(NIMS)

NUST Institute of Management Sciences

MBA 2001
Thesis

Increasing Sales Efficiency & Strengthening Customer Relationships through Sales force Automation (SFA): A case study of the CRM practices at Pakistan Tobacco Company.

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ACKNOWLEDGEMENTS

EXECUTIVE SUMMARY

In the famous old American joke, when Tarzan returned home to Jane (his wife) at the end of a particularly rough day, she asked him how his day went. He replied while looking at her "it's a Jungle out there!" A very true representation of a tough competitive world out there, and the breadth-taking speed with which businesses are adapting breakthrough technologies to compete in acquiring and retaining customer has not been witnessed in the business paradigms ever before.

In today's business models and blue-prints of success, the services, the knowledge and the behavior that come with the products leave a more impressionable and lasting marks on the channel partners and the customers in developing a lifetime relationships with the organization then a product of the organization itself. The infusion of information technology and marketing sciences has made it possible for the marketers and business people to make such lasting impressions on their customers. This has been nothing more then to bring into an action an age old business concept of developing lifelong customer relationships integrated with and leveraged by the 21st century state of the art information technologies. It is called CRM-Customer Relationship Management. In this study we will look at the practical application of a subset of CRM called SFA-sales force automation in a Pakistani business environment.

More precisely, this study explores, investigates and documents the implementation of a relationship-building technology business model, namely, sales force automation, by one of the most well known Multinationals Pakistan Tobacco Company at its Islamabad distributor's office. It studies both qualitatively and quantatively, the impact of automation of sales force on PTC's over all sales, salesmen ,sales cycle/ process productivity and to some extent PTC's customer relationships in general.

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CHAPTER 1: INTRODUCTION TO THE STUDY

1.1 Background:

The so called typical customer no longer exists and companies have been learning this lesson the hard way. Until very recently, businesses more often were concerned about "what's" than about the "who's". In other words, firms were focused on selling as many as products and services as possible, without regards to who were buying them. This product centric view of existence was the major driver for the organization to formulate their business processes, compensation plans, organizational structures and strategies. But as economy moved towards more knowledge centric information savvy consumers equipped with the power of IT and web, the digital economies evolved defying the regular paradigms of profitability and value creation for an organization. Now days the competition is just a click away, Customers have access to near perfect information through many information channels available to them. Business processes, systems and activities have become increasingly transparent, and as information symmetries disappears, information itself is incessantly becoming least useful as a vantage point for the businesses to bank their success on.

What to do now? How do you manage to retain your existing customers and build a market worthy chunk of loyal customers? Especially how do you do all this when you are in the business of selling cigarettes to increasingly health conscious and educated market segments? How do we measure up to the customer's expectations of perceived tastes and

benefits of cigarettes since George Lucas from university of Chicago has, out of the blue, already quantified them long time ago and won his noble prize.

In today's business paradigms, those who differentiate are the one who assimilate the customer information into their knowledge systems and create knowledge not information based business processes and systems. Organizations cannot treat their customers like cattle any more and that is where comes the concept of CRM (Customer Relationship Management), the base of which is to recognize and treat each customer as an individual with separate preferences and not just as a singular record in a huge database.

This concept of CRM a relatively new concept in a Pakistani business environment is nothing but a new spin to customer retention and loyalty building marketing efforts through streamlining organization's business process by knowledge assimilation through bringing in holistic customer view.

PTC(Pakistan tobacco Company) a member of BAT(British American Tobacco) the world leading cigarette producer is a market leader in Pakistan in manufacturing and distribution of BAT's prestigious brands.

PTC's sharp and well visioned decision makers have already perceived the realities of this change in the consumer definitions and the value of real time information and knowledge in this regards. Pakistani markets, though not as sophisticated are completely

open to the CRM practitioners, gurus and firms like Teradata, Y-evolve, Algorithms, Connect2 and many more. These young CRM firms are making remarkable industry history by providing detailed end to end solutions in various CRM and its subset processes. PTC in the year 2000-2001 studied its Islamabad and Karachi sales and distributions systems with the help of Y-evolve inc., a CRM consultancy and solution provider, and came up with the solution to automate its distribution and sales process for the retail customers. PTC successfully implemented the SFA (Sales force Automation) solution called SLASH-Sales automation solution for handhelds. A handheld Device and software for Sales-men use, in this regards, was developed by Y-evolve and is currently being used by the PTC's Distributor's sales force in Islamabad.

