to create value for clients and ensure greater efficiencies and lower costs" [14].

- **Production**: "IBM has shifted resources toward building its capabilities and employee skills aiming to create superior services for its clients" [14].

- **Sales and Marketing:** "Gerstner believed that a successful company must have a customer or marketplace orientation and a strong marketing organization" [14].

- **After sales:** "When IBM approached to servitization in 1990s, they offer a full range of after sales services to its customers including technical support, knowledge management and self-help solutions, training, consultancy, etc. and transformed its resources toward building a strong client relationship" [14].

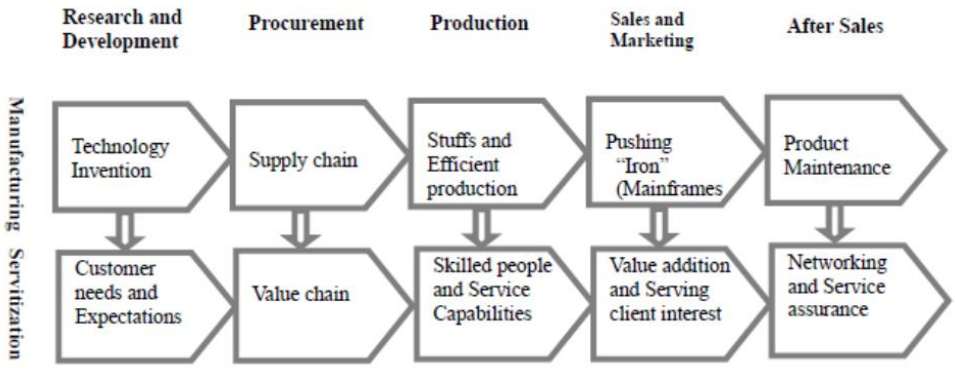


Figure 9

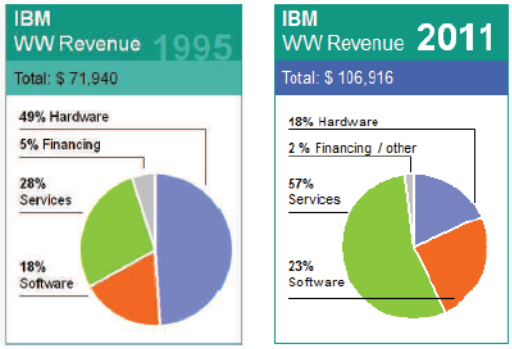
In conclusion, IBM is an example of a company in which technology change triggered changes in the business model [19].

2.2.3 Revenue

IBM is a very successful company, shown in various figures and KPI's. According to [2], "IBM is a rare example of a company that has kept boosting profit even as the recession has

sapped its sales". In 2011, the Revenue of IBM was 106,9 b$, and the net income 14,9b$. Comparing the Revenue of 1995 with 2011, provide significant insights. The revenue in 1995 was 71,9 b$, whereat 28% of the revenue was created by the service branch and 49% from selling hardware product. This picture changes dramatically in 2011, as presented in Fig. 3: 57% of the revenue result from services, and only 18% from hardware. This figures document the shift of IBM from a manufacturer to a service provider explicitly [13].

"Since then, with Sam Palmisano to Virginia M. Rometty as CEO, IBM has continuing this remarkable shift to its business mix to more profitable segments, so that today, IBM has revenues of $107 billion while more than 90% of its segment profit came from software, services and financing in the fiscal year 2011" as stated in figure 10 [14].



IBM Revenues 1995 vs. 2011 (Source Annual Reports)

Figure 10

2.2.4 Challenges/ Success factors

According to [14], "a successful implementation of servitization strategy requires the appropriate measurement of market demands, firm's capabilities, and ability to respond cultural and corporate changes, such as product-service design, policies, process, structure, strategy and organizational transformation. In figure 10, the success factors for the transition to a service business model in the case of IBM are shown.

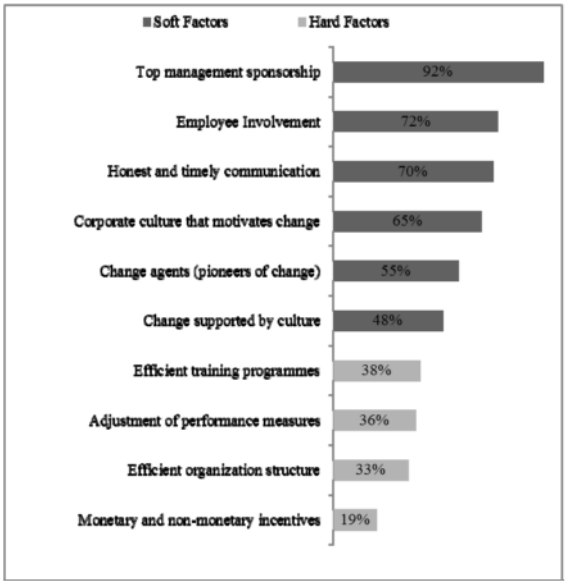


Figure 11

2.3 Non- IBM specific based research

2.3.1 SOFTWARE INDUSTRY EXAMPLE

Specific examples whereby service revenues outpace product sales revenue can be seen in the top tier of software companies in the late 1990s and early 2000s: Siebel, at one time it was one of the world's largest Customer Relationship Management software solutions providers, experienced such a shift. As we can see, revenue from Siebel's services outpaced product-oriented revenue in 2001. From that point forward, and until the eventual buy-out by Oracle, service revenue represented a greater percentage of overall revenue. The same can be seen in Oracle, whereby service revenues outpaced product revenues in 1997, and the divergence continues to increase with each passing year. [3]

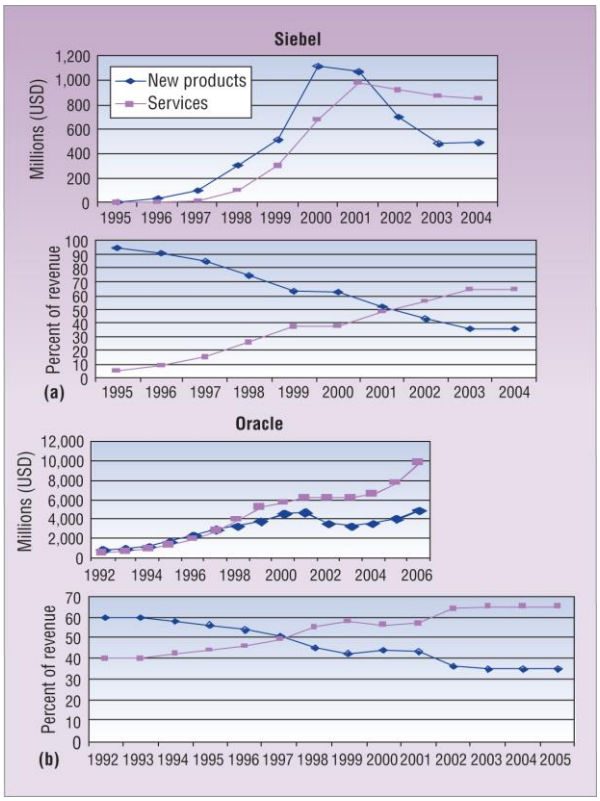


Figure 12

This is an indication that many software companies start out generating most, if not all revenue from product sales (product license fees). But as these companies evolve, either from a life cycle standpoint or business model choice, a mix of produce and service revenue will play a larger role in the company's growth pattern, and possible be followed by a mostly service revenue model.

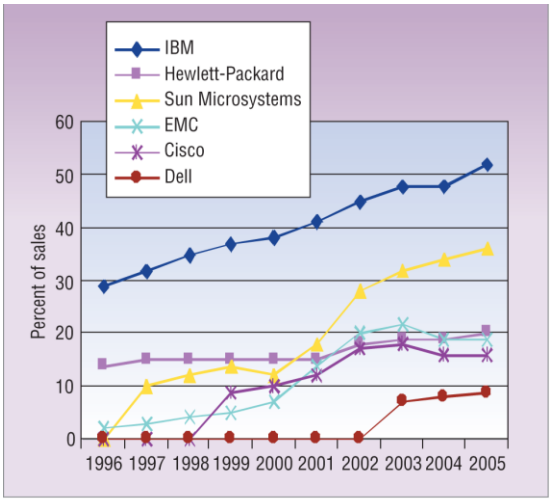


Figure 13

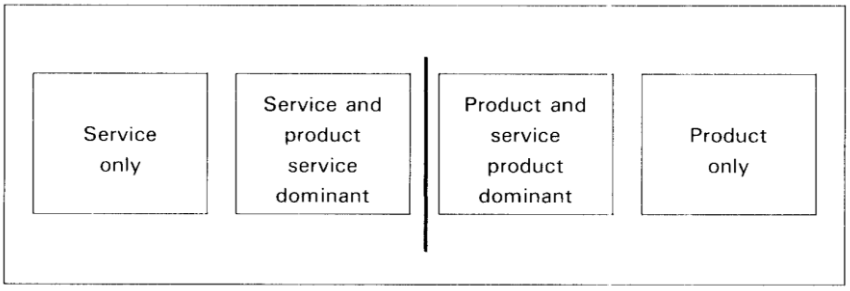
This phenomenon can also be seen within the technology sector, yet outside of the software industry, as illustrated by IBM, Dell and Cisco Systems. All have experienced significant increases in service-side revenue growth. [3]

Cusumano [3] also identifies the shift from product to service generating revenue is applied to other key sectors, such as the automotive sector. In this case, companies like Ford or GM generate greater revenues by providing financial services such as loans or leasing services. Taken a step further, car manufacturers could feasibly break even (or possibly lose a little) on the sale of the car, yet make tremendous revenues on such servitization features such as "all-inclusive lifetime service contracts, insurance, maintenance and repair, and telematics services like GM's OnStar."

2.3.2 RESTRUCTURING TOWARDS SERVICE-ORIENTATION

In the early 1990s, two industry experts, Martin and Horne underscore the significance and sheer transformation as the US economy migrates towards a service-centric economy. In 1991, they stated: "For the past 14 years, services have contributed the largest share to the gross national product (GNP). For every new job in manufacturing since the second World War there have been 15 jobs created in services".

This shift was / is not easy, as we will look at the strategic hurdles organizations might encounter when attempting to move across the line.



Left side service dominant firms | Right side product dominant firms

For clarification purposes, we look to define products as "tangible or concrete", and services as "intangible or abstract". [20]

As firms move away from being primarily product dominant, they tend to place more emphasis on the service component that resides in their offering, hence, less emphasis on the product side. Two primary reasons drive this change: pressure on the product margins and the ability to sustain growth, secondly, competitive differentiation as a means to set yourself apart, to retain and attract new customers.

We can see this with the following firms, companies such as UNYSIS, IBM and HP, all have gone through a strategic restructuring such that they moved away from being "box builders" (mainframe computers) to providing solutions for potential customers. "The offering now consists of the hardware, the software and professional services." Professional services are comprised of the following: consulting, planning assistance, system construction and integration, implementation, project management, training, and problem diagnosis. "The goal is to combine the tangible and intangibles to provide a cleaner differentiation from the competition."

Not an easy task. To accomplish this feat, many of the product-dependent organizations that Martin and Horne researched wanted "to have services as a dominant component in the bundling of products and services." In doing so, these firms faced two strategic hurdles:[20]

1) Difference in adjusting to and managing the "role of the client" for services, example:
    - Service is not produced until the client makes the purchase
    - Client receives and consumes, but also may participate in the production and delivery
    - Increased customer involvement in a transaction is an indication of increased productivity

2) Difficulty with the development of new services to add to the portfolio of offerings, example:
    - Product innovation management
    - Perception about the process (moving from product to service-centric). There is a perception that new service development is an unsophisticated process, unlike product development which constructs have been well documented, and put to use for many decades.

To enable this transition, Martin and Horne suggest we recognize and overcome these two strategic hurdles by "rethinking of the client's role as co-producer, and the design and management of a new-service development process." [20]

2.3.3 MANUFACTURING INDUSTRY EXAMPLE

The S&P 500 is used as a measure of the general level of stock prices across 500 large companies. It can be used as a benchmark when comparing an individual company against a much broader set of firms. Since 1988, only one in eight of the 1000 largest manufacturers have performed at a greater rate than the S&P 500. Thus, seven out of eight manufacturing firms have not kept pace with industry averages, not a good sign. Of the manufacturing firms (product-focused) that have succeeded, the "smart manufacturers" are creating new business models to capture profits at the customer's end of the value chain. Simply put, they do this because "that's where the money is." [21]

Looking at this from a different perspective, the services portion of the US Gross Domestic Product has grown form 16% in 1960 to 40% in 2000. Meanwhile, during that same timeline, the manufacturing portion of GDP has decrease from 27% to 17%.

Rethinking Manufacturing Strategy: Over the last two decades, manufacturers (product-centric) "need to expand their definition of the value chain, shift their focus from operational excellence to customer allegiance, and rethink the meaning of vertical integration." [21]

There was a tendency for manufacturers to view downstream services in a negative light, "as a necessary evil". Something they had to give away to ensure a sale was made. Boeing is an excellent example, recognizing the need to integrate key services into the product mix. So instead of relying solely on the sale of the aircraft as a means to generate all, or close to all revenues, they got involved with providing financing services, local parts supply service, ground maintenance services, logistics management and even pilot training services. The combination of which further cements their relationship with their customers.

The Hewlett-Packard printer division followed a similar path by reducing the price of printers, thereby increasing the potential buying audience. At the same time, they were able to control the ink-jet toner market, which has exceedingly high profit margins.

Examples of "downstream" business models:

1) Embedded Services – free the customer of the need to perform services themselves, the "smart" product can now save labor costs the customer would normally incur. In this example – the cost of a new airplane represents a fraction of the overall expense. Knowing this, Honeywell developed sophisticated information management systems that would be embedded into these new aircraft. In doing so, they could reduce or eliminate the need for costly flight engineers to do routine maintenance checks.

2) Comprehensive Services – product suppliers can use their position to launch new services for their customers, much like GE did with its GE Capital suite of financial products.
3) Integrated Solutions – this is accomplished by combining both products and services into a seamless solution that addresses customer needs. Nokia did this in the 1990s by "creating a comprehensive array of products, including handsets, transmission equipment, and switches, that could be easily deployed by carriers."
4) Distribution Control – this "entails entering the customer's business-moving forward in the value chain to gain control over lucrative distribution activities." The first three examples are based on providing completely new services, while this last model focuses on the distribution channel. Coca-Cola is a great example whereby they consolidated the independent bottler network, and then took a controlling stake in the distribution companies. In doing so, they were able to "increase shareholder value during a time of slowing growth in soft-drink consumption." [21]

2.3.4 Rolls-Royce

In recent years, Rolls-Royce is playing a dominant role in the market because of its servitization approach. Rolls-Royce's reputation and market share were transformed by its service offerings. Rolls-Royce commitment to "Reliability, Integrity, and Innovation" is their most recent development [22].

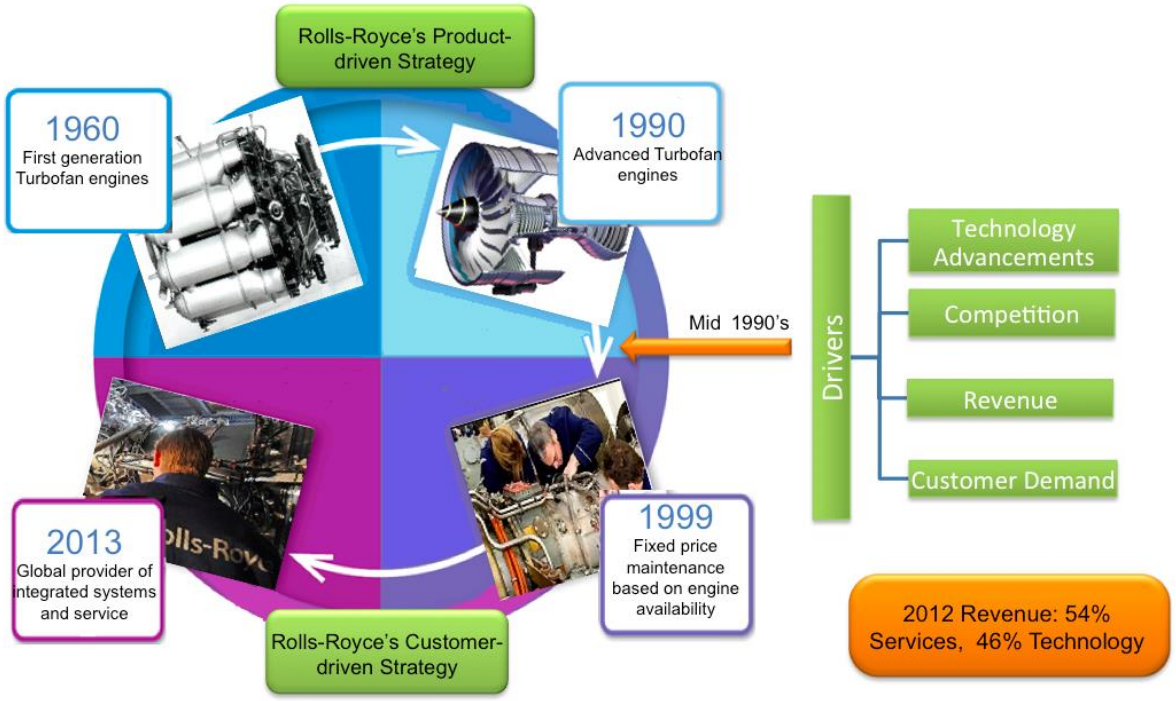


Figure 14 – Servitization in Rolls-Royce

Figure 9 describes the transition of the Rolls-Royce from product-driven strategy to Customer-driven strategy. Our major interest is vested in Rolls-Royce aerospace industry. This information is based on an article written by Smith in 2013. This article [23] provides the following key concepts. Rolls-Royce developed its first generation Turbofan engines in 1960s. The major challenges of 1960s engines were to improve engine performance and engine durability. Because of the advancements in engine technology, challenges of 1960s were addressed with the development of advanced Turbofan engines in 1990s not only in terms of thrust and efficiency but also in terms of durability. These improvements affected the spare parts demand. The cost of spare parts consumed by 1960s engines in 8 years was worth the cost of new engine. But, 1990s engines consumed this amount of spare parts in 25 years. Moreover, the profit margins on spare parts were 7 times higher than that of new engines. There was huge drop in the revenues of engine makers because of the new engines.

As a result of drop in revenues, management revised their product-centric strategy. They wanted to generate revenue by building on their existing strengths (jet engine manufacturing

was their strength). The next logical step they identified was maintenance, repair and overhaul (MRO) services. In 1993, Rolls-Royce started Aero Engine Services Ltd., as their first step towards customer-centric strategy. Now, Rolls-Royce is a global provider of integrated systems and services across defense, corporate and civil aviation sectors.

Based on our study [23], we identified four major factors that influenced the servitization in Rolls-Royce. They are technology advancements of their engines, customer demand, competition from other engine makers and decrease in revenue. If we look at the total revenue of Rolls-Royce in 2012, services contribute to 54% of total revenue while technology contributes to 46% of total revenue [23].

2.3.5 Xerox

Xerox is differentiated from its competitors because of their services approach and not technology itself [24]. Figure 2 [25] explains the transition of Xerox from a product to service oriented company. Xerox started its business in 1959 by introducing Xerox 914, the first plain paper photocopier [26].