Right up to the years 2003, PTC and its participant distributors have gone through this process of converting to SLASH, a fully automated solution, and their journey has been a story of success or a failure! Is to be seen very soon!

1.2 Significance of this Study:

This study will not only document the implementation of one of the first ever CRM projects taken up by a local Pakistani CRM firm in the Pakistani business environment with end to end solution but it will try to study the effect and change of automation on PTC's/distributor's salesmen productivity/proficiency, sale processes efficiency, sales volume, sales growth, and above all customers' relationships-loyalty with PTC. The methodology of research will be discussed later on however, two main streams will be

followed, one will be pure observational research and other will attempt to model the variables that can help see the impact of automation of sales force on sales and customer relations of PTC. The second option more precisely attempts to come up with number of econometric models to show relationship between sales and its independent factors.

The significance is obviously to set the precedence of like studies in the future where more technical and advance research will be encouraged for further exploration of this study and its application on other FMCG industries.

1.3 Objective Of the Study:

This thesis will provide me the opportunity to view and review in depth the survival and growth of an industry, which is nurturing itself through the sale and marketing of an item, which has no apparent benefit to humanity, rather perceived-threats. It will help me understand the CRM processes and variables that effect sales and customers in a sales process of a Tobacco company.

The objective is to see how firms experience a change in their sales processes and manage that change well to increasingly reap benefits from it by strengthening their customer relationships. This truly reflects highly professional and strategically sound management skills of the players of this industry and also an intelligent infusion of technology into a business process to remarkably increase the competitive presence and ward-off emerging and existing competitions. .

It was also a great learning opportunity for me to witness the applicability of IT tools for the strategic purposes. This thesis will be in a partial fulfillment of my MBA graduation requirement.

1.4 Research Methodology, Questions & Hypothesis:

Alternative but reinforcing streams of dual research schemes are employed thoroughly focusing even on minuscule details on each step of the research for this industry case/project study. The end result is a maverick combination, a mix and match of the two.

Initially, I conducted a qualitative/ observational research trying to document the whole process of SFA at PTC and this has been made possible by reading the industry trade literature, white papers, case studies and text books. Furthermore, interviews were conducted from all the concerned mangers of the PTC, its exclusive-dealer Asif and Company in Islamabad where SFA has actually been implemented and Y-evolve of Karachi-the CRM consultants of PTC. Field visits with a salesman in Islamabad were also conducted where I was able to see an actual PDA-SLASH in action. Interviews from retail customers also helped in gathering the consumer perception about the sales force automation.

In **secondary** and also some-what parallel stage, I started to look into various econometric modeling techniques to identify and capture the variables that can help us understand the impact of different variables including the **automation technology** on

different dependent variables like, sales volume and growth, elasticity of sales, customer relations via customer loyalty and much more. An uphill task itself indeed, it further presented difficult challenges of extracting the qualitative factors and elements from the trade marketing processes of PTC, the purely human elements which are qualitative in nature and difficult to model.

In this regard, I started refreshing my econometric knowledge from basic texts and also started working with the existing research on similar patterns to understand the development of building relationship between qualitative variables through established econometric techniques. The specifications and modeling parameters, for the sake of non-technical audience, with the theory back ground is well explained in the form of footnotes and also as a part of main text in the relevant chapter.

The **Research** question **primarily** is the **thesis hypothesis** it-self, which asks to explore the magnitude and direction of the impact of sales force automation of the Pakistan tobacco company on Sales, sales process efficiency and customer relationships/customer loyalty of the PTC. While trying to explore answer to this question, we need to answer, the minimum in a form of statistical models, the number of other **secondary research questions** like the impact of various independent variables like visits of PTC sales-men, effective visits, automation technology, weather, taxes and government policies on dependent variable like sales volume, sales growth and customer relation so on and so forth.

Numbers of models are dealt with, all keeping in view the diverse nature of our inquiry, including the possibility of using the common OLS-ordinary least squares and a bit complex Probit and Logit modeling techniques. The autocorrelation, hetroscadisty, and other issues of possibility of relationships in the error of estimates of variables are also discussed. The only thing left is to actually gather the required data from PTC's data sources and run the models in real time to test the magnitudes and signs of our slope coefficients to test the relationships/impact-of, between dependent and independent variable thereby proving our hypothesis and off course to look at the unexplained variations cluttered in the random error term.

All the model variables are derived from the observations extracted from the initial part of the research as mentioned in the second paragraph of this section. And models have been developed, untested though, to come up with a possible future study on the same lines with more access to data resources and technical know how. It however presents an elaborate view of a possible future research direction in the same or related industry and the organization.

1.4.1 Stating the Hypothesis[1]:

In this study researcher is specifically looking for the following **NULL** hypothesis to be true:

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[1] **This hypothesis will be tested qualitatively only with analysis of observed variables in chapters no. 4 and 6. However, few good econometric models are developed in chapter no. 5 to put it to test, provided adequate and appropriate quantitative & qualitative data from PTC is available in the future research.**

Ho: Sales force automation has positive impact on overall sales, sales process, sales-men performance and customer loyalty/customer relationships of PTC.

And the **Alternative** hypothesis is that Ho is not true, that is:

Ha: Sales force automation has no impact on overall sales, sales process, salesmen performance and customer loyalty/customer relationship of PTC.

1.5 Limitations:

- ❖ Other then know-how limitations to conduct a detailed and scientifically organized econometric research, limitations on the 100% access to the PTC data sources were a great impediment to actually test my models.
- ❖ Financial and time constraints, as usual, are other culprits that can bar the roaming of free thought manifesto of an investigating mind.

1.6 Organization of the Study:

Each chapter except for the chapter one has a brief summary paragraph in the beginning which gives a short version of what to expect in the chapter.

Chapter # 1

This chapter talks about the background of the thesis w.r.t to PTC, Followed by the significance of the study, Research methodology and questions etc

Chapter # 2

This chapter discusses tobacco industry and comparisons with in the industry in general and, comprehensive details, Brands, segmentation, organizational back ground and profile of the Pakistan Tobacco Company in particular.

Chapter # 3

This chapter contains the literature review, explains the concept applied in the project.

Chapter # 4

This chapter contains the comprehensive analysis about sales force automation initiatives at PTC and its distributors, its integration into sales process, the pre and post implementation case study and the whole ball game.

Chapter # 5

This chapter discusses and analyzes the details of econometric models developed for PTC's sales processes evaluation and more.

Chapter # 6

This chapter contains a very brief Analysis, Conclusions and Recommendations based on our detailed analysis in chapter 4 and chapter 5

Chapter # 7 & 8

They contain Glossary & bibliography.

CHAPTER 2: INTRODUCTION TO INDUSTRY AND THE ORGANIZATION UNDER STUDY.

Summary of the Chapter[2]:

This chapter deals with the background information on Tobacco industry in general and Pakistan Tobacco Company in particular. It helps us build a general overview of the tobacco business and where it stands in Pakistan. The PTC's external micro and macro environment changes and trade marketing and distribution strategies are discussed once the segmentation and consumer buying techniques are elaborated in an earlier section. This chapter also helps us analyze the brand shares and competition scenarios w.r.t to PTC, LTC and OTBs. Nonetheless, thesis question is not directly dealt with in this chapter and only helps to build the understanding of the target industry, challenges and implications it faces in the modern more sophisticated economic and market environments.

2.1 A brief overview of Tobacco industry in Pakistan: Industry Background:

Pakistan have almost 27 Cigarette manufacturing factories of 15 tobacco companies in the country with an installed capacity of little over 126 billion sticks per anum and that is on three shift basis . The annual production on two shift basis is 52 billion sticks.

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[2] **The Information and data sources for this chapter lie in several interviews from PTC managers at head office and regional Rawalpindi Office, PTC annual Reports, Internet search, and the basic research work done by Ms. Asma Khalil in her project "Quality Journey of PTC" submitted to Dr. Ali Sajid of NUST in the year 2002.**

Pakistan produces both national and international brands, which are popular in Afghanistan, Gulf countries and central Asian republics. The production of cigarettes on two shift basis is 52 billion pieces per annum where as capacity utilization of the factories is up to 126 billion pieces on three shift basis. Therefore, sufficient supplies stocks of cigarettes of various brands can be produced, provided export market are available.

Cigarette manufacturing in Pakistan is oligopoly, in that, two firms Pakistan Tobacco Company Limited (PTC) and Lakson Tobacco Company Limited (LTC) dominates the market for cigarettes which bear duty and other indirect taxes. Many other small manufacturers exist independently. The manufacturers of Bidi and the alternative tobacco products on the other hand is organized on cottage industry basis. As such, it is an activity which is low value added and very labor intensive. In the latter sectors, production is spread between many small businesses.