The following section provides key concepts of servitization in Xerox based on Baines article [26]. Xerox enjoyed a dominant position in the market during 1960s. Xerox's dominant position was challenged by severe competition. There was fierce competition from the Japanese in the 1970's; Apple's use of Xerox technology in the 1980's. Moreover, digital technologies are changing the way people work. All these factors forced Xerox to turn its product into service. Xerox entered service market by providing complete set of document services to companies that include supply, maintenance, configuration and user support.

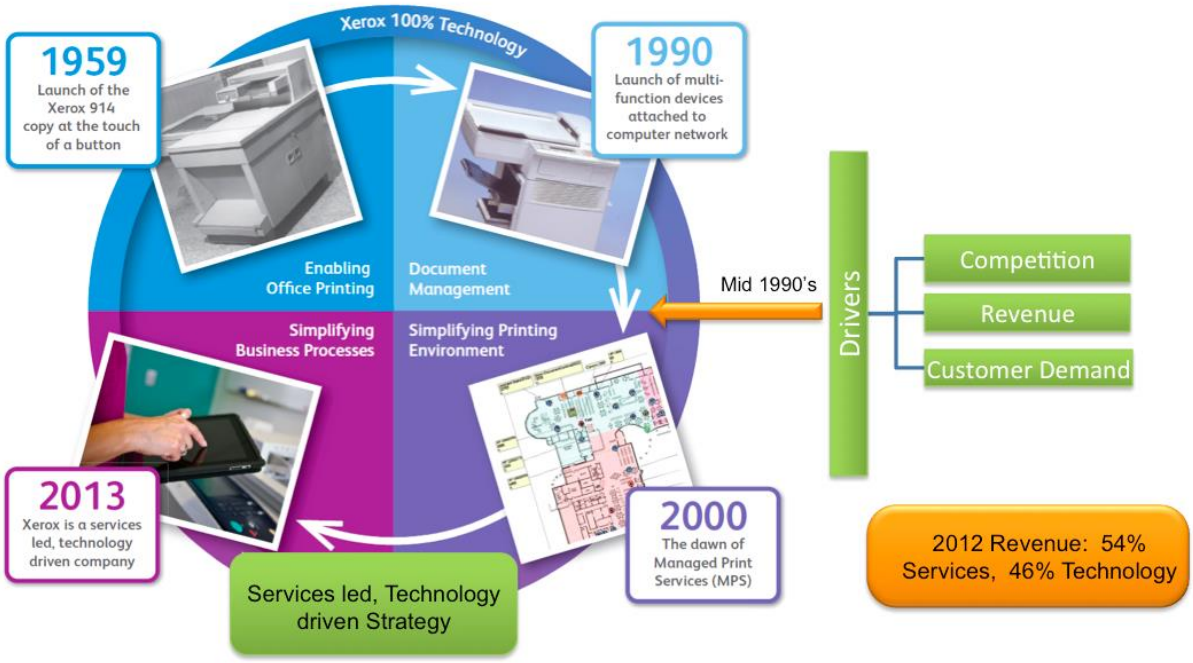


Figure 15 – Servitization in Xerox [25]

Xerox always focused on customers and identified different ways to improve their business. The management did not simply assume that customers wanted cheaper equipment and supplies. They transformed the Xerox's perspective of printing environment. Xerox changed its strategy by focusing less on printing devices and more on the business information flow [27]. The drive was to provide services that would gain control over all aspects of their printing, and the result was the creation of Managed Print Services (MPS).

Prior to 1990s, Xerox was driven by 100% technology. Today, Xerox is led by services and driven by technology. Xerox now uses technology to improve its customers' businesses and services to sell their equipment and supplies [28]. The major factors that influenced the servitization in Xerox were customer demand, competition in the market and decrease in revenue. If we look at the total revenue of Xerox in 2012, services contribute to 54% of total revenue while technology contributes to 46% of total revenue [25].

2.3.6 Failure of Servitized Manufacturing Firms

The following section identifies some key concepts in understanding why servitized manufacturing firms are more likely to declare bankruptcy than pure manufacturing firms. There are four important conclusions derived from Neely's case study on manufacturing firms in UK [29].

- The case study identifies different factors that are responsible for manufacturing firms to fail. General Environment, Immediate Environment, Corporate Policy and Company's Characteristics are the important factors. According to Neely (2009), "Scanning the environment, predicting the future and adapting the organization appear to be particularly important capabilities for firms to face these factors" [29].

- Servitized manufacturing firms might eliminate the typical risks like economic downturns and competition from foreign countries offered by pure manufacturing firms. However, it modifies the risk structure of servitized firms. They are more likely to be affected by new risks like industry capacity, shifts in customer taste and insufficient reputation and resources to keep up with competitors [29].

- The study also describes the role of types of services offered by servitized firms in their failure. If a servitized firm wants to achieve expected reward from servitization, the firm has to offer advanced and knowledge intensive services, such as design and development services and systems and solutions. Neely [29] stated "more basic services, like retailing and distribution or technical support, introduce additional risks that can easily outweigh the potential benefits of servitizing ".

- Further, he mentioned that it is important for the firms to investigate the characteristics of specific services offered by manufacturing firms and determine the nature of risks introduced by them.

3 Interview

3.1 IBM Experts

In the abstract, we've made changing a business from a product model to a service model sound like a clean and clinical process, and from an outsider's perspective – from outside the company that's changing, that is – it may well appear to be so. Internally, however, such a change can represent a tremendous upheaval. From the moment when executives finally commit to turning the company in a new direction to the point when the balance sheet has shifted to represent the new service-oriented revenue stream there are a huge number of changes to manage.

The change at IBM is particularly worth examining in detail because of the company's size. With hundreds of thousands of employees and a business presence in countries across the globe, IBM has great deal of corporate mass to move. Add to that the ubiquitous IBM culture that had evolved around its hardware business and it's clear the company had a lot of momentum.

To explore what happened within IBM during its change we interviewed three long-term IBM employees: Rick Warren, James Fitzgerald, and Karen Howe. Out of those interviews and looking at corresponding information from Lou Gerstner's memoir of the change, "Who Says Elephants Can't Dance," we can see an internal picture of the change in a few important aspects: the strategic vision, the cultural change, and the management tools used to effect that change.

Our interviewees are all three recently from IBM's Systems and Technology group, which is largely responsible for hardware. Ms. Howe joined IBM in 2000 when Sequent, her employer at the time, was acquired by IBM. She left in 2010 from the position of Director of Sys-

tems Operation and Project Management. Mr. Fitzgerald similarly joined IBM with the Sequent acquisition and also left IBM in 2010 from his position as Director of Strategic Alliances and Software Research. Rick Warren started his career at IBM directly from college in 1974, and retired from his role as Vice-President of 3rd Party Software Alliances in 2010. From the combined experience of these three IBM employees we've gained some insight into how IBM's historic transformation was managed.

One thing all three interviewees focused heavily on was IBM's corporate culture. Corporate Culture is defined as "a blend of the values, beliefs, taboos, symbols, rituals and myths all companies develop over time.[30] IBM had what Rick Warren called "deep culture," meaning the culture had developed over such a long time that it permeated the company thoroughly. Furthermore all three emphasized that IBM's culture was, in a word, insular. Culturally, IBM was walled off from the outside world. The IBM of the 1980s was becoming well known as a PC company but the profits were all on the mainframe side, and in describing the mainframe business we can describe IBM culture.

IBM didn't just sell mainframe computer systems, they built nearly every part of those systems from the basic patents to the chip fabrication plants (and the patents on the chip fab technologies) to the hard drives, printers, and software. Every part of an IBM system was an IBM innovation sold by IBM salespeople, and that's how it had always been.

The company worked that way logistically as well. New employees in technical positions were typically hired right out of college and would often spend their entire careers with IBM. Meetings began with introductions including years of service, and anyone with less than a decade of experience in IBM was still considered "new." This extended from the inventors to support staff and all the way to the administrative assistants and the CEO (until Gerstner, every new IBM CEO had been an IBM veteran).

The company was laid out in an insular fashion as well. Campuses such as Armonk (the company headquarters) and Almaden research center were far from cities and technology hubs. If you were an IBM employee in one of these places and you wanted to leave your job, there was nothing nearby for you to move to – IBM was the only game in town. You lived in an IBM cultural echo chamber, where there was only one way to do things: the IBM way.

From a strategic viewpoint, IBM began to have trouble in the mid-1980s. The desktop PC was on the rise, and that technology had begun to nibble away at IBM's profitable mainframe business. The mainframe business at that point was the bedrock on which the entire company depended; according to Gerstner, "more than 90% of the company's profits came from these large 'servers' and the software that ran on them." Any threat to the dominance of the mainframe as a platform or to IBM's dominance in that market segment was clearly an existential threat to IBM, and the dawn of PC-based client-server computing represented just such a threat.

Because of its pedigree as an information processing company, IBM was eminently capable of making adjustments in a downturn. They knew, Mr. Warren pointed out emphatically, how to track every dollar in the company. This meant that when sales were forecasted to drop IBM could adapt by reducing costs, confident that while they might not be the most agile of companies they could weather a storm through careful management.

The PC revolution was a seismic shift that required a larger than usual adjustment. In the face of this industry shift, IBM CEO Jim Akers proposed a strategy to help control costs until the company could find its footing: he would break IBM into smaller, more agile business units, each capable of producing products more cheaply, thus producing higher margins. Rick Warren's job at this time involved extricating the finances of IBM's PC business from the rest of the company to facilitate spinning it off as one of the proposed subsidiaries. Akers,

true to the IBM culture he had been steeped in for years, was choosing to focus on IBM's core business as he saw it: the business of building computer systems.

By 1993 IBM had not only failed to turn around, it had reached a precipice. The company's finances were in dire condition, with only 100 days left of cash to continue running the business. The board -- lifetime IBMer. Gerstner took the reins with a mandate to do whatever was necessary to turn the company around. The company's financial position – what our interviewees called a "near-death experience" – granted him instant authority to do as he would, and his decisions shaped what IBM is today.

Gerstner approached IBM's difficulties from a customer-centric viewpoint not at all like Akers. He delved into what IBM's customers were asking for without carrying the IBM culture with him, and he saw that heterogeneous solutions using commodity hardware and software were (for better or worse) the direction a great many businesses wanted to go, but that they needed help to integrate those systems. That led him to countermand the Akers strategy and hold IBM whole, but it also helped him to recognize the servitization inflection point at IBM. Of that decision, he wrote:

> ***A Services-Led Model***
>
> *As I stated earlier, I believed that the industry's disaggregation into thousands of niche players would make IT services a huge growth segment of the industry overall. All of the industry growth analyses and projections, from our own staffs and from third-party firms, supported this. For IBM, this clearly suggested that we should grow our services business, which was a promising part of our portfolio, but which was still seen as a second-class citizen next to IBM's hardware business. Services, it was pretty clear, could be a huge revenue growth engine for IBM.*
>
> *However, the more we thought about the long-term implications of this trend, an even more compelling motivation came into view. If customers were going to look to an in-*

tegrator to help them envision, design, and build end-to-end solutions, then the companies playing that role would exert tremendous influence over the full range of technology decisions – from architecture and applications to hardware and software choices.

This would be a historic shift in customer buying behavior. For the first time, services companies, not technology firms, would be the tail wagging the dog. Suddenly, a decision that seemed rational and straightforward – pursue a growth opportunity – became a strategic imperative for the entire company. That was our first big bet – to build not just the largest but the most influential services business in the industry. [31]

The elements Gerstner recognized relating to the inflection point were:

- Revenue - Services were generating high margins and were seen as a growth segment for the company.
- Resources – IBM had thousands of service consultants already deployed around the world and a global training program capable of retraining them as needed.
- Competitive Advantage – If IBM could become the world leader in systems consulting, their integrators would have an impact on the technologies chosen by their clients. The tail could wag the dog, as Gerstner wrote.
- Customer Needs – Customers had made it clear they were less willing to pay for IBM's premium-priced systems when cheap commodity hardware was available, but they required system integrators to help bring the pieces together and produce the desired functionality.

- PEST (Political, Economic, Social and Technological) Analysis – The commoditization of PC servers changed the landscape, and it was no longer clear that a technology company could compete in this sector effectively on hardware innovation alone.

Gerstner saw that it was time to embrace the services sector, reduce IBM's focus on its hardware products, and build its consultancy, but the culture presented a problem. This shift meant IBM services personnel would potentially be recommending non-IBM solutions, which violated long-standing cultural taboo. In order to change the strategy, the culture had to shift. The enormity of that task was not lost on Lou Gerstner, and he acted decisively to make changes that would ensure the company moved in the direction he wanted to go.

To push the change he required, Gerstner brought in Jerome York as CFO. York was another non-IBM hire so, like Gerstner, he wasn't yet bound by the IBM culture. As Gerstner's agent of change, York was merciless. His modus operandi was to call an IBM office on a Friday afternoon and announce that he would be visiting immediately, and that all employees were to be ready to work through the weekend. Upon arriving at the office he would interview all the managers and determine whether their business unit was healthy and whether they and their people were on board with the new strategy. These visits often resulted in significant headcount changes. Those who opposed the shift in strategy soon learned to play along, and slowly the culture changed.

In the early 2000s, around the breakup of Arthur Anderson, Price Waterhouse Coopers Consulting was shopped for a buyer (Price Waterhouse Coopers did not want to fall to the same fate as Anderson Consulting). IBM saw the opportunity to grow its global consultancy and made the purchase. These consultants – skilled system integrators – were never part of the earlier IBM culture, and so were a perfect fit for the new IBM. They could act freely in the customers' best interest and call in the existing platoons of skilled IBM technical consultants

whenever they were needed. Today, IBM now stands as (as both Karen and Jim termed it) "the world's largest consulting company."

Mr. Warren was one of the leaders of the group within IBM that developed the Thinkpad line of laptop computers. While the Thinkpad was critically celebrated, boasted a premium price tag, and was hailed as a game changer in the laptop industry, it remained a product in a very competitive market segment. Even though the line was profitable, the new IBM chose to focus its resources on more profitable businesses – such as services – and sold the Thinkpad line to Lenovo in 2004. This wasn't done to save money, but to repurpose IBM's resources towards higher-margin businesses.

IBM is still a company that builds business machines. Its supercomputers are among the world's fastest, and it continues to foster an innovative culture that produces patents and new technology to stay on the cutting edge. The new IBM, though, is more of a thought leader. Their "Smarter Planet" initiative, touted by Rick Warren as the future of the company, is based on IBM research but is a system that can be integrated with any kind of hardware. That is the kind of innovation that exemplifies the new IBM.

As our report demonstrates, IBM is far from the only company that has gone through this kind of change and many more will make it in the future. According to Rick Warren, one company that will have to make the decision soon is Intel. Intel, he opined, is in a situation today very similar to IBM's in the mid-1980s. Their core business, building semiconductors, is reliant on 1) expensive new chip fabrication plants costing billions of dollars and 2) continued growth in PC sales volume to drive those plants at capacity. While the first of these factors is well within the company's control, the second is not.

Mr. Warren described the situation at Intel as he saw it. If PC sales slow, intel may not be able to run their new $3.5 billion dollar chip fabs at the 90% capacity required to make a profit. Growth is still sufficient to support their current generation but, given the displacement of

home PCs by mobile devices and individual servers by virtualization (among other trends) they must begin to prepare for a future in which a larger volume of ever-faster chips won't be their primary revenue source. They should begin to look for a service avenue.

Intel had a recent chance to change directions. In 2013 the board appointed a new CEO, Brian Krzanich. Like IBM's board appointing Akers, Intel has chosen an insider, already steeped in the corporate culture. Intel's culture is still all about developing semiconductors. So while Krzanich has made comments about changing Intel to a more service-driven model, it remains to be seen whether he will be able to follow through with that.

Based on Mr. Warren's estimation of Intel's position, Intel is going to have to change. If Krzanich does try to servitize Intel, he would do well to follow in the footsteps of Lou Gerstner at IBM. To do so he will need to gain more than the usual amount of authority so that he can change the culture; and he will have to pursue culture change ruthlessly. He will need to apply Intel's strengths in the marketplace to the services he believes the company can supply and push through the crossover point to create a servitized company.

3.2 Vesticon Inc, Analysis

After a long and extensive study of IBM, We wanted to know more about the companies who made the transition and didn't succeed or are in the process of making the transition. Our team mate worked in the company name Vesticon which is a medical device industry which makes the diagnosis and treatment device for vertigo. In order to know more about the company history, We interviewed CEO and CO-founder of the company Cathy Epley. Company was founded in 2001 by Cathy Epley and Dr. John Epley for develop cure for vertigo. They Invested about 5 million dollars in developing the device name Omniax which was the revolution in its field and priced it around $200,000 / unit. ENT market was evolving at that time and the product had extremely good market pull due to high insurance reimbursement which

was around $600 for every procedure approximating upto $5000/ day for any clinic or hospital. Product was released in 2008 and got huge response from the market and company made sale of $ 2 million (approx) and projected sale for the next year was about 4 millions. In 2008, medical reimbursement went significantly down from $600/ procedure to $150/ procedure which was a major factor in marketing and positioning of the device. Sales fell significantly and 2009 brought only $600,000 due to scare in the market and global economic recession. Sale continue to drop till 2012 and company was on the verge of bankruptcy when Michael Budager, owner of BSI Inc a company based on Texas came up with a service model plan which revolves around omniax to open vertigo and Traumatic brain injury clinics all over the United State with all the possible advanced technology available in the market under one roof. Service model was very promising in numbers so BSI didn't want any direct competition in the near future. They bought 40% share of the company which gave Vesticon to fund new technology and focus on R&D where the sister company BSI focused on servicitization of the product to open both revenue stream. The Idea behind going to servicitization of the Vesticon Products was to own the equipment, and lease it to the Hospitals and get the profit share generated by using the device to reduce the cost of ownership for the hospitals. It will increase the chances for small audiologists and Physio therapist who is opening their new clinic or can not afford so much money at the time of opening of business will be able to lease the equipment.

4 Results

4.1 Recommendations

Based on our literature review and interviews, here are some recommendations to managers for a smooth transition of product to service oriented strategy [27].

1. Build on Existing Strengths: Identify potential areas to initiate and improve service-based approach by building on existing strengths. Encourage employees to think of the shift as an extension to existing technology.

2. Update Incentives & Redefine Basis for Profit in Contractual Agreements: Update the incentives or compensations of employees so that they are aligned with the new business model. Also, it is important to make sure the services offered create a win-win situation to the company and others involved in the contract.

3. Communicate the New Business & Acquire New Skills: Communicate the new business model and the importance of change to all the employees in the organization. Resistant to change has to mitigate; behavioral changes of employees are required for the success. This requires access to corporate resources and training to all the employees in the organization so that they acquire new skills and improve decision-making abilities required for the major change.

4.2 Future Work

To better identify the transformational steps a product-oriented organization may take, we suggest future research activities to include a three-pronged approach:

1) Extend market research to a broader audience, encompassing different sectors of the economy: i.e.: manufacturing, agriculture, medical, transportation, energy, etc. In doing so,

findings across all sectors can be aligned with a suggested roadmap as to how a given company may make this transformation and limit negative impacts as they make this shift.

2) Conduct Interviews to a group of pre-qualified executives. Qualification criteria example: Director to CXO level with minimum of 10 years of experience, $10M+ in annual revenues. These interviews may come in the form of one-to-one interviews and / or a focus group setting. The outcome would then be collated with the market research portion to better clarify the servitization process.