The market is dominated by the manufactured cigarettes, an activity which is high value added and is highly capital intensive. The non- cigarette tobacco products, such as Huqqa, Naswar, and Bidi have very little mechanization in their production. A distinguishing feature of the production is the absence of cigar production in Pakistan; a small amount of cigars is imported.

The calculations are set out in Table 1 and 2. The information on domestically manufactured cigarettes in table 1 is based on the data provided

by the Pakistan Tobacco Board, an official body which compiles all concerning tobacco and cigarettes provided by various government agencies and the tobacco trade. All non- cigarette consumptions is estimated on the basis of consumer surveys.

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[3]**Table 1**

Domestic Consumptions (Sticks and Leaf Equivalent), 2000

Domestic Consumptions	Sticks (Billion)	Leaf Equivalent (Tones)
Domestically Manufactured Cigarettes	51.08	47.512*
Tax Evaded Domestic Cigarettes Production (Estimated)	4.57	42.54*
Imports (Recorded)	0.0045	4.0
Unrecorded/Smuggled (Estimated)	1.09	1,019*
Huqqa and Chillum (Hubble-Bubble)		21,800**
Naswar (Snuff)		11,600**
Bidi		1,900 **
Residual		16,000
Total		**104,089**

*. For cigarettes the working assumption is that one billion sticks contains 930 tones of tobacco leaf.
** . Information gathered from survey

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Table 2
Leaf Equivalent for Domestic Consumptions

Description	
	Tones
Domestic Leaf Production	104,089
Less Cigarette and Leaf Exports (leaf equivalent)	2,300
Plus Cigarettes and leaf imports(leaf equivalent)	2,800
Net Tobacco Leaf (available for domestic consumption)	**104,589**

Nearly 104,089 tons of leaves were produced in Pakistan in 2000. Only 49.7% of this went into the production of cigarettes. This reminder supplies an input into the

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[3] Both Table 1 and 2 are taken from the **"Quality Journey of PTC" Asma Khalil-2002.**

production of alternative tobacco products which do not bear tax. In comparison to similar countries, the output of Bidi in Pakistan is low (about 1.8% of all leaf).

In Pakistan two transnational companies British American Tobacco BAT and Philip Morris Industries (PMI) holds 78% of cigarette market. About 24 companies manufacture cigarettes in Pakistan.

BAT holds 67% share in Pakistan Tobacco Company (PTC), while PMI has 30% share in Lakson Tobacco Company (LTC).

2.2   British American Tobacco Company[4]:

British American Tobacco is among the world's leading cigarette producing companies and has been a driving force in the tobacco industry for 100 years.

The Group currently sells over **800 billion cigarettes annually, with a 15.4 per cent** share of the world market

It has active business in **180 countries worldwide.** Total brand portfolio now comprises over 320 brands, and a market leader in more than 50 markets. British American Tobacco is an industry-leader in tobacco leaf production and development. **BAT has** 25 leaf operations in 24 countries. The group is the only tobacco company extensively involved with leaf growing, and is also of the world's largest leaf

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[4] www.bat.com

exporters. The group operates leaf-growing programs around the world, providing support to some 250,000 independent formers.

The company has manufacturing operation in 52 different countries, consisting of 73 cigarettes factories, and 26 leaf processing plants. In total these facilities provides permanents jobs to approximately 37,000 employees. Most factories are equipped with state-of-the-art cigarette making and packing machinery capable of automated production at the rate up to **15,000 cigarettes per minute and 750 packets per minute**s on a single machine complex.

The strategic divers for manufacturing are to fully meet demand by delivering the required quality at the lowest overall supply chain cost. This is achieved through setting up world-class standards and best practices in terms of product quality, cost and availability and to continuously improve upon their attachment throughout their manufacturing organization.

2.3   Contribution of the Tobacco Industry:

The tobacco industry in Pakistan makes an important contribution to overall sectors of the economy, from farming through manufacturing to retailing. The industry is also a major purchaser of supplies from other industries. Tobacco is only crop grown in Pakistan whose yield is well above the world average and ranks along side the US and other developed countries in term of yield per hectare.

2.3.1   Employment:

The industry implies over 1 billion people (Distribution & Retailing 32%, Growing 33%, and Manufacturing 35%.

2.3.2   Contribution to Government Revenue:

The industry is the single largest contributor to excise duty. It generates 6 times more excise duty than cotton yarn and adds **Rs. 19.8 billion)** to tax revenue. Taxation raised from tobacco industry's activities is nearly enough to finance the **country's federal budget** on social and community services. Manufactured cigarettes are high value added products and 60% of retail price is accounted for by tax. By world standards, Pakistan applies a very high tax regime. It is estimated that the government loses approximately **Rs. 2.8 billion** every year due to tax evasion and smuggling. The industry contributes to **GDP Rs. 34 billion (4.7% of the total GDP of Pakistan).**

2.4   Market Shares of different companies:

PTC holds approx 38% of the market, while LTC has a market share of slightly over 40%. Local companies such as Sarhad Cigarette Industries, Khyber Tobacco Company, Souvenir Tobacco Company Limited and Salem Cigarette Industries hold the rest of the market.

PTC	LTC	OTHERS
38%	40%	22%

Source: interviews from PTC's managers-please see Bibliography for details
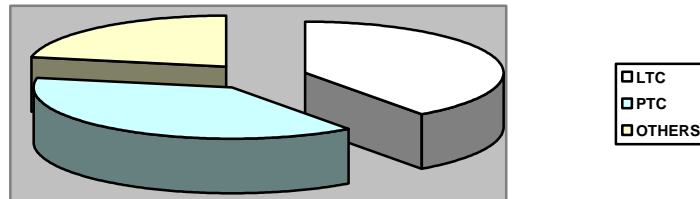
About two-third of the total tobacco production is used for cigarettes and the remainder is used for traditional tobacco products (like Hukka, pan etc) or exported. About 24 companies manufacture cigarettes in Pakistan. Two of the largest—Lakson Tobacco Company Tobacco Company—account for 52 and 41 percent of total cigarette production respectively.

Shares by Company

COMPANY	VOLUME %	VALUE %
PTC	40.00%	51.20%
LTC	40.70%	35.80%

ITB's	2.4%	4.40%
OTHERS	16.50%	8.50%

Source: interviews from PTC's managers

By Volume

Source: interviews from PTC's managers

PTC	LTC	ITB	OTHERS
40.00%	40.70%	2.4%	16.50%
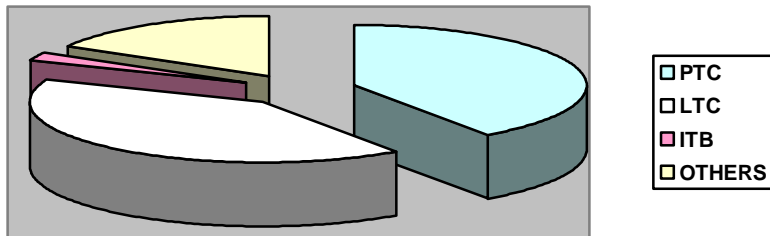
By Value

PTC	LTC	ITB	OTHERS
51.20%	35.80%	4.40%	8.50%

Source: interviews from PTC's managers
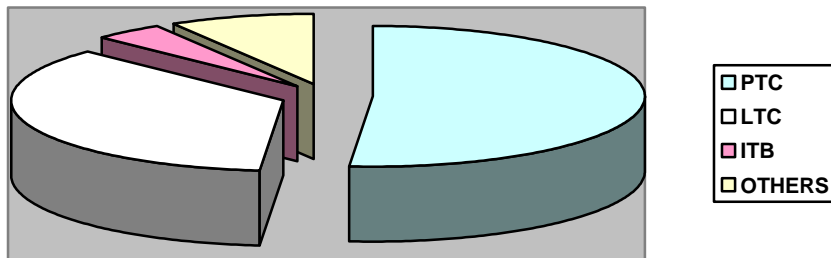
2.5 Major Competitors in Pakistan:

In Pakistani markets, primary competition is between LTC and PTC in both rural and urban sectors. If we further break it down on the basis of rural and urban segmentation we see that PTC is dominant in urban areas while LTC is still a low cost leader and prevails in rural areas of Pakistan. In particular brands like R&W, capstan, M.Gold, G.Flake etc LTC is still a leader in lower middle to lower class segments. Please see diagrams ahead for details.