3) Lastly, analyzing Financial & Economic market data may give insight as to timing, the most suitable timing to make a product to service change.

4.3 Conclusion

In this paper, we set out to determine reasons a company might make the change from a manufacturing-oriented business model to a service-oriented business model: a process called servitization. We sought to identify an inflection point which would help technology managers recognize when servitization might make sense for their businesses by studying companies that have successfully made that change. We used literature review to study many instances of servitization and combined that with hours of interviews in the case of IBM in order to provide a more detailed, insider's view of the process.

What we demonstrated was that in order to maintain a long-term competitive advantage, manufacturing companies must sometimes adapt their core business to a service model. Most already offer some services, and when innovation in the product realm is no longer enough to maintain market leadership innovation in services can help companies adapt to those new market conditions. By seizing the service revenue stream companies are able to enhance customer satisfaction, focusing on their real core business.

Literature

[1] Gebauer, Heiko, Elgar Fleisch, and Thomas Friedli. "Overcoming the service paradox in manufacturing companies." *European Management Journal* 23.1 (2005): 14-26.

[2] Kindström, Daniel. "Towards a service-based business model–Key aspects for future competitive advantage." *European Management Journal* 28.6 (2010): 479-490

[3] Cusumano, Michael A. "The changing software business: Moving from products to services." *Computer* 41.1 (2008): 20-27.

[4] Oliva, Rogelio, and Robert Kallenberg. "Managing the transition from products to services." *International Journal of Service Industry Management* 14.2 (2003): 160-172.

[5] Min Ding, Gerald Susman, Anthony Warren, " Adding services to products-An innovation challenge", a thought-piece from the Farrell center for corporate innovation and entrepreneurship, Smeal college of business, Pen State University (2006)

[6] W.P. Carey. " Moving from products to services : The six challenges points ". School of business, Arizona state university (2012). http://knowwpcarey.com/mkt/11/New-Options-in-the-Marketing-Program/1414/.

[7] http://en.wikipedia.org/wiki/IBM

[8] Gerstner LV Jr (2003) Who says elephants can't dance? Leading a great enterprise through dramatic change. Harper Business, New York

[9] Eugene Zakharov (). IBM's Winning Strategy. Available from: http://www.industryweek.com/articles/ibms_winning_strategy_18437.aspx

[10] "World's Top Software and Services Suppliers by Employees, 2011." *Business Rankings Annual*. Ed. Deborah J. Draper. 2014 ed. Detroit: Gale, 2014. *Business Insights: Essentials*. Web. 14 Nov. 2013.

[11] "World's Top Business Service Brands, 2012." *Business Rankings Annual*. Ed. Deborah J. Draper. 2014 ed. Detroit: Gale, 2014. *Business Insights: Essentials*. Web. 14 Nov. 2013.

[12] Gartner (2002) IBM/PwCC Bid: Altering the DNA of world's largest IT company. http://www.gartner.com/1_researchanalysis/focus_areas/special_reports/ibm_pwcc/ibm_pwcc.html. Accessed 2013-11-09

[13] Annual Reports IBM

[14] Ahamed, Z. (2013). The Servitization of Manufacturing : An Empirical Case Study of IBM Corporation, *4*(2), 18–26.

[15] Leoni, L. (2011). Adding Services Means Adding Knowledge : The Successful Case of the IBM Corporation ., 1–25.

[16] http://www.studymode.com/essays/Ibm-An-Industry-Example-Of-a-936474.html

[17] http://www.recordonline.com/apps/pbcs.dll/article?AID=/20091017/BIZ/910170342

[18] Annual Reports IBM

[19] Based on : Jetter/Satzger/Neus, Technological Innovation and Its Impact on Business Model, Organization and Corporate Culture. *In: Business and Systems Engineering, (2009) 1, pp.37-45*

[20] Martin, Claude R. Jr. University of Michigan and Horne, David A. California State University at Long Beach. Restructuring towards a Service Orientation: The Strategic Challenges. International Journal of Service Industry Management. Vol. 3 No. 1 1992. Pp 25-38. University Press 0956-4233.

[21] Wise, Richard and Baumgartner. Go Downstream, The New Profit Imperative in Manufacturing. Harvard Business Review, September-October 1999.

[22] L. Ryals, "Executive Briefing # 6 Executive Briefing # 6," no. March, pp. 1–7, 2010.

[23] D. J. Smith, “Power-by-the-hour: the role of technology in reshaping business strategy at Rolls-Royce,” *Technol. Anal. Strateg. Manag.*, vol. 25, no. 8, pp. 987–1007, Sep. 2013.

[24] N. Frank. (April 18, 2010), “Xerox: Services to survive – a long hard road.” [Online]. Available: http://productserviceinnovation.com/home/2010/04/18/xerox-services-to-survive-%E2%80%93-a-long-hard-road/.

[25] “U.K. Manufacturing Must Embrace Services Boom | Xerox UK Newsroom.” [Online]. Available: http://news.xerox.co.uk/news/u-k-manufacturing-must-embrace-services-boom.

[26] T. Baines. (2013), “Servitization impact study: How UK based manufacturing organisations are transforming themselves to compete through advanced services.” [Online]. Available:https://connect.innovateuk.org/documents/416351/3926914/Servitization+impact+study.pdf/5b31740a-56ff-41c2-bdc8-e4289353fa66.

[27] S. Rothenberg, “Sustainability Through Sustainability Through Servicizing,” no. 48216, 2007.

[28] J. Hayes. (May 11, 2011), “InfoTrends InfoBlog » Xerox Continues Its Transformation – Insights from the 2011 Investors Conference.” [Online]. Available: http://blog.infotrends.com/?p=3951.

[29] A. Neely, “Why do servitized firms fail ?,” no. i, pp. 1–10, 2009.

[30] Entrepreneur Magazine, http://www.entrepreneur.com/encyclopedia/corporate-culture, collected 11/22/2013

[31] Gerstner, Louis V. Who Says Elephants Can't Dance. HarperCollins Publishers, 2002

APPENDIX

Paul: Our daughters went to school together when they went to Class Academy, so we met and just got along famously. Wonderful people. Karen worked for me a long time. She's a class act. I have liked her very much for a while. When I started working on the project, I called her and asked her to talk to me. She'd been there a while. After we'd talked for about an hour, she said I should call Rick Warren. I'll give you his email. You guys talk. My class had also dropped your name. I learned you were in town and figured I had to call.

Rick: I'm on his board of advisers and have been for quite some time. I believe in the world of system science.

Paul: It's an interesting transition for me. I'm taking that program because, like a lot of people, I've been trained as an engineer and the better you are the less engineering you get to do.

Rick: And you're in the __ , why?

Paul: It's building systems with these instead of these. So it's a different set of skills and I'm trying to learn that. Can you give me a brief bio. When did you start with IBM? What was your background before that?

Rick: I started in 1972. 36 ½ years. I started right out of college. I graduated from Syracuse. I was a second generation at IBM. My dad worked for IBM for 37 years. When he came out of the service Thomas Watson Sr. hired him in New York City to become part of a service and he basically would fix typewriters for a good portion of his years, then copiers and other things. He was person in a car who went to somebody's home or business and repaired their typewriters. So, he started with mechanical crap.

P – That's kind of fun inasmuch as it relates to the _____ He was an IBM service employee back when they were building ..

R – So that's why when you look at the transition to services, if you look at the proper ability, fundamentally the cause of the change you're looking at is … IBM got a place and an area… You had a company that built mainframe computers. Then they moved on to distributing computers and their services business was the cash thing. Over time, it put the squeeze on the customer. The customer bought and so they had everything bundled and the world was moving more to distributing more regularly. Long story short probably in the late 70s early 80s the company almost went bankrupt.

P – I didn't realize it happened twice. I've been focusing on the period in the early 90s,

R – That's when the bankruptcy part … In the 90s it was all about bringing in _____ You had to go into the Valley of the Board for the board to say we've got to do something different. Then it takes a while to percolate the ideas of how to do that, and then it was radical and still is for many companies to go hire somebody totally from the outside.

P – What was going on in the 70s and 80s?

R – It was the whole concept of moving from the glass house of distributing computing, you had a whole bundling and customers were abandoning what you were trying to do. And so, the business kind of collapsed. You've got to remember the heritage is electromechanical devices from _____ scale originally and all through the tabulating machines, etc., to where they run into a pool of products. Even in electronics you had an awful lot of electromechanical printers – all that stuff. Then IBM was building one of every flavor. At one point in time we had 23 different microprocessor architects that we were supporting. There were valid reasons for all of them. They were all relative to be successful, but when you're trying to learn quickly, that is very difficult to do.

These changes don't happen overnight. And so, the Valley of Death was the early 80s late 70s kind of timeframe. I came aboard in '74. I was hired to work on what they called the "future system" which was a liquid encapsulated (6:47) semi-conductor to get the heat out of the semiconductor use a _____

compound and by the time – they send you to school to learn their logic design, which took about 6 o r 7 months. By the time I came out of that they had canceled the program. So, all of us that were hired now are going into different things rather than be laid off. When you look at turning on a dime you then have start suspecting your processes. And you start finding that your customer practices, your leasing, your _____ , Most of the equipment that IBM had was on a leasing plan. Think about what that does to your balance sheet. In one dimension it's great. On the other dimension it's hard to move.

P - You have increased costs ____ again and again, and sure you have _____ problems but

R – So you had an annuity business built into this thing when the market was collapsing. It's a capital intensive world and the technology is moving more into electronics. IBM was a highly integrated _____ company. As competition came on, they nibbled in pieces. So you ended up basically in your ____ proposition to customers as Swiss cheese. So your value suddenly diminished, Before, we would go to the customer and provide everything so they had peace of mind. High security and high quality …

P – Jim was describing this the way we were talking about … You go into a bank and say we have everything from the terminals the cashiers use to the tape backup machine. It's a hermetically sealed system. Anyone in this company can run a backup. You just push a button. You're never upgrading any piece of that thing without upgrading the whole thing.

R – The idea is this _____ all the connections. This is pre-Internet. As the interfaces to the computer hardware changed, you had people coming in from the printing side. You had people coming in with mid-range computers. And so, all of a sudden your franchise was getting hit all over the place.

P - _____ the whole system if somebody's already been told that that deck is maybe already out there. The company _____

R – It was better than that. It didn't matter, but it was probably at a lower price point or one that was clearly identified, but now IBM's bundling proposition had to be _____ So, again, I call it arrogance, but you can call it anything you like. So that was holy shit. Then it takes time to go through … The price is looking at your business,, looking at all that kind of stuff.

P – Let's take one more minute on that. How do you realize … It seems you have to be at some kind of tipping point before anybody's going to really know that stuff had happened. How did the realization kind of creep into IBM that maybe they were in decline? Was it just looking at balance sheets or was it some other cultural thing.

R – Then and now, IBM is the best managed company in a downturn. They know where every dollar is. They know what the entire _____ way back then. They knew the whole type _____ machine – what the cost was, how to control all the variables, all that. The antithesis of that is when things go quickly up. Their slow response. So you never catch that spike, but they were okay with that and still are today. And in this economy, right now, If you're inside the fort, the _____ squeezes all the time. And so it becomes hard to work in that environment, but when you look at the greater good of what you're trying to do, because they're managing the bottom line, so if you can't get it in revenue, you cut it in expense and now in the new method is they'll controlling the shares. So, their measurements between now and 2010 to figure out what theme that is on an early share (?) _____ . And so they just announced an 18 billion stock buyback to stoke their shares up 5 or 6 points. But they're on a 2015 addendum and the CFO of the company is not letting the company off of that to be predictably deliver to the shareholders and to Wall Street.

P - So not trained yet to settle what they're doing , but more making a plan to say we want to be predictable not cutting edge. Obviously IBM is cutting edge in technology.

R – IBM has continued to be cutting edge. The other criticism one could level at IBM – and I did a number of this and I'll tell you some of my own personal story, but you make progress. You build products that no one can possibly envision. You make them and – this is the characteristic for IBM is they look at them and they say nah this is _____ and they walk away. Five, ten years later,

this is a hot market and everybody his programmed except IBM. And so that's kind of the way it works. Is it something we said? So, going back to the 80s, at that point in time John Abrams (?) was the CEO. I don't know how many CEOs I worked for, but I know John very well. And so, in that timeframe, the Jack Walsh (?) model of customer company was in vogue. So, they were looking at ways to break the company up to do different things.

P – I've read a little of this.

R – And you'll read. Gershner's (?) inflated view is _____ here, is that the chronological significance and all that I take for granted, and a lot of the people that are working here _____ first
____ so, when you look at that time, he thought the best thing for the company was to break it up, let it be more nimble to react to the competition the way it was. It made a lot of sense. There was another faction inside of IBM that didn't want to do that and it's really manifested itself for the board. They wanted to continue to keep IBM whole, but needed a different place _____.

P – Can I ask which side of that you fell on at that time?

Re– I was ambivalent. I guess I fell on the side of _____, because ____was _____, but more
Importantly, in the place that I was working, the site general manager was asked to become president of PC Company. This now '89 maybe. And so, he brought me down from that location to run a technical team and I partnered with a finance team and our job was to break up or scrap the PC Company out of the rest of IBM, both financially and physically, so that at that point in time, our earnings were still commingled and therefore, they wanted the SEC – needed 3 years of earnings. And the whole goal was to split it off. So that was the first big split. And there was a lot of controversy around that. So we got 18 months into this and the _____ fired _____. And basically, they did a search and Gershner was named CEO maybe 6 months later. Now he's coming from a good solid background. And so we stopped the work to break it apart and Gershner's strict mantra was to do this in unison.

P – So that was his first call coming in.

R – Yes, and he wouldn't do with vision in it. He wouldn't tell anybody with whom we _____. What was really on his mind - He was out - For almost 9 months, he was talking to people _____ **17,48.2** but trying to think _____ that going to customers and talking to every friggin' customer you could possible do to get their point of view. I'm not sure what all the things occurred but along the way what he was doing – once he had a point of view, then he'd go over his … He hired Gary York, and he's an important guy. He was a cohort in _____ express financial pattern. And he would have become the CFO by then. But his real job was to _____ and he was a ruthless son of a bitch. And so what happened is when Jerry would give him _____, and besides running the company, he had a staff of people and they would go to some location in the _____ and they would say look we're going to call up on Friday and say we're going to meet in your location tonight. Plan to have your people there to work on weekends and this is what I want to see. It would be that quick. He would go through … what he was going is he was evaluating the executives. And what would happen in every one of these meetings, some percentage would not be there and they would _____

P – Wow. You describe that as being a very sudden thing. Was that deliberate in terms of not giving people time to prepare, like I want to see what's happening right now.

R – Do they know the business? And if you didn't have the right answers, you were gone. And he didn't _____, so this was a style that I don't as others had adopted this. This was a style to get the attention of the leadership team. _____are going to change this culture. IBM was culture-driven. Deep culture-driven. And you need to take care of this because you're looking at other companies and you've got to pay attention to culture. Intel's got this problem right now. Has had it for a decade but they really have it now as they try to get competitive. But, so when you look at bringing in somebody totally on the outside, then him bringing in … he brought in only a small team, but Jerry was kind of his hatchet man. That everybody really did not like.

P – Myself included. Were you the recipient of one of these surprise visits?

R – Oh yeah.

P – Tell me about that. I'd love to hear how that went.

R – Well, so there was another guy - When Jerry left IBM, he became the CEO of Chrysler (?). And then he had a part of that. The other guy became the head of the PC Company. What they did to my boss is Jerry _____. Telling tales out of school. The PC Company would _____ profitability, plus or minus $250 million. And that usually was the thing. If you _____ and it's all what's out in the inventory. And that's true for Dow and all these guys. That's the hard thing. My boss was surprises with the inventory of Europe, and surprised that they were announcing earnings every single _____ because there was this quarter million dollar ___ Europe that no one knew. And this guy is – one of the things you'd find at IBM is with the rare exception of a couple of people, you'd get depressed. _____ every time. My boss was no different. Anything he said – even if it was black vs. white – I mean this is not a guy who is telling you _____. He's just not that kind of person.

P - _____what he thinks, how sees it, even if he's not right.

R – Right. So that's him. One night in Arma?? – this is before they build the headquarters – they just set up this guy and basically called him a liar. So this was on Saturday I think and Monday morning he announced that he was retiring. Because somebody was questioning his integrity. You could question his decision, you could question any of that, excepting his integrity.

P – So this was not them coming in and firing him as you were describing earlier. This was more like they challenged his integrity and he said _____.

R – A lot of the marketing teams got axed. The leaders in the marketing, a lot of the development execs got axed. In my case, I was running ___ business and after I did this little thing where they stopped in 18 months, I became – I was the second employee of Thinkpad. So I ran worldwide operations. About 2 years I did that. And after I left there, I ran the development group and a business group. We were looking at the hand-held devices. This is in '91 – '93. And part of what we were doing is we were trying to assess whether this was a business. This was way before they used _____. And so you remember the Apple _____? Microsoft had a _____ data operating system. Intel had a low-power microprocessor. And so we were building a bunch of these devices, including tablets improving this stuff, trying to determine whether this was a smart business to get into. And one of those things that we built was the first cell phone – the first smart phone. It was called Simon. You can google it and you'll find it. And we did that with - one of my teams developed it and we were partnered with Bell South as the carrier and we sold 100,000 of these things. It moved data and it had a PIN to it, and it had a keyboard that was a personal keyboard. You could send or receive faxes. You had a stylus – you could write on, and it was designed for people that are trying to make quick transactions, decisions, all that stuff. It had the things on it, the functions that we have today. And so, long story short there, we decided that this wasn't a market we wanted to be in but the services were. This is kind of moving toward the service question. So, there were a lot of these. In my case, I was making a presentation not to York but to his lieutenant underneath him. It was supposed to be a 45-minute presentation. I started the presentation and I think I put one slide up and he walked out of the room. The decision was made.

P – Wow. Do you think it's because he'd done his homework ahead of time and kind of knew where you …

R – Some people said something … but he didn't need to see me if that was _____. So, instead of getting fired, we just shut the _____ down and I knew _____. And when I was in technology, I did a lot of the chip sets for communications. But, enough about me. The rest of the company – so when we were - we did a lot of stuff. We were all things to all people. High profitability business, but wasn't spun out of the business. So we did operating systems, we did applications, we did all that stuff. But the market was shifting. You now had a colonel(?) and you had different players in the operating system and people could write different apps – so the whole market shifted. So we declared to the software community that we were getting out of the application busi-

ness, but we would maintain the operating systems. And this was late 80s, early 90s. Gershner was on board.

P – Early 90s. So this is the heyday of OS2 and Windows is still ramping up.

R – Yeah. That was in the PCO _____

P – PC side and the then on other side ___

R – Yeah, but you still had all your midrange – your main frames. You were still a very hardware centered company. At that point, that's where the recognition was. The hardware company was coming in. In that time frame, that's when the decision was made. Now, is that widely communicated? No. That's not how IBM works and I'll tell you we're _____. But those of us that were in the middle of that knew that your investments were being cut and you were throttling down. So semi-conductors – I don't know how much you know about semi-conductors.

P – My bachelor's degree was in computer science.