Volume Share-Urban:

Source: interviews from PTC's managers

PTC-43.68%, LTC-39.89
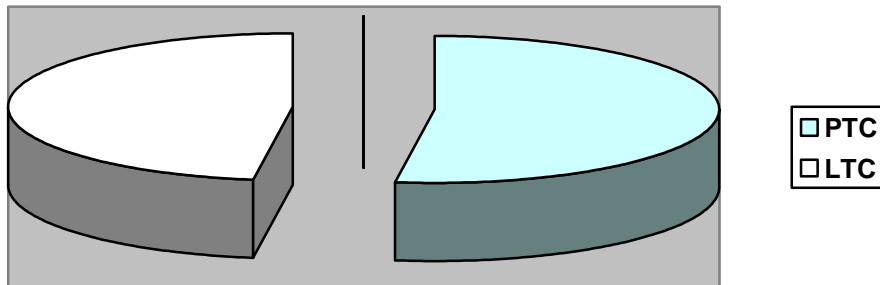
Volume Share-Rural:

Source: interviews from PTC's managers

PTC-38.82, LTC-43.62
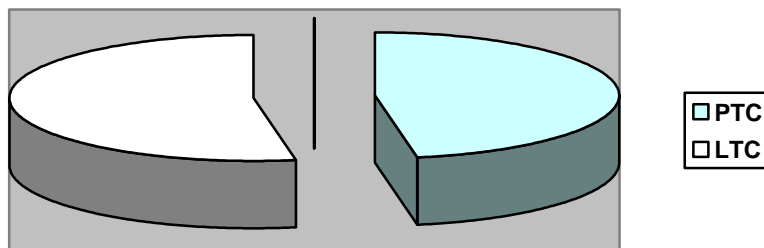
Cost & Volume Leadership Segment – Rural

(PTC is fast catching up)

G.Flake	M.Gold	Capstan	R&W	Embassy	Diplomat
79.53	92.06	49.05	75.65	60.69	72.05

Source: interviews from PTC's managers
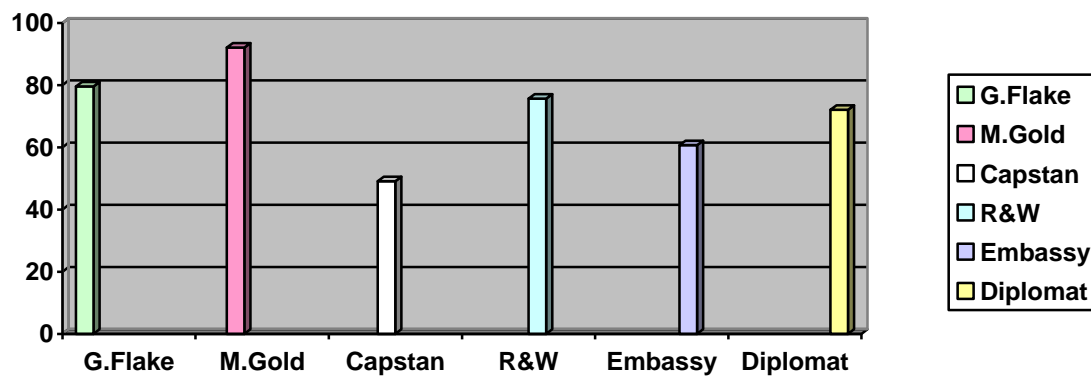
M.Gold, R&W, Diplomat=LTC's Brands

Over all Tobacco Usage

Cigarette	Huqqa	Sunff	Pan	OTHERS
61.0%	13.0%	22.0%	10.0%	5.0%

Cigarette	Hukka	Sunf	Pan	Others
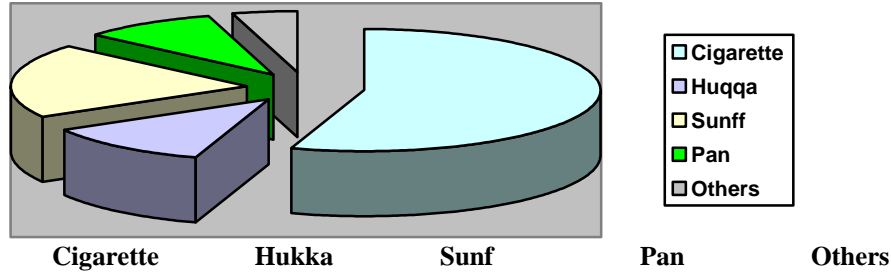
Source: "Quality Journey of PTC" Asma Khalil, NIMS2002.