R – Okay, so if you compare and contrast key elements of IBM vs. Intel In that timeframe and even today. So, you look at – we were in semi-conductors. Semi-conductors were our bread and butter. That's part of the way that we kept state-of-the-art. We were better at technology than Intel. In that timeframe, they worked through a model and they said okay – we cannot afford to sustain this _____. The dotted line underneath is "given that we were ramping this thing down". So, they made a decision to start the OEM technology _____. They made a decision to create a partnership model that's called the Advanced Semi-Conductor Technology Center to work on a next generation process and they brought four partners – they had seats for four partners. Build a separate building on the campus – the semi-conductor campus. An each partner paid – don't hold me to the number – 3 or 4 milliion dollars. Per year (?). Now, semi-conductor development back then was 1.8 billion. Today, it's 3 ½ billion, by Intel's _____. So, Intel has always maintained it has to do its own. So, think about 3 ½ billion dollars of pure research that is going on. At that time, it was 1.8. Well, we chose a model. We said look, we will give the patent right _____, we will jointly develop the recipe together. When the recipe is ready for release on the technology, each company can then create its own derivation from that recipe for what they want to do on their on _____. But the base was common.

P – So you can develop an architecture, you can develop interfaces

R – No, this is the ____, this is the physics, this is _____

P – So, you're not talking about the architect of a chip. You're talking about essentially the fab-architecture.

R – This is the recipe to build …

P – Okay

R – Yeah. 30 nanomaters, 22 nanometers. **30.57** Now, there – it was how do you build a recipe, build a transistor on a wave _____ and get all the tools

P - … advanced photography (?).

R – Right. All those things – get all the tools. Get all that. We did that in a _____ process and still do that today.

P – Who else was – you said there were four?

R – The original guys I think were Seimans, _____ Semi-Conductor, TSMC, Phillips, And they changed through time. But the idea is they don't have to spend that big bill and they could stay state-of-the art and stay competitive against Intel. _____ a patent for everything. So you can see in that point of time _____ was starting to force the company to take the things that were im-

portant to their culture and rip them apart. They were setting the stage. Now, _____ this is called – people got the message that the company was changing. You also had a pension system that you basically – like my father – he worked for the company, retired with a major pension. He had all that kind of stuff, great benefits.

P – He's got his health care. He's got everything.

R – So he had _____ for life. So in 1998, they declared the first of anybody in the industry that the pension system was going away. They were going to cap the pension system so that anybody who had so many years of service as of 1999 would be grandfathered into this modified pension system and anything after that was 401k. They drove a hard stake in the ground and there was no latitude either way. But that takes the balance sheet – because everything was self-funded – self-insured, self-funded, all that kind of stuff. So now it relieves the CFO of all of that obligation so that when they cap that, it goes the way it is. _____ pension system, but it's off the balance sheet. It's now managed by a third party so it's not part of the earnings and the fluctuations could – if you look at the companies today – that they're way behind in the pension plan, and if they were to _____. If they were to catch up, they'd be bankrupt. So IBM saw that early and pulled the trigger. But an awful lot of people got a huge shock that the company was changing.

P – Yeah, I can imagine anybody who didn't get grandfathered into that maybe had something to say.

R – There was not outlook for discontent all that. Also, when you made this shift to joint development of the process, a huge amount of the research arm in Yorktown, in Zurich and a few other places and a huge amount of the PHDs that were sitting in Sysco and _____ and all the semi-conductor places suddenly saw the handwriting on the wall that they're no longer going to be doing research. They're going to be doing profits. So in that same era, they changed the measurement and the research people weren't recognized and rewarded for fundamental research. They were now paid with via products in the market. So, their contribution had to be commercial, nor were they given any kind of credit.

P – So some of the pure research was still necessary, but it better have a direction.

R – And get a result. Otherwise – we knew that we'd lose a lot of researchers who went off to different companies. It was a necessary part of the transition. Again, all flagging the hardware kind of thing, right? Now when you look at … Another friend of mine (he's now retired too) was given the assignment to take and do a microprocessor _____ with the idea of getting of getting down to _____.

P – Okay. From the peak of 23.

R – So now you – and these are all things made by the _____, but they're all things that were hugely competitive inside the company. And so you had ____ cultures. Austin, TX was the _____ business. Rochester MN had the mid-range business. Poughkipsie had the mainframe business. These guys would all cut each other's throats to get money to be able to go to the next generation process. Well, _____ said enough of this shit and so Jim was asked to go do the work and you can imagine he won't be popular and it took him about 2 years to _____ a poor recommendation and things were just axed. And so now, you have huge developments that that's their whole career. Now they're building architecture products and all that. Now, a large group of people are suddenly without a job.

P – And were they cut loose or were they – I guess some would be reassigned.

R – In general, people left the business. So, you're now whittling the culture of the guts of the hardware business. And the same was being true in manufacturing. When I first started – you know, just in time manufacturing was all about (??? **37.25.8**) – so the factories – in one of my checkered careers is I did a lot of automation – robotics – all kinds of stuff – automated conveyer systems with all kinds of smart sensor. One of the jobs I did was – one of my first jobs –real job – was we were building a automatic storage and retrieval system that was 2 football fields away. Otis Elevator built the cranes that would go up and down and pick from these things – and there was a company called Interstate Electronics that was doing all the logic that was our communication back to thing. This was in '74 or '75.

Right after I _____ when that FS computer system _____ my boss said "You're going to work for maintenance." I figured shit I'm going to _____ because this is a manufacturing company. And what it would have turned out was that this company had gone bankrupt and left everything but nothing worked. So myself and a programmer buddy were given the job to make it work. You're a 21-22 year old kid and I get the #1 priority in the department. I had 6 or 7 maintenance guys working with me 2 shifts a day as we put this _____.

P - Just out of curiosity, what was the context of this machine? You said the storage and retrieval of what?

R – All the manufacturing parts. This was supporting the large manufacturing plant. That plant was building printers, big line printers, banking systems that were the length of this building – the length all the way to the other side. So, if you think about the heavy metal, the machine parts, paints – all of that stuff was contained in that warehouse. And so this was the storage place where you could come out ____ conveyor system that would sent it to the right spot so manufacturing _____ could ____, and we had to keep track of all that. This was way before all this crap that's done today.

P – That sounds like a very interesting system though. Particularly at the time.

R – At the time _____ a great learning experience. And my programmer friend – this was an IBM 1800 computer. It was a ____ deal. He did all the programming for that and then we had to do all the ___ work. We spent more time _____ permutations and combinations. We did _____. It was a great learning experience. That also then led to this automation stuff and robotics. I was doing robotics assembly in '81. Production robotics and _____robots and then we had … research had their own robots that were probably these 3 tales together and I did type_____ assemblies and chain printers. _____ was the guru of _____tory poles. I had machinists working for me. A lot of fun. But you had business cases and all that kind of stuff. In all of the manufacturing plants around the world you could see IBM was making the decisions. Then you had the supply chain. 41.12.4 So we built supply chain software way before _____ these guys. We moved our entire supply chain on our systems _____ and challenged to go do that so that we could keep track of the inventory _____ we knew where the _____ was. For Fed Ex and all these other guys who were building that stuff. We were the incubator for a lot of that stuff. We had our entire supply chain. That allowed us to start shutting manufacturing. Because now we could see the final assembly.

P – You know absolutely where everything is, you know how this goes together and you say making that part is not profitable. Let somebody else make it.

R – Again, the error _____ all around manufacturing and that's how we worked.

P – That is a really interesting transition – that point right there. Because I think of IBM as a company that who doesn't just put hard drives in things. They make parts that make up the hard drives. If somebody actually turned and said we're buy the platters from Siemans.

R – Yeah, but you're too young. Because it started with vacuum tubes keeping track of ones and zeroes. Then it became SOT logic to do that. Then the platters, if you get to go to the Bay Area, I can get you into O_____ Research, which is up on the hill, and that was where storage research was done. The platter

P – That's where that first 5 gig – well not 5 gig but 5 mg drive was built. \

R – Yes, way before the stuff we put in PCs today, and so this is the precursor of all that shit. And we sold our data _____ business _____ what was San Jose. The entire manufacturing facility in San Jose – that was sold to _____. And we bought from them for a while. Then we went on the open market. So, when you sell some _____, you have to sell part of your patent _____ rights and stuff like that. So, you can see the systematic things and this is happening all over the world. And so we ended up with this partnership model which made us much less dependent on manufacturing – and al lot less dependent on the hardware devices. I was in ThinkPad at the time and I ThinkPad, my big claim to fame is when you think about _____ and laptop _____, you've got – at that time you had 9-month _____cycles. You introduce it and you have

your price point curve – taking the price down every quarter, and you're ramping volume up. I had to come up with profitability models and we had to hit. My boss at the time said look you can leave this job when we hit it two quarters in a row. And that was true. So when I hit it, that's when I went to the hand-held thing.

P – I think that was huge. That was a fantastic _____.

R – Well, so the story behind that was the ThinkPad 700C _____. You group the _____. A guy named _____ is still with the development lab. These guys were _____, but they brought the first device out and we went and I think it cost $6,000. We sold it for $5,000. Only built – we only built 50,000 and they were sold out the first day. We were losing money on every one of them. We were trying to set the mark. The boss had to go the board and explain all that before we could launch. The next generation was the ThinkPad 720. It had some different options. In that one, we had formed an industry advisory board of all of all the rag magazines – like _____ and those guys, that were part of this. They all signed confidential disclosures and we met with them. We showed them everything. So _____ and some of his lieutenants came over and they showed the next generation. And these guys ripped the _____. Think about ____ Japanese that showed them _____. They just destroyed them. They picked apart every little thing – and one of the characteristics of this guy was when he got nervous, the sweat glands on the back of his neck would just drip water. It was just like somebody turned a faucet on, so you can imagine he's standing in a puddle of water and he was just accepting the criticisms. He left that meeting. We were in Palm Beach, FL – he left that meeting and the boss and I tried to contact him before he got on the airplane to go back to Japan. He wouldn't answer any calls. We were concerned that he was going to commit suicide. That's how the meeting went. He would not answer anybody's phone calls. Not even the head of PC Company. None of us. For about two weeks.

P – Real quick. What was the stage of the product at this point? You said you were showing the next generation. You were at this point what? Ramping up production capacity?

R – We had built the first 50,000.

P – I guess the 720 is what I'm …

R – So this is – you're seeing an early version. We're probably within 6-7 months of launch. He's now showing them to the industry. These guys didn't like what they saw. Three months later – I'm going to fast forward. I want to – you pick any business you want. I've worked in them all. This guy from _____, he cruised out two models. Every one of these guys fell in love with him. Why? Because every criticism they levied on him he fixed. When they launched, they wrote every possible thing you could ever say about them _____. If you go back in the archive you'd find it. And these products had a lot of defense. So they could have picked them apart. But no, because this guy listened and was able to put the _____ PCMCA card where they interfaced and they wanted two of them and he figured out how to get two and they wanted an integrated CD Rom. So he worked with Sony and they figured out a way to do this. He did magic and they didn't like the paint so he went to some paint manufacturer and they made a rubberized paint. This was on the ThinkPad until 2 years ago. _____ Customers liked it.

P – I have one right here.

R – So, but even in that, the margins were hugely slim and when you looked at the PC business per se, it didn't contribute financially directly to the bottom line. So, in about 2002 was when the decision was to sell the PC Company. And we sold the _____

P – I remember that. That was an interesting time.

R – I was then in Chapel Hill, NC. I was part of a hardware division at that point and a lot of my friends were suddenly all unemployed. But doing that – that got me _____ another step in the hardware company coming out. The X86 servers today are the next thing to do. They kind of preannounced. They're trying to sell it. I don't know if that'll be right, but they'll sell it to somebody. Because they don't need it. It doesn't contribute to what they need to do. And when you look at the PCs, these were great for sales guys to sell. Because everybody had a ThinkPad. You knew Think-

Pad. It was a track point and all the other stuff. So, _____ got a lot of money out of that little track point. But when you looked at it, it didn't contribute to the core of the business.

P – You said the first batch were all losing money and then everything else is just grocery store markets. Because a lot of _____ is a commodity – even if you've got a very nice one …

R – But it wasn't a commodity back then. You were selling laptops. When I was still there, a high end laptop was about $4300. Now you can get them for less than a thousand. But that's just the technology curve. But when you.looked at it, even at $4300, it wasn't significant enough to swing the _____ company's _____ one way or the other. There was no reason to have it. Now this is post _____. This is now on the _____ that they made the decision to ax that part of the business.

P – It's kind of continuing the same path.

R – They've systematically sold the semi-conductor business into this partnership model because they couldn't get rid of it all because of the main frame and all this national security agencies around the world use our stuff.

P – That's definitely still a going business.

R - So mainframes are still there. That's what we call our Z series. The power of this _____ a huge cash cow. That's the risk (?) business. But not now. Now, they're applying microprocessors so that you can get economies of scale and the production, architecture and design use the risk (?) or the ____ side, however you want to do it, and depending on the application, to get that cost _____. Remember, the best managed business where you're counting pennies, they're second to none of any place I know. But eventually, the power business will go with micro____, right? So now you're in the service business. Back up a little bit. Part of the problem – the blessing and curse of the service business – is when you put hardware on service, the governments around the world want you to support millions N-3 – so the current release from the _____ would be for three more generations to have a full litany of parts. And competent salesman.

P – I did not know what that standard was, but that's good

R – So now you compare that to somebody like _____ brand manufacturing in the PC Company, we _____ in North Carolina. **53.27.7** But if you look at what challenge Tim's got, his success is also his curse. Because now he's got Legacy Hardware.

P – He's got momentum.

R – And he's now hidden the corporate world. The consumer will throw shit around. But the corporate guys are not going let these guys _____ until the hardware breaks. And now the life cycle of an I-phone is 1 year. Well now, these CFOs want their life cycle to be 4 years. Now, he's got 4 generations of I-phones that he's got to support and the hardest part of that support is _____ compatibility on the operating system. So now it becomes more complicated. You want some glitzy features. Well, how do you make them factory compatible? Now you're engineers so now they can't move at the speed of light anymore, because they've now got to worry about it. And then they have to do all the regression testing to be able to make all this come together. And so, as startups get more successful, this is the major hurdle nobody talks about, and it's a huge problem for these companies to get through that valley in a way that they still keep their customers. So, services gets to be at times a huge burden on your balance sheet, especially in a leasing business because there's no incentive for these guys to come off the lease. Low cost lease. IBM takes care of everything. Now IBM continues to have the burden, so as you relieve that burden you now make it better. From the code (?) base, you still have backward compatibility . My last job at IBM was – and Karen was working for me at the time – was managing all the software partnerships for all of the service. So there were 16,700 and some odd partners that we had, and the purpose of the group was …

P – That's unreal.

R – It was to get them to _____ their code to the new platform so that they would say that their code was performing. If it was close to the metal they had to actually do a lot more testing so that guys like Oracle, SAPO…. I had whole teams of people at those locations that would work hand and glove with their developers to integrate ___ and get it all tested and all that stuff. _____ all kinds of tools and all kinds of stuff. But the idea is you had to come up with ways to announce … You didn't want one company saying yeah, I tested. No, you wanted 5,000 to 6,000. And so you had to come up with clever ways to go do that, to be able to make that happen, right? And you want as many partners as you can so you've created a _____. This is 5 or 6 years before Cloud. I've been – always had Cloud. As long as I can remember, there's Cloud. We didn't call it that, but _____. So, in this particular job, we created an on-demand system for all the latest levels of IBM hardware, with all the back end storage, so our business partners, our software development partners could get rude access to the latest machine. They could upload their code to their machine. They could do development right there, and they could save it and store it if they want to come back. Or, they could destroy it. Just whatever they wanted to do. But, so instead of me loaning – which I still did – I was still loaning two hundred million dollars worth of hardware and wait for it to trickle down to these guys in China or wherever, And they have announced weeks before the _____, they had _____ us to the _____ hardware. They could test it in virtual space to verify that the code was totally – because they had rude access, right? They could get the performance measurements. They could do all that

P – They had the performance measurement tools and you could scarcely keep an engineer away from that kind of thing because he's getting a new shiny – the best thing here…

R – So, and this thing is still viable. It sits in Dallas TX, but that was the breakthrough because IBM had five platforms, seven operating systems _____ supported today. Across 16,000 cross targets (?).

P – That would be a fairly complicated system to manage.

R – So, that was just kind of a necessary thing, and I was a pure expense to everyone who visited – because no partner's going to charge for that – pay for it

P – That makes sense

R – Because they're doing service stuff for IBM and they're getting their collateral so that they can go to market and hopefully get better sales, right? Now, in parallel to that, come back to Gershner now. His first acquisition was Lotus.

P – I remember that.
R – So, Lotus 2 was struggling. Jim Canavino(?) was the general manager over the ____, and it was struggling to get an entrenched identity and interesting technical things like making a microprocessor that could do DOS and Lotus 2 and that kind of stuff. _____ customer-wise, that's good business. And so Gershner looked at that and he was just _____ that he needed _____ applications than he had. At that time we were in a dog fight with Microsoft. So

P – I was actually at Microsoft for that _____

R – And so now he goes and buys the entire Lotus company. Now you have complete office suite. They then put more and more energy into that and got Lotus codes to work properly, got 1-2-3 _____ and all that stuff, so now we had a good competitor to Microsoft Office. Over time, _____ this way, but still pretty prolific groups still up there to _____ the software group. Now I'm in the server and storage group, the software group, and the consultant group. And the consultant group had two groups. One is the consultants and one is ITS – which is the technology service. So, the old great fix guys from the main frame days way back in the 70s, were still there supporting the _____.

P – In some sense, the successor to your father's job.

R – Exactly. Just with more modern technology. So that's in the consulting group. Now, the consulting group was a derivative coming out of Price Waterhouse.

P – Yeah. Karen talked about that position a little bit, but that's something I wasn't really aware of.

R – Well, after they digested Lotus, then the next thing on the block was okay we need to get credible _____ consolidated. So they shopped around, they put – and this is still _____. The current CEO, Ginny _____, she was the person asked to go do the due diligence, find which consultant company to go buy, and she was put in charge of sales for that company once we acquired it. And somebody else was the G.M. And that happened in early 2000. So, now, when we look at the balance sheet of IBM, you've got three pillars. By far, the largest number of employees are in the third pillar. As always. So when you looked at the revenue, it was still hardware. So as much as Gershner hated hardware and Paul Azano hated hardware, they needed this to allow the customers to settle. And you'll always need hardware at some level. And s_____, **1:02:45.0** they ran out originally and said we're no longer going t be in the application business. When you look at _____, what they've done in the last 20 years is they've gone on an acquisition spree. So, under the guise of the _____ planet. So IBM always has the marketing thing and once Gershner broke the culture, we're no longer on that we have to control all the bells and whistles. The strategy goes up with a whole different model and the last one out – there'll be another one in 2015 – is the _____ planet. Now, it's a tag line that everybody plays. It's all good computing. So, the idea is when IBM is doing the smarter plan - is they're using their consulting group, their software group and a little bit of hardware, but not much, and they're going around the world and doing these major instillations to prove feasibility of how you actually think and use big data and the business analytics to be able to get you better data, better information. They control the _____ what you want. And so for the last decade or more, they've been doing these pilots all over the world and jointly _____ governments and putting them in and letting them be showcases, but the idea is by 2015, they're going to be turned into revenue.

P – So this conceptual framework of the smarter planet seems like it's kind of a hybrid. It's going to have any kind of individual technologies that are taking part – from the smart grid to sensors on the road, to …

R – Just think of it at the macro level. This is all about that ton of instrumentation _____. Your business analytics package is the thing that's going to sort that data out with the rules _____ and give you better information. Which theoretically will control better with the environment.

P – Makes sense

R – And you're defining environment as loosely as you can, right? So, the installation ..