2.6   Important Issues Faced by the industry :

The Government of Pakistan prohibits smoking in offices and airplanes and has launched a radio and television campaign to discourage smoking. However, smoking continues to increase.

The local tobacco industry is worried about its very survival, now that legally imported foreign cigarettes have entered the market. The locals claim that the high rate of taxes imposed by the government will make it difficult to sell. It is said that once the market opens for foreign brands, the whole market will soon be flooded with foreign varieties making it difficult for the local brands to survive due to what they call 'differences between the tax structure' of the two.

It was reported recently that cigarettes and tobacco has generated the highest amount of excise duty in the country during the last financial year. The central excise duty collected

during 1995-96 on these two products amounted to 11.5 billion rupees as compared to 10 billion during the 1994-95 financial years.

According to sources in the market this steady increase in various taxes has been there since 1993 when the government increased in the end-user prices.

Furthermore it is argued that the country's balance of trade would be further aggravated with legitimate cigarette imports which will soon shoot up sharply causing a drain on the country's foreign reserves.

Presently, tobacco leaf is the largest agricultural produce from the Northern area bringing in more than RS. 700 million for the growers in the region and according to sources more than 200,000 families are directly or indirectly dependent on the cultivation of this crop. If the foreign brands are allowed to flood the market, they said, some of the local manufactures with foreign principals too, such as Philip Morris and BAT will soon close down their local factories and convert from major local manufacturers to importers.

On the other hand, analysts are of the opinion that imported foreign cigarettes will have little or no impact on the local industry because both are separate segments and have no influence on one another.

The local industry, analysis said, is faced with local problems and has nothing to do with whether the market is open to foreign brands or not. Taxes on this industry have been

increasing since 1993 but that did not make the major players in the local market such as Premier Tobacco Company, Lakson Tobacco Company and Pakistan Tobacco Company worry about their production.

2.7   Local Vs Foreign Cigarettes:

The foreign cigarettes have been here since the days of the drug-lords when cigarettes Ire brought in from Dubai. The trade reached its zenith during the Afghan Transit Trade and the introduction of SRO 663. But things did not get any better by amending the SRO and suspending the ATT because those using the ATT facilities availed similar facility by Iran and therefore even now all the consumer items that are offloaded in Bandar Abbas in Iran soon find their way to Karachi through Quetta.

There are no authentic figures available as to the share of the foreign brands out of the 50 billion sticks burnt in Pakistan annually, but analysts put the estimate at less than ten per cent of the total market.

According to R.J. Reynolds, and international cigarette manufacturer that just started marketing five of its international brands in Pakistan, both the foreign and the local brands are two separate segments of market and therefore the legally imported brands are here to compete against the smuggled foreign brands.

Pakistan Tobacco Company too, is importing another brand, **Benson & Hedges**. Analysts in the market are of the view that these two importers are here to share out of the ten percent, which the parallel market holds at present.

It is reported that soon the 555, Marlboro and Dunhill brands will soon come in through the main door to pitch themselves against the same brands that come in from the backdoor. There can be enough opportunities for both sectors in industry if the local segments could bring themselves at par with international brand and develop a standard market. Whilst the locals should rather team up with a legally imported ones to face the parallel market which is not only a problem for both but also for a government as well as the society at large.

2.8   Pakistan Tobacco Company (PTC): An Organizational Background[5]:

Pakistan Tobacco Company is a member of **British American Tobacco group** (BAT). BAT employees over 100,000 people, operating in from over 60 countries. PTC is the first **Multinational Company** in Pakistan established in 1947, took over business from **Imperial Tobacco Company.** Operational since 1929 in the sub-continent, manufacturing operations commenced in 1948 when Karachi factory was established. Another full-fledged factory established in 1955 at Jehlum. To meet the increased demand, a new factory was set up in Akora Khattak in 1976. Karachi factory closed in

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[5] Source of this section lies mainly in PTC's annual report, interviews from managers and internet.

1991 due to economics considerations. Due to operational benefits, head office shifted to Islamabad in 1994.

PTC is one of the largest revenue generators in the country, paying more taxes than the entire textile sector, which is the largest industrial sector in the country. In 2002 alone, PTC paid the government over **Rs. 12.9 Billion** in taxes. This amount is over **3 corers per working day.** Over 100,000 people, including growers and direct employees are dependent on their livelihood to the company. This does not account for the many other indirect sources of employment we provide to the packaging, publishing and media houses.