P – That's a very very big umbrella kind of project, but …

R – So, IBM always _____. When the _____ to distributing computing, IBM led the distributing computing. The only fallacy they had is they wanted it to go higher. They're not controlling the _____. No, their goal is to be the _____. So, what have they done? They have gone systematically and _____ their portfolio with acquisitions. The last I knew they had done - _____ did about 130 billions (?) in the last decade. And every one has got a purpose. They plug a hole and it's so easy to integrate software people and put wrappers around codes … and they have a whole process. There's a guy by the name of Martin Payden who lives here. He's in charge of what they call the Blue Loss process. (?) He does the acquisition _____ from the financial ____ investment banker. But all the financials – but he also goes through all the code and they substitute anything that has patent infringements on it, so that the code is clean and it gets integrated into an _____.

P – That makes sense.

R – **1:06:19.0** They got a model and it's very sophisticated how this was done. Because the last thing we need is to stopped ..

P – Makes sense.

R – So it's amazing how many people that are here locally – I don't know how many people are left here, but there's not that many. All the people that are are leading some of the most important part of IBM. There's a patent attorney here whose name is __ Barnett. He owns the patent strategy for IBM.

P – Wow, that is kind of a key part of that, given the rate at which IBM produces patents.

R – Right, so I mean he is a patent attorney who was in Asia for a number of years. But now, he is the buy that's in charge of IBM patent strategy. And that determines what we were paying inventors for, what we pay lawyers for to go process the new patents – because we want to have – while fighting Samsung, we want to be able to surgically strike at areas that we know are going to be important to you in your overall strategy, right? The goal is not to hire hundreds of patent attorneys, and you don't want every engineer patenting everything, so we created patent teams that these guys communicated to, so we're a lot more surgical in how we look at patents, still turning out to maintain that number 1 ranking.

P – But have you reconsidered how deep that _____?

R – Well, and part of way I'm going through all this is although your question is a simple question, when you look at a large company, there are so many tentacles that you have to turn to get the hearts and minds of your customers the way you do, the hearts and minds of your employees the way you do, to do the physical work, and still maintain profitability. There are very few companies that can do what IBM's done.

P – It's what makes it an interesting case …

R – And the corollary is what's in _____. I have great respect for _____, but they have the problem we had in the 80s. And they're not public about it. But we just look at them. They're spending that 3 ½ billion dollars and building the next generation pads, so they're building … and every time you build it, that means bigger wagers and less chips per wager. So, when _____ function (?) and what you look at … what is the demand out there that's growing that's going to consume us? Nothing. Right? Service _____ are in the toilet. Everybody's on maintenance mode. The economy around the world is structured. Nobody's building a lot of data centers and the data centers they're building are out of pizza boxes – and they're good enough but they're not highly secure or not always …

P – We've kind of reached the point where the very very latest technology isn't really needed to get …

R – So now, you look at the demand curve – because they're going to have a lot of _____. Now, you may or may not know, but pads (?) only run efficient if they're run _____.

P – I did not know that

R – It's called wafers(?) Any fab – will have a minimum wafer started day that they have to run just to keep the rest of recipe in balance. Now, that's great when you've got demand, but now you build dummy wafers and crush them.

P – You still have to do the work. You still to _____ materials and all this stuff.

R –You're spending all the money and you've got no _____. So you hear about all kinds of clever things where they're using _____, cleaning them off and putting _____ and also – yeah, those are all …

P - … to use the waste product rather than just the _____

R – So this is the challenge of Intel. As long as I've known a lot of the execs there, the challenge that this current management team's got is Intel is steeped very deeply with culture. Now, that culture is all around the research and the microprocessor. So, when you look at your 35,000 to 40,000 employees, I would probably dare say that 60-70% of them are typed in microprocessors, but **1.11.17.0** but, there hasn't been demand for probably 5-6 years. It's not a growing _____. And so you're building _____ and shipping them to China, Japan – but they're all lost-cost wafers, but nothing that con-

sumes the high cost next generation – which you desperately need to stay on your technology curve. I have a good friend that runs the wireless division in Intel – we have this friendly debate together. I said the symptom you want to watch for like in her business – and she's a _____ - but she's a bright light for a new business for instance, right? To give them diversity. Which, every time they've started to diversify the microprocessor business, it _____. It's been this way as long as I've worked with her.

P – That seems like a little bit of a cultural problem.

R – I've been through the same thing. That's why I say there are so many parallels if you want to look at – here's somebody that's been through it. Here's somebody that's got to go through it - You can almost draw the identical parallel to any of your work. Now, whether Intel will talk about it – that's a different thing.

P – I don't know, but I might actually try to find somebody to talk to about …

R – Okay, so the idea is when you look – what have they got? They had graphics, but they pushed that graphics group so it's no really competitive. They've got all this wireless stuff that's finally competitive and what are they going to do with it? When you look at the die size for what goes into a wireless device, it's an old technology and she went and bought the _____ Infinium in Germany because that's the best fab for this kind of stuff. And so ___ part of the Intel portfolio, but it doesn't help any of the main _____. The symptom is _____ all the business unions on the latest technology. So, the cost can't afford it. So, now suddenly each of these business units are picking up another 20-30% in costs on the _____, and they're going to look like shit. And _____ their ability to execute. We did that. I was part of a business unit that had to eat some of that stuff. And that drove Gershner to the decision that says we've just to completely change the model. Now, whether they get to that level or not, remains to be seen. But they're acting _____ right now. They've got all this capacity coming on line in the next year and they've got no name.

P – Wow. So if I were going to extend that parallel – or rather predict. You look at _____ it's pretty clear that these two companies are moving in lockstep 30 years apart. **1:14:38.3B**

R – Just the hardware side. Just the technology side. Because that's all you can compare.

P – Sure. When IBM turned this around, they added the third …

R – No, so look at from the technology perspective what they did to technology was help address the end sales. The physical device. Because all of this technology – the demand was not there and spending that billion eight at that point in time over a year didn't make a lot of sense. They weren't getting an _____, so they had to come up with a general ____. They tried OEM stuff and quite frankly we sucked, so we _____ OEM. Why? Because we couldn't give the customer a full solution. The guy that ran – and I was caught up in that. I was doing communications – so I could build the chips, but I was not allowed to have a software group to do the necessary software. I'm getting – this is _____. And if you look at who's the co-CEO there, she's the lady, Renee Gain, that has been in charge of all the software that Intel provides. But, it's a pimple. This the same _____ need to be cutting _____ someplace else beating the crap out of this, so you have enough of the componentry to the relevance in the marketplace. If you're going to go after wireless, graphics – any of the non-core microprocessors. But up til now, their arrogance has been I can live on the core microprocessor and I'll dabble with this shit because their margins were so great and all that stuff that I can live off it. The other fallacy that they've got which is endemic in their culture is when they build another microprocessor, they want two teams competitively and only one survives. So think about … and they've done that for as long as I remember. So look at _____ the duplicate cost savings as your margins start to come down, they've got to do something with that problem. They didn't _____ that way.

P – That's an interesting problem – or rather, an interesting solution to a common problem which is you know if you're going to invest 100-200 million, a billion dollars in new technology, how do you know you're making the right choices all the way along? Getting a little competition in there makes very good sense.

R – Well, if you're building the same product, the same stuff ..

P – But suddenly you have two billion dollars invested.

R – That's the problem.

P - In theory, your solution is a better solution, but

R – When your margins are suddenly _____. Great. But the margins the last I saw were down around 50%. And you know then as the expense line continues to either rise or hold, you know your expenses are going to radically jump..

P – Yeah. Those newer pads aren't exactly getting any cheaper.

R – Right. And you've got to write off the older pads and bulldoze ___ because nobody's going to buy them. They've turned a lot of this _____ in older days – but now, you look around there's not that big need.

P – There's not the demand for all those chips ..

R – Now, you can bring back _____IBM ___ so a potential saving grace for Intel is _____. Because if they are successful in painting that picture across all these industries so that you now have a new investment.

P - ____ smarter planet is based around … and on the one hand you've got the this Intel _____ data processing side, but you also talk about instrumenting the glove … Intel's going to be an instrumentation business.

R – And building the processors. Building the computers. Building the _____. Building the chips for the _____. You know, everybody … this strategy lets all boats thrive and compete. Right? Right now, they're all sitting on the bottom of a dry lake, right? As smarter planets, and so of anything that I've seen out there, this is the only thing that will have the global scale necessary to allow companies to rise. That will have reason to invest. And that reason is going to _____ better control an environment that is literally killing the _____, you know, the monsoons and all this stuff. If we don't do something, we're going to kill ourselves. And so, here's an opportunity but a company like IBM is reinventing themselves again to create the next economy. So you go back to the industrial age and then you go back to the computer age. All that stuff. Then you go to the PC generations. You know that caused a whole lot of things. Then you're in the digital age. Right now, you know, the Internet and the digital age. Well, that's not generating a lot. That's good for software, but it's not much for hardware. Now you're going to move to the next generation _____ if successful, called the smarter planet. So, IBM is playing to the field where we're going. People are starting to join, but are they right and is it big enough? So, you're getting the facts.

P – Yeah. _____ what's the process?

R – And you can go in any era and they can talk about the strategy. You've got that all that stuff. But depending on which way the group wants to go. I mean the idea is the company is – as long as I was associated, which has been my entire life including my father, right? – the company had been a great company and continues to be. I don't regret my career at all. But the idea is when you look at it, the one thing that's a truism all the way through it – as painful as it was to make the last change – the truism is that in a down economy these guys can manage pennies like there's no tomorrow. How do they manage the expectation of Wall Street? Well, if they can't the arm, they cut the shit out of expense. And they can do that _____.

P – And they know exactly where the money is and so .. I don't need that expense, that flows into this revenue stream which is not going to be producing for the next few years, and

R – And you've got a company that's formed by ____ 25,000 _____. Not 50,000, like Intel.

P – That's … that's the enormity. _____ a ship that size takes a lot of time, typically.

R – Well, it's that – so, you know. I've been out 3 years. But when you look at the company itself, it can turn in a quarter, because you're turning – you know – you can't massively turn, but you can turn by adjusting work force. You can adjust expenses. You can eliminate products. You can do write-offs that are necessary. You can sell things if you need to. And so, you've now created a company that was a close-minded culture that we are the best and we can do _____ to a company now that is – we are nimble and we can change ourselves to be what the market needs. And they're much more connected the customer.

P – That seems like kind of a key story of that change – so the shift in the attitude of your individual business units from "I am the best in what I do and they way I do better is to do what I do ….

R – That is what Gershner did. You look at the legacy of Gershner. He took – and you can liken it to a business unit – but even to the employed – he rocked their world, including mine. You're not entitled to a job. You're a __ for- hire employee. You can be laid off. You can be fired. You don't have work _____, and by the way, you're stuck. You'd better be accepted by the customer. If its unaccepted by the customer, I don't want to hear excuses of how wonderful the technology, but it doesn't matter to anybody. What problem have you solved? And so part of that was destructing the fundamental research of IBM, and make him more product-centered. So _____ that progression of going back to the roots of the company and disturbing all the elements that are necessary. Salesmen are whores in church. They're going to go wherever _____. So you don't have to worry too much about salesmen. But you've got to look at your core, and we know from the financial balance sheets to your research people to your development people, your manufacturing people.

P – You said just a second ago that the change that he put in affected not just the business units and the culture, but the individual and you. Was there a moment for you – this just kind of seems like an interesting thing - When did you realize that you were doing or needed to be doing something different?

R – You kind of know it along the way. Whether you accept it is a different thing. So, for me, I was in the PC _____. So, having my friends get laid off is a wake-up call. In the 90s. Working on ThinkPad in the core group that was there at that time there were probably 20 people, 30 people? The leaders. That core group – we never worked so hard in my life. I was not home more than I was home. We set up manufacturing out of Scotland. We set up manufacturing all over the world, plus you still had to run the balance sheet. You still had to run the product launches – all that kind of stuff, right? So, and build the brand. Because the brand didn't exist. And so Bruce _____, who was the general manager – he's the father of ThinkPad – his marketing and sales excellence really helped everyone see the vision of how to do this. His management style allowed everybody to see this. But I don't think any of us would tell you we were all sitting here. They've never worked the job harder. But they saw what they could do. And everybody did it. Now, were we paid well? All that stuff? Oh yeah. All that was perfect, but your family suffered. My wife will tell you that was a bad time in our relationship and my kids' relationship ____ to do all that. But when – my wake-up call was in '99 when the pension changes were made. Now, I happened to be on the other side, so I was on the good side, right? The guy I was working for at the time was on the bad side. _____

P – Ouch

R – But you've got to make the call.

P – There's the line …

R – And – but so, why I could retire early from IBM was I have a pension. So, some portion of my expenses are covered, even though I have a 401K and all of that kind of stuff. But the idea is others – you – you're living totally on whatever you can save. And those who can't are being _____, right?

P – So taking it back to when you were working for John Akers (?) and a plan comes in – okay, we're going to divide the company into separate …

R - _____ I worked for a business unit, which gave me a lot of exposure.

P – But this plan comes down that we're going to do this and then Gershner comes out and says "Now, scratch that. We're going to stay _____. We're going to go this other plan." I want to talk to you about this because I know you know your perspective. So, when he took over and said No, we're canceling that and you've been working a few months on how to spin this division off ..

R – No big deal

P – Never mind. No big deal? Is this about trusting the people above you, or is it …

R – There's an element of trust. Look at how I started with IBM. I worked 6 months for IBM, learned their design methodology and was told the program's canceled. I mean, that culture is always there. Now, the only thing that we improved on with Gershner is more acceptance of change. Because now as you go into your planning, everything will change so you've got to plan that everything will change. And you've got to invest and you've got to have products _____, right? This causes you to think differently. And you look at your employees. I'm dealing with a lot of CEOs in small companies in what I'm doing now. Now these are all people – they know the families. They've had them work for them – and they're highly highly reluctant to lay anybody off. But, in the meantime, they wonder why the company's got a problem. You know? In our world, you get over that and every employee realizes that there's a _____. Whether they choose to go someplace else .. Karen chose to leave to go do what she's doing. I chose to leave to go – leave _____ career … You know I was within 6 months of my target date when I started with IBM. I said at this age I want to be out and do something else. My wife and I had a master plan. We had our kids early. We want to be able to enjoy this time of our life. And so, that worked for me. But did I have to lay off a lot of good people? Absolutely. Did I have to lose a lot of sleep over those layoffs? Yes. Did I _____ people? Yes. If you're a quality manager, every employee, including me – I was a work-for hire(?) My boss could call me in and say "Sorry, you're gone." You did nothing wrong.

P- The company is moving in a different direction. Not just a platitude.

R – Right. So, Intel is the same way. I mean the large corporations have now got that model down so you know – now you have to build – thank God for Facebook and Linked-In and all that stuff. You have the social network tools to build a network for .. so that the kids coming up now, they need to build that stuff. They need to network. One of the fallacies that I had in my career that I talk about when I talk about to people that I mentor is I probably had – I still today – 10 or 11,000 people I could reach out to on a first-name basis around the world. What I didn't do was build a strong external network. So I had partners in my last job. 16,000 partners – that I had relationships with - but I never had the time to get to know them and their families. I never spent a weekend – and to me a relationship is when you've met the significant other and the kids – that's when you've started to build that relationship. Right? Just the social contacts crap and all that stuff. That's all kind of waste. A relationship is when I can look at you and go to your house, go to a restaurant, meet family, that kind of thing. And your families know each other. Then you have a personal relationship. And you had to go through a couple of crises with that person, right? And you can't do that with 10,000 people. You can do that with maybe 100.

P – It's a very difficult thing to do in a company that size is to get the right network of people around you …

R – So I can give all the excuses why that's the case. There's no excuse, right. The culture had shifted. People need to do that. So, my friends are still there. They ask about my health or something – I always remember social network. The people that I'm dealing with here – social network. My own kids – I have three kids – they all live here. One's a physician at OHSU, one's a school teacher in Beaverton, another works for _____ Construction. They know the value of a dollar. Now, my middle one teaches in a conservative school kind of arrangement. She has been _____ there to build her external _____. She now sees _____. So now she's starting to build that. She's building it off a _____ to help her to get to her _____. But the idea is that's got to be taught. That's got to be shown – because that's going to be the next generation. That's going to be how people find jobs. Because you're going to work for Company A for maybe a month, maybe 6 months, maybe a year. ….. longer than that. You're managing your own career – which is another

problem. So my kids have lots – IBM invested millions of dollars in my education. My management education, my experience education. All that kind of stuff. Where to you get today? When you're jumping from company to company. And I have lots of discussions with mentors and career paths – that was a big deal and continues to be a bid deal _____. So, now people that are jumping from company to company – my fear is we're going to end up with a bunch of people that have done the same job 50 times.

P – I've seen that.

R – And so what happens as I mentor people _____, I say: You've got to watch and when you hit …. 50, you're going to get depression – because you're going to look at your career and say "What have I done?" And if you haven't see yourself grow in capabilities, grow in new functions. Different industries, different experiences. You can be the best expert in the world in building this coffee cup – and if that's what you're happy with, great. But not too many technical people want to build coffee cups for the rest of their lives. When you look at invention and innovation, there's only so much you can do here. So you're not tapping into your brain.

P – This is striking me on a very personal level. It's exactly the experience I was having let's say 2 years ago. I have a computer science degree and my background is in data base work using Microsoft platform, _____. And I got good at it. I got very good at it. Eventually sat down and wrote a book on it. Got that published. You can buy it right over there at Powell's. And that's great. I'm quite proud of that.**1:35:46.4** And then I realized there's not really a lot of up to go in that. I'm kind of there. I've done all the building coffee cups I can really do, and yeah, like you said … you have to make a change.

R – And so, as you think about it – the way I talk to people is when they say "I'd like you to mentor me". I start with, okay do you have a 5-year _____. Most people have. I say we're going to start one. I say, you come back to me when you have a preview of your thoughts on 5 years in the future. What do you to do? Where do you want to live? What are you doing religiously? What are you doing with your family? What are your doing with your parents. All the things that are important to you? And you have to think about those – and then – so – In 5 years I think this is realistic. The majority of people come back. They have a realistic expectation. Overly critical of themselves but a realistic expectation. A few are totally non-realistic. So you discount them or continue to work with them. Those that are, then you build a stairstep back to where they are and say okay, here's the kind of things that you have to do in years 1, 2, 3, 4, 5 to get there. And you focus on year 1. What are you going to do _____. One of the things that I tell them is that they have to build their own personal network. So, year 1, you need 50 people. Right? And then I use the same criteria about knowing the family. I don't care who they are, but those 50. You pick 'em. Year 2 – you need another 50 directly related to what you want to be at 5 years. So, if you want to be the CEO of a company, then therefore, you'd better start networking the CEOs and networking the _____ members here to get there. It's – I use the alcoholic example of getting out of denial and get on the 12 steps to recovery. The people you've met each year – or 6 months or whatever – I try to sit down with them and let them calibrate their own goals. If they wander here and wander there, but they stay true to some mindset, you may have to reset your mindset, but they stay true to something that puts roads around what they're trying to do. And when they need to change jobs, they change jobs. Because a job's a job. A career is what you're trying to do in 4-5 years. And that career is going to be, instead of like me – run a company and a lot of experiences – it's going to be mostly _____ experiences. **1:38:51.7** And if you go out to companies, they're going to want you for your previous experience. If you're sucked into that and you don't learn how to market your potential, and when you interview for a job looking at what I'm going to agree to _____ to get me ____here in a year's time. Because nobody's _____. Except you. And so, those who figure this out will do well. I don't think we're figuring out enough people to be able to _____.

P – It's an interesting shift from the oh if I think back to – obviously no personal experience, but the corporate experience from the interlude part of the 20th century. Retention(?) was a common feature and it seems like a company would manage your career. They would get you on track – you're going to go do this and that. We'll take care of you all the way through. That, you know, wasn't _____ and that's dissolved. That's gone.

R – Well, with the exception of the public sector, which …

P – Even sooo

R - You and I as taxpayers – it's killing us.

P – I don't see that that's going to be long for this world. It can't last forever.

R – Well, how many billions of dollars are we going to pay into this thing and just piss it away without resetting the _____. And whether it's our state or the federal government, when you look at who's the largest employer here in the United States? Or in the State of Oregon? Let's just keep to Oregon.

P – I'm not sure if the answer is going to be the Federal government or the State government, but it's presumably one or the other.

R - State government is the largest employer. So, who props up the figures for joblessness and all that? State government, right? Not by design, but you set an expectation with entitlement jobs for life that are no longer _____. So until the citizens start demanding that the laws get changed, the lawmakers are not going to do that – because it's hard.

P – No, that's the whole business about laying people off. Presumably, if they're already in government – people that you like, people that you know, maybe people who you've met their family.

R – And you've seen all the permutations where a school district will retire a person on the pension system , then hire them back for more money than they – as a consultant. So, they're double – they're triple dipping. Or, you see where every year they publish the list of people who have retired young in the public system and _____ a salary greater than they had when they were there. The system allows it. The athletic director at U of O is the worst …

P – I remember reading about that.

R – But there's a big _____ of people that do that. And until you break that paradigm and the citizens have to _____, now wasting money that can be applied to solving the real problem. I respect State employees, but they should _____ there's a balance here. We're at an imbalance. Coming back to this side, whether it's IBM or anybody else, we have moved to a place where potentially we will be imbalanced again. When we look at our work force for some of the reasons I've cited, we look at the expectations of the work ethic that _____ from college, knowing that they got a job so they're not going to work their ass off making things happen, you know, they're okay with _____ money _____. Well, that's not enough to put into a 401K, so when they get to be dead and gone, the _____ to get to that, my kids are going to end up having to fund their Medicare, because they're not going to be able to live. You know? Because as the work force ages – I mean you can see. Go look at Japan. Japan's a very good example.

P - _____ an interesting problem of the aging population.

R – You had a generation or two that tithed 50% of their income into the bank. Government covered their – there was coverage in their plans. Now you've got a "me" generation that's there and that is not putting that money in the bank so the government _____ to defund anything, let alone they have these guys who aren't sticking around to take care of their parents – which is their generational responsibility. And so now that the government never set these things up. I mean, the U.S. - we could _____ the U.S. all over, country by country by country, is seen as a problem. You know, go look at Greece. The whole thing is we've got – you're part of the solution to what we do. That's the reason I spend the time with it, right? You need to be able to help people see how to do this in a way that allows them to make the changes necessary to get us on a higher path. It's not for lack of talent. We have talent. The problem is is we're missing _____ . We're not _____ expectations. We're allowing industry to get off the cook. They're all sitting on fat cat cash. They're not reinvesting. Why? Because the banks don't want them to. They need to profit _____ to get their profits. And they'll give the capital structure back to them. The CFOs will buy back stock. It doesn't do anything to change the economy.

P – No. The economy is all about money moving around, not money stagnating.

R – Exactly. With the Internet, we have established _____, and anybody that doesn't believe that is foolish. If somebody picked up some china, we _____ here.

P – No question.

R – So, now we're there. Now what are we going to do about it? And that's the challenge of the current CEO at IBM. She's choosing … She's _____ with one of the architects of a smarter plan. She's choosing to stay on that path and ride it out.

P – Karen was describing some of the challenges of IBM as a global company, logistically speaking. You've got on the one hand a natural inclination that broadly works out to consolidate talent in one place. You're the center of excellence for this. You've got all the people who know how to do this – let's get them in one place and they will be the best. But those places are so wide they distribute _____. globally that if you need a process done that requires one person each from 10 different departments, you're taking 2 weeks to schedule a conference call that's at 3:00 in the morning for 4 of you.

R – The culture is … so I agree with the global challenge, but when you look at hardware development, it's difficult to do _____.

P – Agreed.

R – So when you look at where the hardware _____ IBM, it's _____, Poughkepsie, and _____, Texas. Those are the hardware centers for IBM. Everything else they are second _____, right? Where's manufacturing suppliers? There is no manufacturing. So there's final tests that _____ some ideal locations, but beyond that _____

P – IBM isn't as much a hardware company anymore

R – Well, you have to look at the _____ your _____. You look at from a consultant base – you can do that virtual space. All you've got to do is be able to have the access to the _____ at the right time.

P – Agreed.

R – When you look at software, you can develop software anywhere in the world. You can be working at home and contribute to the colonel or to the code base.

P – I've managed distributing teams before and .. there is a cost added when you do that

R – Not necessarily. Depends on how you do it. _____. You know IBM's into this daily check-in check-out kind of thing. You get people who are responsible for their own code. I forget what they call ___ but it took a while for _____. So now the quality – everybody's responsible for their own quality. And the only time you have an interaction _____, like the whole _____ consortium. That caused another whole level _____, right? And distance(?) So, now, you know I can contribute code anywhere in the world and that's not a good deal. And I think you'd find all the software developers telling you that. The only thing that still is a good deal is architects for the most part_____ still use ____. What differentiates the US from the rest of the world? Original thought. Chinese guys that work for me that are hugely smart. Indians. In fact, we had this conversation on India today. This hugely smart academic – the "you need this done?" They know the formula. They can make it happen. But you say, now I need you to invent – I give you these abstract thoughts. They don't know how to do it. Because their education system didn't supply that. Our U.S. – this is what differentiates us from the rest of the world, and we're losing this. But, that original thought is what propels the rest of the world. Can China copy us? Has Japan previously copied us? Absolutely. But can they come up with the original thought? And so why is India the ones that just _____ code maintenance or code generation. We tell them what we want. We have an architect over the top and you monitor what they're doing, but the bulk of the work – it's _____. There you are. Get all the functions to do that. Now, China will be before India in original thought. India will probably take the discussion we had today 50-60

years before they get that down. You've got to get back to religion and all _____. Where China can just dictate. And tell you this is what we're doing. And _____ would be able to encourage that.

P _- I start to wonder how effective China is going to be at doing that in the near future. They seem to be – the central control is still very strong compared to here.

R – But think about it. All they've got to do is define problems. And start to get their research institutions
to work on those defined problems. And could we know _____? Which, God forbid.

P – But it does drive a lot of research.

R – And they have an _____ pot of money - because they can turn the crank and print more. So, money is not the problem. It's their desire to do something. This is the balance of power that you have to deal with and _____ another whole dimension _____. But the idea is, you know, right now we're tapping the local economy to allow all people to better themselves. And as long as your bettering yourself in your country, people feel good. Economies are growing. If we start to do embargos and all this other crap with people, you know we're threatening that _____ and we've seen what happens with history when you do that. And so you've got to be careful. But the thing that as far back as I can – all the way to the signing of the Declaration of Independence – the original thought that has kept this company propelled. Just look at the Constitution. Count up the number of amendments that were added to it _____. But those guys were smart enough to set up a government that polices itself, that's stood the test of 200 years. Pretty damn smart. For guys that didn't probably have any kind of real academic knowledge.

P – Not a lot of them were political science majors, no.

R – But just look at that. And you say, how did they do that? So, here's – I just pulled this off a shelf. _____ change.

P - Oh, wow

R – You can look at … and again, part of what I'm in this to do is before they had everything online, they would create these things and then they would train every manager. _____ had a school that Karen has been to that they used to bring all new managers into and then they would bring them – if you were on the executive track, you'd go there quite often. I spent a lot of time in that place. You get the best of the best. Inside of IBM. Outside of IBM. You get all kinds of coaching. You get all kinds of HR types, looking over, coaching you, doing all that kind of stuff, but part of that is if the manager's on board, then you can get the employees on board. And so, back in the day, there was culture. This is the 2011 annual report. So _____ now have the context. I just grabbed an annual report today. This is part of the 2012 annual report, but it lays out the smarter plan. So you get a little more _____. This is the thing that – this is when Gershner made the decision.

P – Oh, wow

R – It's one voice. All employees with a lot of marketing, a lot of drumbeat, a lot of _ for a couple of years.

P – So this is part of the internal offer to sell Gershner's vision all the way down the line.

R – This is going from the distributing model to factory consultant. So this is another view of – this is an early view of smarter planet.

P – How early? I'm curious. I'll find it.

R – And then, this is the transformation. Now, when I read this, having lived through it, Gershner took a lot of poetic license. He had an ego bigger than this room.

P – Fair enough

R – He did his job. He did it well. But the facts are _____ with his eyes. The guys in the trenches and his director reports and the layer below that – they probably wouldn't agree with everything that's here. He wrote the book.

P – Do you want this back? Thank you so much.

R – As you lay out what you really want to do, and you need some holes plugged, I'll give you – either I can do it or I'll give you a reference to somebody that can do it.

P – This is absolutely enormous.

R – The idea is to get the facts right. Get the analysis. It's the analysis that's important.

P – Yeah. It's going to take a little time to process it. This is a lot of information.

R – This isn't platitudes for IBM. This is okay. It's recognizing the problem. How do you do this and how do you paint a picture. It creates a model for the Intels of the world ____. And what do you have to do to be nimble. What were the lessons learned in this thing?

P – And that's exactly the key kind of thing that I need to figure out as I sit down and go through this and then play this all back. Definitely one of the goals of this project is to talk about going forward. You know, how do you identify the next company that's going to be in this position and what they can do, and you've served that to me on a silver platter.

R – You've got a – they will admit it publicly. They know. The question is since they haven't done anything that says they don't know what they're doing, because this problem has been around. The previous CEO made the decision to fund the _____. The current CEO was the CFO at the time, so he was in it. The Board was in it. Andy _____ was in it.

P – Same people, same strategy.

R – Part of when they were going to change the CEO, this friend of mine and myself – you know I just said look – your first indicator of whether they did this or not is who they put in as the CEO. Because if they put somebody that's internal, then they really don't want to change. They're not there with it.

P – You know I've seen this on a microscale and _____ on a macroscale. It's very common it seems to me that people consider that the _____ that the conservative choice is the safe choice. This is the choice not to change. If you don't move, that's the safe … and sometimes not changing is not safe at all.

R – This is where you have to blame the board. The government model for public companies is _____. That board is the culpable entity _____.

P – Yeah, everything answers to them.

R – We're employees of that board. So, when you look at Intel, they took the easy way out. Either they drank the KoolAid and said the economy will come back, which it may – or, they said we're not ready on our watch to make this big a change. Which I think it's probably the latter. How long can you go before you're forced to change?

P – And change for its own sake isn't going to work. If they say I'm not ready to change, that might be that they think that they can do well on this path or it might be that they don't know which way the path …

R – Well, that's what I said. If they believe that the economy is turning around ___ capacity _____

P – It might be that there may be a positive intelligent decision to stay the course. It might be that they don't know …

R – If they recognize that smarter planet can ___ to join forces, then I would give them credit. If it's just wishful thinking because of history which is an Andy _____ book, then _____. And they're going to be – whether it's this next 5 years or the next 5 years, but within this decade, they're going to be where IBM was. The question is that given that they're so single-threaded is one kind of problem, _____. What happens to them. So, instead of reinventing themselves like IBM did, they could be one of the dinosaurs that fade away. Like General Motors, Chrysler – all these guys that couldn't adapt.

P – I can see that as they – as that market _____ gets beyond ___ starts to fade, other companies pick up the manufacturing on the cheap…

R – You can look at what's coming. You know with all the wi-fi capabilities, ____ capabilities, you're going to instrument everything we own.

P – It's going to happen.

R – When you look at those little _____ guys with a bunch of code, right, in all those devices, but you're going to have intelligent decisions and somewhere in your house you'll have a _____ of some kind, a server of some kind – to consolidate the intelligence. And your car when you come close will download whatever you need to do. I was blown away with the Mercedes Benz – the E class that they have. In the 90s, we had four wrist processors in the E class …

P – I remember reading that BMW had some good stuff going and the whole car was wired _____

R – Well, so there are now 28 microprocessors in the current_____. So, they have a communication protocol

P – Interesting when you talk about a hub in your home – I think the hub in your home is just a communication point to a hub somewhere else.

R – Well, it will have…. The concept was that it would be around the television and it would be a display box that comes with whoever our service provider is – and everything, you know, your refrigerator would communicate through that, your displays would all be connected to that, all that kind of stuff. That was Apple's next big thing that they were going to do, which they failed to do because the current cable companies, TV companies are refusing to _____ open up the API.

P – There's a lot of resistance to change in that market.

R – That market is sitting there frustrated and it's not ready to make change, so someone will come up with a different thing, and then will that box communicate someplace else? Hell, yes. All that's going to happen. It's just a matter of when. At least in the next decade all that will _____

P – Yeah. I can see that .

R – And look at today. When you build a new house, you don't put telephone _____.

P – My house doesn't have one. My house is an old house. It just went through a remodel about 5 years ago and …

R – Don't need 'em. So, you can see it's coming. And the wireless technology is getting fast. _____ All of that kind of stuff is all good things. But who is the company that's going to make it happen. Intel just sold its TV group. They've decided that they can't afford it.

P – Meanwhile, Microsoft is pushing all that functionality in X-Box, which coincidentally used to be at Intel…

R – You look at Microsoft. You've got to wonder if they're going to survive.

P – Yeah. I've wondered that very much. I think the _____ that Balmer is finally going to step down.

R – They've got a new …

P – Do they have someone named?

R – Well, they haven't named him yet, but he's been chosen. The only newspaper I ever look at anymore is the Wall Street Journal and yesterday it talked about _____ measurement system.

P – I've read about that.

R – Which I think is wrong. My reaction was this is a bad thing, but then I made sure I thought through it and say is this because I'm just an old fashioned manager? Or is there real value? I have to question myself now a lot more than I used to.

P – Things keep changing. I think Intel … Does Intel still do that? They had something very similar to that.

R – Employees need a manager. There's so many variations of managers today, but they just want "Hey, you're doing a great job". And they think they've communicated everything. Then the next month they come in and say "You know, I told you you weren't going such a great job". When did you tell me that? And then once you do this in something written and absolute, you can follow it up with a lot of verbal conversations and all that stuff. You need something that the employees will know where they stand. And financially, you need that so you have a fair equitable system of who gets what in increases. Because you get … despite all your _____training, managers and _____.

P – I certainly believe that. **2:05:51:5**

R – What that article is showing – to me they didn't have failsafe process _____. Do the employees to get some spontaneous recognition? Yes. But do they need – absolutely. The need something that's written down and concrete – so they can look at it, stare at it, internalize it. Is there a better way to do it? There may be something they need. Do you need an annual review? You've got annual measurements. You've got annual performance. You've got annual fiscal year changes in the world. And just this touchy feely shit is not going to cut it.

P – Use everything … coming out right now….. consulting rate which is _____ of Anderson Consulting right about _____. …the whole thing. Of course, you know – because it's my most experience. I've been there 4 or 5 years now. I'm applying a lot of what you're saying to what I see in there and it's very interesting to me that they are holding to a model where they coach people. _____ where they want to know your 5-year plan. Also, there's an annual review and it's got everything - not just an annual review, but an annual um --- You begin the year with essentially a goal-setting session. And you're sitting down with your coach, not necessarily your manager and saying here's where I want to go – and yeah – so here's the stair case to get you there and here's how _____ to year. At the end of the year – if your review is a surprise to you, that's on you.

R – Well in_____, it's crappy management, right?

P – Sure

R – It took investigation to figure out where the problem is – and to correct the problem.

P – Yeah, because you've got these steps all along the way - there's communication, there's a document – so you can say at the end of the that your review is below average. Well, how'd it get below average? Well, you said what you were going to do and here's what you did during the year, and we've been talking about that every two weeks …

R – And then in that goal-setting you're relying on business _____, so that every employee understands where they fit in the business.

P – Yeah. That 5-year plan should end up with you doing something of great value.

R – Yes, but even for the annual _____, they've got to know that if your business unit is to do P, Q and W – okay, what is their contribution in that? How does it tie to their personal beliefs? Because if their personal beliefs aren't aligned, the chances of success is limited.

P – That was an interesting conversation that I had with my – well, a couple of things. The managers about 3 years ago – it was about the time I was starting to work on the book and it was the top guy in the company for what I do sat down with my coach and he said where do you see yourself. _____ in 5 years? And I said "Not doing this" and he kind of went "What?. I said it's because I'm good at this and my goal is no longer to proceed on the technical path. And I've looked at people who've proceed on the technical path and where they is people 20 years older than I am doing exactly what I'm doing now. In 20 years, I don't want to look back and realize that I peaked when I was 40.

R – And the beauty of that is your management can take that as a challenge and work on you – if they fail to act, that also is a message to get the hell out of there.

P – In this case, they reacted by saying – you need to be a people manager. They say, well, we'll train you to be a people manager and you'll climb your way up there. And then when I said I wanted to this program at Portland State, they said, we'll pay for that. I'm very happy with them …

R – The corollary to that is my son is 32 and he's a simple engineer and they _____ is a quality company as well. They do all kind of things …

P - … this stuff

Fitzgerald Interview

F - _____ quite successful other hardware plats. There was a mid-series platform – 34, 36, 38 – out of Rochester MN – that was equally the size digital equipment or _____. There's a multi-billion dollar price on itself (?). Quite successful. As a mid-range computer platform. What else did they … They had some entry systems – so they did everything. Even the typewriter system was a multi- billion dollar outfit.
P – Yeah, the Selectric was the standard in the United States. I don't know about the world, but maybe.
F – They have a word-processing division. Dedicated word processers. That was 7-8 hundred million dollars. They had just printers themselves – was 5 or 6 billion dollars. Just think about large printers. … sell for. You go into a large insurance company. They'll be printing things the size of 3 or 4 cars.
P – I'm picturing those great huge ones with the _____
F – Hughes' (? Or maybe "huge") forklifts
Girl (G- from now on because she's not identified) – Like the U.S government printing all their checks and stuff? Really big big stuff. That kind of stuff.
F – So all of these things that kind - physical handling things was easily another couple million bucks. The big hardware thing was software as a necessary thing to sell the thing, and services mainly just to fill it in a little bit. So I think that's the mix of business that, you know, in the 80s(?). But as the techie _____ closed, it started to shift _____ services around that thing. More strategic services like what should I build anew (?). What package software came out? Big things, big shifts (ships?) - _____ built their own GL and _ and everything else. _____ You know, you still see those occasionally. _____ starting. People would buy a lot of those packages. In the first division to see a lot of was the system 34 or 36. People start building applications on that _____ So every credit union in the U.S. had applications running _____. Just plug it in and they'd do everything.
So they started being successful at that, but they _____ was a shift going on and they cut to end of _____.
KH – (something totally garbled)
F – He was a native IBMer. He'd _____ and the whole thing. So he was looking to kind of continue the same thing and that whole thing, but the whole thing just got away. Very quickly _____ start unraveling the economics ____ rebuild everything.
KH – Especially with packaged software
F – Packaged software just grew exponentially and they _____ the platform. The mainframe was so important to them that they didn't want to disturb things there. They no longer built software for that environment. **0.03.38.5** So, I think toward towards the end of the evening - _____ it was really _____ Just started to spiral _____ start losing money, right?
P – That's what I've read, yeah.
KH – Yeah, they were close .. People said oh really _____.
P – When the CEO shift finally came, according to the literature, they had about 100 days of cash left .
KH – Yeah, it was really dire.
F – They 've _____ got . _____ was hurt. A lot of people were like _____. Mixed performers. You had to work hard to get fired at the place. When you think about that, you know, a lot of people were just serving their time. A very rich and generous pension policy.

KH – Very rich everything.
F – So people who were on that policy – it was very generous - _____ retired. ___ percentage ___
P – So they had absolutely no motivation to change anything. The individuals within the company had no motivation to change anything because the company was taking care of them.
KH – Also, interesting, IBM is so big and powerful, they built all the main locations in like nowhere. Right, because it was like we will have these campuses in various places and it doesn't matter. People will come there.
P – Kind of like … coming out of the Dalles right now.
KH – Yeah, people were kind of _____
F – There were no people there. In this case, they had tons of people.
KH – The people were kind of captive. In Rochester MN. Or Poughkepsie NY. So you also had this whole thing of these weird huge campuses in places where there were no other businesses.
P – If you're going to leave IBM, you're going to move.
KH – Right. People are not going to leave IBM if they have to move, right? They settle, their families .. everything … economically. So it's also kind of an interesting culture. These megolithic .. Rochester – 61,000 people at each place. Kind of beached
F – I work at the …. I had an office in Santa Fe at research lab. which was the first software location – the first one dedicated to software. And when I first visited there in '99, I thought oh shit – I've got no directions, you know – and this before. I'd been to San Jose a million times, right, in my prior job. But I'm driving south on 101 and you get to the point where you're like – there's nothing. You're not seeing anything . You're practically to Gilroy (?)
P and KH – giggling
KH – Paul doesn't know any of this. Okay … more giggling
F – I call the guy and I'm like " John, I think have bad directions. I've seen cows and I just saw a turkey – a wild turkey. I said I'm so sorry. " I was on the phone. And he says, no no, you're going the right way then. It is so remote. When you get there , it was truly 5 or 6 miles from the highway – nowhere – farming _____.
KH – This would be typical.
F – The last – orchards.
KH – No, it wasn't. The last orchard where Google was – in Campbell. Because I actually … I went to that campus and I'm like – that was an orchard_. I mean it was ridiculous. I'm looking at these little tiny farmhouses and I'm going "I've never been …"
F – There's still farming there. They still are …
P - … cheap land and they had the _____ to bring people.
F – They bought the land
KH – I know, it was huge. Like you'd go in the entrance. It would take about 20 minutes to drive from the entrance to the buildings.
P – Oh jeez. Is there like a mile post? Like, okay you did fine. Here you are and now you've got …
KH –But that would be typical
F – The research lab is even more remote. They're separated and the research lab – you enter a park _____. You drove 5, 6 miles to a park and then you get to the gate at the top of hill and..
KH – It's gorgeous
F – It opened in the mid '70s or something like that.
KH – So you get the feeling that this culture is pretty insular. Pretty insular, okay?

P – That gives a really good perspective on what Akers was working with when he was suddenly running the company into the ground and not really seeing how he was supposed to turn it.
F – Yeah, because all the people you're talking to – it's this IBM thing. Can I speak, you know. People who'd grown up there had no concept of a world outside.
KH – They're insular.
F – And the reason they wanted me to work for the software group said I had work on the outside. It was like you've never been outside the prison.
KH – Very unusual. Well they didn't hire many people in. They hired in at college – co-ops. Most of the people that we know – they come into co-op. They work there in their summers, then they graduated, and they'd go there. They would work their entire lives. Very unusual – except later when they started acquiring companies, people would come in ____ career. Unless you were in sales. People didn't even hire people in from the outside, so
F – And they build everything. Everything from micro memory chips, disc drives. Everything. They invented the disc drive. They built the disc drives. It's the only thing .. they divested that when I was there. The research lab I worked in had a 5 million byte disc drive. It was the size of a Smart car. And they had it right there.
P – I've seen pictures of that before.
KH – Even when we joined in 2000, if you would get – this is very different from places where you will have worked. If you get into a meeting or something with people are working together for the first time, they'd go around to them and they'd say "Who are you". People would always say "I'm so-and-so and I've been here for 27 years. No other company I've ever been where that's a badge of honor?? That was the language. "I'm so-and-so". If you said "I've here 10 years", they would say "Well, you're kind of new here."
P – You've been here a decade. You're now.
KH – Yeah - ____ particular. They've got this little flavor that you …. An areas that you're interested in in terms of _____ to bring some color for your team are really _
P – You know, this is ..
KH – I can get you some materials on that.
P – Yeah , but that's general stuff. What I'm looking for, specifically to this – no, this is exactly the kind of thing that I'm looking as kind of a sense of what was going on. So, at some point they managed to tur the corner. You know, there's plenty of literature out there already on, you know, strategically speaking, what did they do? And they said oh well – Gerstner came in. He was paying attention to what the customers were actually looking for, rather than what IBM built. He took the customer's perspective rather than the internal perspective and realized that people were having trouble integrating all the different technologies that they were buying , and that if somebody were in the position of saying "Listen, I can just sell you a whole solution," … that the company was going to succeed.
KH – And you had to do…
F - …erector set. You can keep your toys. You _____ can go build it. I've had 4 of those projects and only one succeeded.
P – It seems like Akers was doubling down on that. He was about to split everything off into its own individual divisions and just focus on what he as a core _____. Let's get the printer people away from the hard drive people. They don't need to talk to each other. Because they build different things, whereas Gerstner's perspective was "Nobody wants a hard drive. What they want is an accounting system".
KH – It's a necessary evil.
P – And the hard drive is in their way – so if we can give them an accounting system started ____ works from top to bottom, and integrates with their operations, they'll going to go "I'll have you)

KH – Of course as you imagine, there's probably _____ who can probably give some interesting first-hand stories. He had to do a pretty massive shake-up you can imagine at the top. It's interesting how he'd been there – from people who knew him and talk about him. Kind of revered, but also he was not soft. He had to do some pretty dramatic things and there would be things that people would _____ of whole things would come and they would say something in a meeting and they'd be gone then next day. It was very very dramatic. It wasn't like "I'm bringing you along." I think he was too strong. He had clear ideas and if you were not in line with him – which is probably the right thinKH – that's it. Massive amounts of >>>

F – He had breakage.

KH – Breakage – turnover.

P – So, again, I know you guys came in a few years after that, but speaking of that time, how did that change start – from the perspective of people who weren't Lou Gerstner? I mean, he comes in and everybody shakes hands and smiles and says "Hey, we have a new CEO" and it's the first CEO we've ever had who was not born in IBM.

Noise

F – A lot of them understood that they had … it was a near-death experience. _____ Like, listen, something had to be done. And then they recognized, maybe in hindsight or whatever, they recognized that the old ways just basically you come in _____ and do your job _____. Retirement thing and medical benefits. Kind of this test – but that was not sustainable.

KH – And you also hear he made it pretty clear that people who were fighting for the old ways – they were out of there. He took a pretty strong license. You were either with him or you weren't with him. And if you weren't with him, you'd better pretend you were.

F – The other thing is he started looking at portfolios. He would look at the thing and say "What's core?" Right, so they were _____ some printers early on like _____. They had ____. I liked a lot of things. They wanted _____. They had - but there was not a lot of focus – and this was generally an issue with company. Because this was kind of an amorphous mass – there's not enough critical mass_____ Things to succeed at ___ any given business. **01.15.07.7** So he early on said "This is something we're going to keep and this is something we're going to spin out." So he formed a small team to go and look at that. So _____.

KH – Over time, the disc drives.

F – Disc drives. And this whole set of things that he started looking at. You know. What's core and what's not?

P – It's interesting. They've gone through some phases because I know that the ThinkPad line came out that was hugely successful. It was you know – fanfare and this is a brilliant piece of equipment - it's what my company uses. My company buys them from _____.

F – And part of it is those economics change. And then does it fit the company. And you have an overall structure – this is the part that goes _____. You take ThinkPad, right. It requires a lot of capital. Margins are thin. You've got to be constantly turning stuff out. You need a factory and supply chain.

KH – Lenovo (?) is manufacturing it.

P – Oh, were they all along?

F – No, no no. It shifted. … they used to build their one and then they moved to some other person ___. But it a very – I mean the margins are supermarket (?) thin. If you can get a margin. ___ a couple years _____ lost a million. And that's hard. _____ _____ some parts like software earn money hand over fist and you've got something that costs capital – is essentially peanut butter over everything

____. So, some part of it is like – is this going to fit with where we're headed now. So in a way, over time, shed some businesses because they're not going to fit. Focus on things like service and software – but it's going to sustain us. So, _____ in revenue didn't change much. It just changed composition. They would one of the hardware pieces and then fill it in with some software. And .. but it took them several years to _____ off Lenovo(?). They probably held on it too long. _____ turned around blah blah blah.
KH – So _____ good or bad. It kind of became more higher higher end enterprise businesses, and unfortunately they kind of stumbled on the smaller mid-market. At least on the hardware side where I was.
F – Everything.
KH – Everything. If they got more and more niched as other players came in and like the whole thinKH – I've going to have this portfolio product. Others came in too and said it's going to be _____. You're going to buy 10 software packages and 10 different hardware. You'r e going to integrate the whole and IBM was trying to provide all the pieces. And the lower-end ones – they really struggled with being competitive and eventually it gets kind of higher and higher like ____ who buys IBM stuff? And where _____ in the back office of really huge companies or the U.S. government, you know. It's not sitting in your home, so that
F – 50% of the revenue from the software division revenue, which is 20 billion dollars, came from 56 clients.
KH – Ouch.
F – That's a little concentration _____ didn't really see.
KH – Yeah.
P – That's enormously dangerous(?)
F – Yeah, and you've got a 70% _____ ___ You're doing a a couple hundred, right.
KH – You lose one client _____ and especially _ You've a massive amount of revenue in a company that size spread over ….. you know, and it became more and more over time. And then they decided, you know, obviously the big thing is to make this huge play to become the world's largest consulting firm. To me – when we were there, that was the pivot point – so you get the Gerstner thing and then it goes further. The PWCC thing.
P – This is exactly what I wanted to get to.
KH – That's the really – to me, that's where the part we saw come in and that was really interesting. So that was ____ statement. We're going to become the world's largest consulting firm.
P – Okay, so who made that decision?
F - ____ a Gerstner decision. He realized that part _____ solutions and part of it was service. And people's competency to deal with that – or desire to have the staff all internally was waning. _____ is you talk to clients_____ their ability to attract _____ in the U.S. _____ manage effectively. You know, it's an astute thing and it's continuing to grow.
P – Our company has trouble. If I thought that one entire solution could just be …
KH – Especially from one provider. That as __
F – One provider …
KH – Who is going to go and say I'm going to have a massive solution. It's only IBM _____. Nobody's going to do that.
P – Someone was actually accountable to get me a working solution.
KH – Well, but especially when they're no longer leading in a lot of the software areas, right? If you take IBM, do you want to take Lotus notes – or whatever, so you get this thing on the solution side where you realize IBM can't provide competitively all the pieces because people want some of those more modern software packages and stuff, right? So you've got to start

saying how do we get more neutral. If you're buying IBM stuff and you want some other software on it –
P – That's a huge cultural shift.
KH – Huge.
P – From a company who sells absolutely everything and suddenly …..
KH – You're competing.
P – You're going to use Outlook for your e-mail and you're going to use Oracle for your …
KH – You got it.
F – Yeah, they did more consulting around Oracle and SQL Server than they did DB2s. Far more. And so there was always a conflict. _____ reality, right. Because _
P – Right. I've been in _____ performance before and DB2 as well.
F - _____ bought the damn company. _____ they say why _____ It's either that or the brand, right? So part of it is you have the _____ coming up until you're successful _____
KH – When did Gerstner turn over to Tom Azano(?) See, we were there under most of the Azano reign, which is again a guy who was brought up _____ and creates this vision.
F – Chairman. He made chairman …
KH – And he overlapped with Tom Azano. See, he was a classic – brought up through IBM. He was clearly going to implement the vision and I think he was pretty good on execution. When I look back and think what a challenge he had, but then, so he comes in to execution this vision – and the big thing is we're going to become this consulting firm. We kind of suck at it – so they did the whole PWCC thing.
P – What's PWCC?
KH – Price Waterhouse ..
F – After the Bush 2000 _____, Enron – all those sorts of things. Then they decided okay, if you're a consulting company, you shouldn't be doing financial auditing. You shouldn't be doing consulting. You shouldn't mix the two. I think that that's a very _____
P - … pretty good guideline
F - _____ Hey we can't give you a great audit unless you give me some deal over here. ___ appreciate _____, but _____ changed that and then POC with this pretty situation where they had all these consultants they'd built up and _____ So IBM _____ I think it was like 5 million dollars. It was pretty tiny.
KH – But to me that was the hugest - it was a visible huge turning point and they actually pulled off – there are issues but in the grand scheme of things, they actually pulled off integrating _____ and the theory is Ginny Romeddi (?) who's the current CEO, was the person responsible for that merger. So, that's the official story of why she is currently now running the company.
F – She's a very sharp lady.
P – Is she the one who architected the consultancy?
KH – Yeah, and the merger of it. So it wasn't just like ….
F – You could mess it up easy. Consultants are like – I can go here, I can go there – right? It's like basically you are the brain.
P – I work at a consultancy, so I'm very familiar …
F – This was probably the Cadillac.
G - It was massive. This is their play.
F – The biggest – out of the consulting they could have bought _____. They had the attributes that Gerstner was looking for. The strategic consultant. That's important. You go in and say want to re-set your strategy. They could come in credibly and do that. They some _____ capabilities – not huge. He had a ton of people who were technical

weenies(?), but sucked really at _____. Just kind of managing and project managing _____. So he brought that in. He put them in charge.
KH – It's a very risky strategy, but it was a very smart strategy because every single one of them would have walked. A lot of them did. Because you're a consultant. I can pick up and go next door – and I think Ginny was credited with – you know, they did a couple of big things I think when we were there. That was huge. That they actually did the merger and did not kill what they brought to the _____ acquisition. You know this big ____ something small.
P – Yeah _____
G - You kill everything about it and everybody leaves and what was the point?
P – Yes. There's no such thing as a merger. The big fish always eats the small fish.
KH – Yeah. That happened but I think it happened in such a way that IBM did need to be this huge consultant(?). I think three big things – that's one. And you were there. And then there was this huge focus on acquisitions which Jim can speak to. Like we've got to have brands. We can't build everything so ..
F – Software, right. Having services is one thing. But you need to have the margins. Right. So the margins in services are called say 15%(?) Even if you're good at it.
KH – Very small.
F – And then you have _____ - which I
P - _____
KH – Yes
F – But that's pretty good margin. You have to work at utilization. But software margins 70 or 80%, so that was another ___. In order to make consulting a go over the long time, you need to have assets behind services that have traction to them. Otherwise, you're undifferentiated.
KH – Brand names.
F – You're undifferentiated. You're one of 15 people that can do Oracle consulting. You need to have sort of infrastructure assets or other things you can use the special competency in. That ____ the attention on getting both margin dollars in your acquisitions – stepping it up on the software side as well.
KH – Development.
F – Just making it more of a business vs. pulling away from hard work. _____ subsidized hardware, so they essentially pulled them apart and said you guys ____ hardware and software. And some of those things were huge in terms of margin. For instance, DB2 turned about a billion dollars in profit. Just the mainframe alone. That's a lot of money. And it only required one buildinKH – Building A. Like 200 – 300 people.
P – And bringing a billion dollars profit …
F – And you take out their salary and whatever else goes on in the testing.
KH – Wow
P – Well, there's goose that laid the golden egg.
F - _____ series of Message bus (?)
P – Oh, yeah.
F – 800 million dollars of profit. Just selling this thing to every bank to route transactions and stuff like this. It's messaging software.
P – So the software business was thriving.
F – Well, it had components that were very profitable. It had the cornerstones – but most of it was very deep and very _____. _____ because they realized okay, well, that's fine but there are these whole areas of software it's not in.
KH – That's why this huge acquisition play. Jim was part of _____ software group(?

F – I did 7 acquisitions myself. Integrating. Just integration. Just that one area. How do we integrate information? _____ essential ___ software ____ was also part _____ at this point. Data stage – Part of it is just to build out a portfolio of assets that we have – both customers or _____ cases we can gage with. Things _____ consultants to consult on.
KH – I think there as really big thinKH – and that's still going on. It's just huge growth with _____ to acquisition. And then I think the other thing that was a really big trend in the last 10 years – this is more like on the people side(?) interest in IBM, so that the top of IBM in terms of watching trends – it's always like what's going on out there? Of course, we're not in the home and we're not in school. You know, it's big enterprises. You know, like where they sit is – I remember I had lunch one day at some internal meeting with the guy who (who was CTO guy – I can't think of his name right now – big name guy. And he was like "Well, what I was doing before I came to this meeting. I was basically consulting with the government of Vietnam." I mean that's literally what these guys do. They would be at the heads of governments, like what's happening there? Because the other really big trend in doing the software thing is then we made this very big trend. He said emerging markets is where the growth is going to come from. Two things in there – so we've got to be really positioned to be more … when growth picks up in Africa and stuff – we've got to really shift to tap emerging markets and then ..
F – Or China or
KH – China, India … but what was interesting when you think about that is a lot of U.S. _____ were saying the way we're going to do that is we're going to sit here and, you know, we're going to put a person out there. They decided that to capture the emerging markets, we need to think more like them, so they put the head of emerging markets – the whole structure around it is out of Shanghai. It's not out of the United States. So, you know there - when I was there – into 174 countries. The whole sales structure for the whole world was run out of Shanghai, not New York. So I thought that was rather interesting. That was where I was involved in it.
F – And it got _____ things, like in China, they had _____ thousand employees, something like that?
KH – Yeah, with more employees, so they were doing this intentional shift. Everybody else like we're going to outsource – we're just going to get cheap labor. And I'm sure others were smart this way. They thought about it more intentionally. I turned to the guy who set this up and said this is a really really big cultural thing because everything runs out of _____ NY. That's just accounting. If we're going to do emerging markets, that is the last big trend we were leavinKH – we've got to do it.
P – New York isn't exactly an emerging market.
KH – So, we're going to put people from those markets in those markets and we're going to run it out of _____.
F- We're going to take the white faces away.
KH – That's right. And the guy who was running a lot of it when I was there was Brazilian, so it wasn't as if … yeah, it was people from the U.S., but they were really trying to put that in place, all running out of Shanghai. And, yeah, there's development things around the world that they put the whole thinKH – like, we're going to take advantage of the - economies move and one for cost reduction as well as _____ markets. So they look at every single part of the company and they'd be like, well, we have to do purchase orders. We buy a lot of stuff. Like, what's the best place for that? So they look not just at software development, which is - all this interest in the global market thing was big and it was like the best place in the world for purchase orders – purchase orders all come out of Brataslava, Romania, and okay, managing capital equipment all comes out of Brazil, and certain kinds of purchase orders come out of _____. It wasn't just software development. It's like we're going to

be truly global. So, like if you're working there, believe me, it's hideous. Because you've got a
F – Your day starts at 5 a.m. _____ Israel ..
KH – You've got to get this done. It's like PO approval happens in India. The processing of the approvals happens in Brataslava. If it's capital equipment, it's the people in Brazil. Have to remember where all the time zones were. Yeah, and it's very distributed – so that was a … you know - there's a _____ of whole thing, like if you get into services thing, you get into the software thinKH – and then it's like how do we get into the global markets. You know, so you could .. the change is …
P – Getting people out into all these other countries makes sense in terms of making sure you're in touch with what is going on in the places …
KH – But some of those were not really about selling … just about competencies of cost. Competencies. Like, I was in Poland. Poland has an incredible education system. So we're going to put some software development in Poland for the cost of it because also you have the thing of local language – you know, stuff like that – in the development side. So there's this whole other trend there on going after the whole global markets and global competitiveness. And you think about the time we were there, the shift from …
F – It sounds a bit crazy. The costs end up costing more because …
KH – Insane.
F – Because the _____ is five – and you probably have 3 or 4 labs working on the same thing. In India and China.
KH – Really complex
F – Just trying to get a conference call together can take weeks. Everything did. It would be like, okay superstructured so that when you were able to get together, right, it's going to work.
KH – It's just that it's really tough logistics. I think the time we were there, you know, IBM thinking of it being about 400,000 employees, you know, the mix probably from the time we started there, you know, 90% of the them or whatever were in the U.S.
F – 70-75%
G -75, but ..
F - ___ it was under 45%.
KH – Right. By the time we left, IBM has more employees in India than in the United States. So, imagine what's happened to the culture in the United States – if you're shedding hundreds, thousands – because I was _____ hundreds.
P – You were on the hardware side and that was the shrinking side of the business.
KH – The big shed. So we would be like okay we were probably responsible for shedding 50,000 jobs to India and China. I mean that's pretty much what I was really involved with. Was, yeah, how do we get rid of the U.S. people?
F – Yeah. For costs, everything else …
KH – For costs – for development costs.
P – So, we're looking at … sorry, I'm trying to get this all into a big picture here as you're putting these pieces together. So, what I'm hearing is – you have to help me out if I blow this – a lot of these hardware businesses were essentially going into commodity level. You've got to hold up the small players and _____ just wants a small piece, there are a hundred places they can get it cheaper than IBM.
KH – IBM sheds a lot of that ____ stuff.
0.36.25.1
F – Take one example, right? Take the Windows server. Go back before NT(?) came out, _____ a good portion of that space which is sort of simple and easy to run, they had a whole group of things … that any person could run. The secretary could do backups. It was

that simple. It was very very simple. You plug in the terminal. It recognizes _____ if you can figure anything, it was all ____ very organically developed to be simple to run, and banks would want _____ again, a glorified secretary. Fed tapes in and _____ backups and valid _____. So, a very simple system in the market, but that … here's a case where Microsoft came in and _____ very attractive. Not necessarily that easy to own, but their dream was that it would .. but a lot more cost _____ buy ..
KH – Integrated
P – So, the idea of system that they would bring in, say to a bank, would be a – maybe not a mainframe, but a mini-computer at any rate.
F – A minicomputer with their own printers, their own terminals – the terminal weighed 85 pounds.
P – But you got the whole system. The system ran. And it was hermetically sealed.
KH – It's hermetically sealed. Which was great for a while ..
P – Yeah, and that's all great except you have to buy the whole system all at once, which is not exactly a small investment.
KH – I don't want this word-processing, I want that one.
P – My people already know how to use WordPerfect. They don't want to use …I don't know what IBM's _____was.
KH – So there ended up beinKH – that's the division I worked in as, you know, so you have this whole thing. You've got the services, you've got the solutions, and then you get into, like, you're doing all the solutions, and then you're like – we've got to have all these other brand names. You know we 've got this big thing going on with acquirinKH – and then you get into this thinKH – we've got to make the solutions more customizable? And that's the part where I worked…
P – Suddenly it morphs from … so I see .. from IBM of the 80s which is we build all these pieces because we're the best at building things to the IBM of say the late 90s, which is we sell you this big system . We are a solution provider.
KH – We're an integrator.
P - … and you suddenly realize that when you do that, you are losing all the small businesses because they're not going to buy into those big systems. And so then it becomes we are a consultancy. We provide you with the solution you want and we'll build it out whatever pieces you need.
KH – You don't want DB2? No problem. We'll happily _____
P – You know we _____? We are the best_____ __. What's wrong with you?
KH – Yeah, we'll sell you Oracle.
P – Yeah, okay … wow.
KH – It's get kind of complex because like I was in the part of the business, which was really fun, of trying to get as many software package apps on those pieces of hardware. So, the mid-range – he was talking about the I-Series? And then you get into this big thing of oh there needs to be more choice, so we're running around trying to get all these other companies to support their apps ..
P – So, how is that we can get … we can validate that Oracle runs well on our system.
KH – That was I'd like to do…….
P – If you want to unplug DB2 and plug Oracle in, that was what you did. Wow.
KH – Out of here, actually. Because we had some really good strength in terms of – from Sequent (?) days and from Informix(?) days. We had some really good strength in Portland on data bases. So, I packed all of the data base – you know – in _____ benchmarking and all the proof _____. That was done out of Beaverton.
P – Cool.
KH – I know. Cool for a while.

P – Cool for a while. Did something happen?
KH – Look, it's really expensive. I mean from a solutions perspective, as the hardwares are becoming more and more commodity, there's not as much advantage to say I'm going to buy the IBM hardware with all this stuff that's _____ to, especially when you get to the _____ world and everything. You know, the hardware just now is less and less …
0.40.42.5 Paul and talk over each other)
P – I mean, seriously, there has been an enormous amount of computing power available for pennies.
KH –That's right. The whole thing ___ yeah, who cares about the hardware? It doesn't mean anything anymore.
P – Yeah, like I said, when my company goes into a new client these days, the hardware we ask them to get to put our solution on -----whatever. Yeah, _____ I know what you want. We'll get it.
KH – In fact …
P – But, you want to install this ___ Enterprise edition? Have you seen the license cost on that? We're going to have to talk about Enterprise vs. Standard(?).
KH – Yes, it's all about the software. Completely.
P – Speaking of margins.
(Discussion re time)
P – Come on. Talk faster.
F – So, what else can we …
P – Wow. I'm processing as fast as I can. I'm trying to put together both an idea of what the top managers – all the way up to CEO – were looking at to make them make these changes, but, you know, in talking to you guys, what I wanted was – because that stuff is probably available through their literature. I have teammates who are looking at that. What I'm trying to figure out is – as you guys were watching this happen - and how those decisions changed what you were doing. And I'm definitely getting that from what Karen is talking about. What about on your side? On the software side. You said that you were getting at acquisitions. How did that come…?
F – Well, when I first got there _____. Just just ____ and DB2s such a huge amount of revenue. It was surprising to me. They're just so high. It's all niched.
P – Apparently, 58 clients
F – 58 clients. _____ I think to generate a billion three in top-line revenue. _____ twelve hundred? Eleven hundred? Solutions.
P – Wow
F – Just think about it. That's a lot of money.
P – Yes
F – So, anyway, ___ all these software ____ that _____ become responsible for, software-wise. _____. I thought that was dead. I've never heard of this. _____ had been dead like 10 years ago.
P – Someone still uses that?
F – Well, they had installed it and then they …
P – Oregon _____ Association still uses Universe.
KH – All kind of crazy stuff. **0.44.01.6**
F – Yeah, I mean they would have had like, you know, 60 million dollars incoming from some _____ kor something like that. ___ My God, no one's bought a new license in years. Right …
P – Did all this ???????
F – They had some old stuff that was like a cash cow like you wouldn't _____ kill for.

P – You're putting basically zero money into it, except somebody's there to answer the phone and ..
F – Answer the phone and _____ oh yes and it's not dying and oh yes, I make sure it's compatible to the new 31-bit operating system or some damn thing. _____ some crazy ass project and make sure it's propped up. But, yeah, IMS is a free _____ data base. They had 800 million of them. _____ Avis _____ airlines. _____ way faster and efficient and ____ ata base/
KH – To me, it gets kind of interesting too, like in the last say 8 to 10 years, you know, I said there's this whole thing that goes on about okay, so how do we get in the emerging markets, because, you know, there's nothing happening in the U.S., right. And also, at least I was on the hardware side of things, there was also the sense that you could sell stuff in some emerging markets that was not as leading edge as the U.S., if they would trail a little bit, so you could be selling slightly older product – in China and stuff. It would be brand spanking new and better than what they had.
P – And very high margin. Relative to what you _____
KH – True, but _____ a theory that because not many other companies were big enough to have the skill on the ground that IBM would have. Right? So if you could have that skill on the ground in these other countries – in fact, the guy – one of the guys who was the lead people for doing Oracle performance – one of our good friends – just got a thing. He's now just changed jobs and he's head of technical sales for middle eastern Africa. Because you had to move everybody out of the U.S. You know, there's not … so there's a real big move, so, you know the thing about how you get in these emerging markets and then, you know, finally, I think the big trend is like there's this consulting, there's this software by it. You know, how do we do all that? And then it becomes this emerging markets and the other one that goes – big trend I think that goes with that – is like where do you do something new and different? IBM – they're out there. They're talking to the heads of countries, they're talking to the heads of government, you know. When you think about where's going to be out there trend-wise, so they see oh 8 years ago maybe? And this is funky because of the way they played it out, but the whole world is going to become highly instrumented. There's going to be sensors everywhere. Right? You go to the parking garage at Portland airport ___, everything is going to become instrumented. Sensors everywhere. So they get this thinKH – and then there's massive data that's flown in because of the phones and – massive data. Massive amounts of data. So what does IBM think about from a software perspective? We're not the user and we're not on the home end. In theory, one of the big expertise areas in software – it's the data, it's the analytics, it's the business intelligence and stuff. So when everything's sensored and instrumented, there's going to be massive massive massive amounts of data that …….
P – Huge amounts of data flowinKH – most difficult to pluck the …
KH – And people can't do anything with it. So, they kind of shift and they put a major major – that's what this whole smarter planet thing is, you know. It's like we're going to get in there with the more underlying analytics – like I can just tell like my own personal world that I work in now – like Smart-grid. So, utilities, right? It's kind of like okay, we go from reading your meter – the guy comes out and reads your meter once or twice a year – to when you get Smart-grid, we're taking a cut of your data every 15 minutes. That data is all getting sucked to the utility. That's the difference.
P – Which gives the utility the ability to predict load at a much finer grain. Massive massive massive amounts of data that they don't have _____ to do with.
F - … a lot of things that they would identify. For instance, cloud computing _____ , in a different way _____ information as the utility or, or computing as a utility. Let the _____. And when they start preaching this the mid-2000s – way before other people.

Let's just think what are they talking about? So they … but other people would listen and pick up the _____ and then they would be more successful. Amazon - _____ successful So, the talents that remain _____ is that sometimes they're pretty good at identifying major trends like big data
KH – Totally
F - … and cloud computing and, you know, you name the smarter planet. They'll come up with the idea, but other people will cash in. They're far more fleet of foot, they can organize – it's almost like the PC division. If it changes too fast, if it has a different_____ from the actual structure _____ and basically- the Twitter IPO's an example, right? All social netrworking stuff. And they would h have irons in the fire, but they move too fast, right?
KH – IBM's so big and cumbersome and it's so – you think about …
F – And they can never get enough people to work on the damn thing _____, right? So they would have various things that _____ but that'll be tied to the Lotus brand, which is like having _____.
G - So, it sounds like the management might be able to do something with ____, but the further down you got, the harder it was to maneuver the managers (?) (Paul, if you listen to this part of the tape **0.50.20** and a little before, it sounds like these two are getting more and more inebriated(???)
F – Think about it as a conglomerate?
KH – Yes
F – Right. It's a tracking _____ for the computer industry, right. For good or bad. It's like okay maybe the whole raw computer industry – hardware, software and everything else – is going at 4% 5% a year. That's what it's doing, right. Because you got almost _____- some parts of the thing are working like the bejeezus. You get 20% growth. And other parts are basically trying to stay even, you know, like hardware. So the issue is when you deal with a conglomerate like that, it is just very very difficult to stay on edge in any one of these major relationships.
KH – And hard to get just simplistically at the people level – hard to get things done. The guy who just said like in my area, just as an example – we were trying to get modern applications. Keep them on our hard drives. That was the last job I had there. That's what we did. So, we're working with all other companies. You know, but just even in mine – like my group – to get things done, we only had people maybe in 6 or 7 _____, you know, we have people in the United States, but they were all over the United States. We had 25 at Oracle, we have people at _____, you know. We've got people at IBM and other locations all across the U.S., you know, but, like everything is piecemeal, like the labs are in Beaverton and, you know, you want to buy the hardware, you're looking to Brazil. Then we've got people in China, India, Brazil – when you have that many development locations, the logistics to get anything done … like you said – if you even want to get the people to talk together, you're like … to organize the time for people to talk together ….
P – So the simple concept of we live in a globally networked world. It doesn't matter physically where things are because we have instant communication blah blah blah – that's all well and good – right up until you actually try to have somebody call somebody at 3:00 in the morning.
KH – You have to arrange everything I advance
F – Or you could write it on e-mail. The whole idea – mechanical brain-storming session ..
KH – But you think about Agile(?). Okay, how co-located and how Agile – you know, so the whole thing's now moved backwards – _____ good to have people in little pods and, yeah, you can do some of that through technology, but if people are in 12 time zones, I mean 12 hours off from each other, it's pretty tough. It slows you down. Massively. Because

you've got – and then they got to this thing. It used to be … we got there _____ IBM was I've been moved. By the time we left, because it was too expensive. You couldn't be picking up and people moving all the time. So everybody just stayed where they were and did their jobs distributed – so when we got _____ like, the African people said – in the U.S. it meant IBM (I'm By Myself). (**Paul, it's either the recording or me, but this last makes no sense whatsoever. 0.53.06.1** That's how we'd switch …
F – A third of the employees were working _____ in their own offices.
P – A third out of 400,000 employees?
KH – Probably
F – Easily.
KH – ouch Yeah
P – That's astounding.
KH – When you think about the whole concept of Agile and what we now think it takes to do product, right?
P – If you want to actually move quickly.
KH – Yeah, if you want to move quickly and be innovative and stuff – and instead, you know, you can't be – because the world changes too quickly. You can't keep picking up and moving people, especially, we've got thousands and thousands of people in Poughkepsie, NY, Rochester, MN, nowhere places. So those places _____ getting _____ down and people are working on whatever division or whatever. There's very …
P –So, are they changing them right now?
KH – Well, at the new site - if you go to Beijng or you go to Shanghai, everybody's back – they are not – they are co-located .
P – Well, and plus Beijing and Shanghai aren't exactly Poughkepsie.
KH – Right. And _____. They're co-located. Massachusetts went back to software group, Boston area. Co-located. But the economics in the U.S., you know … so there's some really just interesting big challenges. It's a _____ so huge. So huge and you're carrying along so much stuff, it is very hard to be nimble.
F – My last whole stint with IBM was working with the research division, just to give you kind of an idea. So _____ you can work in cutting edge – or early set of ..
P – IBM Research has some astounding things going.
F – They do, but the _____ and the brain – the idea
KH – They're cool ideas
F - … of the product was 2-3%. Take a look at it. Very very small. The biggest issue being people ____have great ideas , but they didn't fit the company. It'd be like oh we can only sell something that's going to be 150 to 300 million dollars a year. That's kind like the smallest enterprise IBM can get into.
KH – Ouch
F – You can't have something grow from like 2 million to 10 million, 50 million, you know. The place doesn't allow that.
P – If you're not walking out the door at 300 million, you're not walking out the door.
F – Because you're dealing with a sales guy who basically is 'I have 53 things I can sell. What is this new thing?' All right. So you end up with this sort of huge amount of resources –great portfolio, but in terms of yield …
P – What do they do with all the other research? Are they selling things off?
F – They sell it off or they patent trade
KH – A lot of it is patent. Not money, but a lot is protecting - getting patents on as many things as you can, so that you've got the ground covered before somebody else does.
P – So, yeah. Using _____ tubes for communicating on chips is like … IBM owns that

F – And they'll swap that. They never want to be encumbered, right? So, it's like okay, we'll do a patent _____ We'll take money, they'll take money, blah blah blah It goes on the books _____ and basically their asses are covered.
KH – They cover everything. They have big contests on patents. Even in my area, people had patent quotas every year. We had so many patents that had to come out of our area. And they didn't have to have anything to do with the work you were doing, but people had individual quotas. They had to have so many filings a year. It could be anything. _____ routing traffic. Anything they could think of. IBM was…. They used to say they had more lawyers and whatever, so they would just massively go out – so the research is not turned into money that much.
F – Again, so some of the classic things you think of, like _____, they don't have – and essentially it's like an engine and no _____ transmission.
KH – Very interesting.
F – I think – and that's partly – this is – you know if you go to the Gerstner thinKH – when the whole place was _____. When they did everything , that made sense. Right? Oh, we do everything. We have people doing all that stuff _____ on mobile devices. Well, we'd been making mobile devices and the outlet for that is gone. What's the point? _____ is moving the focus _____impact. But they still have not really made --- I wouldn't say that the whole thing with Gerstner was like roses.
KH – But he – internally, the people who stayed – I mean he is like God. I mean he is credited with …
P – Being always right?
KH – Yes. And the people who were there long term who are still gettinKH – like my boss who just retired 2 years ago had been there whatever – 30 years. They were still getting a pretty sweet deal. They retire with wonderful medical benefits. He retired at age 55, great salary – you know, the long-termers, they _____ Lou Gerstner, because that was sweetness that they survived – and these guys got all the way through. There are still hordes of people like our age – they're going to retire sweet – and they know that's because of Lou Gerstner.
F – It's a 2-tier system. If you joined –if you're less than 15 years
KH – 2000 or later?
F – Or even before that. Even before that they basically had – you were forced out of there – stay with the pension plan or _____. Basically wouldn't allow people to stay. They capped it ..
KH – And then they just keep ratcheting it down. So Gerstner is kind of – he's definitely … if terms of the long-termers, if they stayed, he's God. Because he saved them from going under and they were _____ to Poughkepsie NY .. and that kind of thing. But the – and Paul Mazano I think was strong, execution-wise. But they had some … yeah.
P – Well, I – there's one thing I want to finish with on here – and we probably should have started with it, but I just want to get it on the recording, so that I can document it properly. Can you guys each give just a very short resume – when did you start, title – actually, your name should probably be on there as well.
KH – All right. My name is Karen Howell. I started with IBM 's acquisition - -_____ choice – in 2000. And I was with Sequent and at Sequent I did _____ with software partners, so when I joined IBM I was into that same – but I was put into the hardware division. What was at the time R-6000. And then they merged all the hardware groups and what they did with other software companies, so the whole time that I was there, I was in that kind of the world – getting other software products onto IBM systems, and at the end, I was a director there and I ran business operations for that function – like financials, budgeting, project man-

agement, kind of organization development. Kind of organizing principles for that. We had about 400 people doing that work around the world – all were from the _____ companies.
F – Similar start. Came in with Sequent. We ran _____ business unit. Then came in as a _____ and I went immediately for a software group for business _____. _____ software for IBM. Then I did the _____ IBM- which was _____. Software, just trying to run _____integration. I started with 10 people – eventually _____ to about 420 million business. Inside of IBM And then I worked on the research side for a while. _____ better uptake – from research into development or research into license_____.