2.8.1   PTC's Vision

1st choice For Everyone!

PTC's vision is to become the preferred choice for everyone and achieve recognized market leadership through sustainable world class performance in all aspects of the business.

2.8.2   PTC's Mission

Transform PTC to perform with speed, flexibility and enterprising spirit of an innovative, **consumer-focused company**

2.8.3   PTC's Trade Marketing and Distribution(TM&D) Mission[6]

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[6] This statement of TM&D mission is relevant to our Thesis

To reach our **target consumer** in the most **efficient and effective** manner by becoming the **benchmark supplier** to the trade within the **strategic trade channels** in every market where we do business

2.8.4   Four Guiding Principles of PTC :

- ❖ Strength from diversity
- ❖ Open Minded
- ❖ Freedom through responsibility
- ❖ Enterprising Spirit

2.8.5   PTC's Brand:

PTC has 6 major brands and five brand groups to handle these. There is one brand group (team of brand manager and brand executive) on each brand except Capstan and Wills which are managed by one brand group B&H is a premium category brand, JPGL is in the High segment Capstan and Wills in the medium segment whereas Gold Flake and Embassy in the low segment.

- ❖ **Benson & Hedges (B&H)**
- ❖ **John Player Gold Leaf (JPGL)**
- ❖ **Wills**
- ❖ **Gold Flake**
- ❖ **Capstan**

❖ **Embassy**

PTC has also been a forerunner in establishing scientific methods of research to focus on the changing consumer needs. PTC was the first to introduce cigarette in 1955. More recently there is an increasing trend amongst consumers to move to light cigarettes offers, to fulfill this consumer's need **John Player Gold Leaf (JPGL) Lights** has been introduced in the market.

PTC is always mindful that it is in a business of serving its customers & consumers; therefore the company continuously seeks to improve its products and services to deliver world-class quality standards.

2.8.6 Key Competition Brands:

PTC's key competition is Lakson Tobacco Company (LTC) which has 5-6 major brands almost all of them are in the low quality segment. Their brands are Wembly & Red & White (medium segment), and Morven Gold, Diplomat, K-2 and Royals in the low segment.

2.8.7 Segmentation & Consumer Buying disposition stage identification method of PTC:

BAT, the parent company of PTC has formulated a special technique of segmenting for its products. This technique is called '**CONSUMER DISPOSITONAL FUNNEL'**. According to this method of identifying

consumers, segmenting them and formulating marketing and promotional activities all are dependent on the stage of consumer buying behavior disposition. PTC has identified 6 stages through this technique and they are:

1. **Awareness** (PTC's brand awareness-easy recognition stage)

2. **Consideration** (A positive prospect of PTC's Brands)

3. **Trial** (A first time tester-buyer of PTC's Brand)

4. **Repertoire** (Consumer who occasional buys PTC's brands for some occasional reason but not a regular buyer.)

5. **Regular** (Buys most of the time PTC's Brands but not a 100 % of the cigarette purchase is from PTC's brands)

6. **Loyalist** (A hard core buyer of PTC's brand, most loyal 100% buyer of PTC's brands)

For each segment of PTC's brands, consumers are classified on one of these buying dispositions. According to this Funnel technique all prospects start from Campaigns they eventually come down to the loyalist stage. In tables below we can compare and contrast PTC, LTC and ITB segment wise.

PTC's brand-wise segmentation is given below in a table[7]:

Prices per 20 sticks (Rs)	PTC Brands	Quality-segment	Disposable Income(Rs)
>50	B & H	Premium	>34999

---

[7] **Segmentation data sources for PTC,LTC and ITB are Brand Manager-PTC, Data Analyst-PTC**

30-49.9	Gold Leaf, Gold Leaf Light (VFM)	High	20000-35000
20-29.9	Capstan International (VFM)	High- Medium	12000-20000
15.0-19.9	Capstan , Wills Kings (VFM)	Medium	<12000
12-14.99	Wills, Gold Flake (VFM)	Low- Medium	>5000
10-14.0>	Embassy Kings , Embassy Filter	Low	<5000

Lakson Tobacco Company (LTC) Brand-Wise segmentation[8]

Prices/20 sticks	Brands	Quality-segments	Income (Rs)
	No brands available in this segment	Premium	>34999
	No brands available in this segment	High	20000-35000
	No brands available in this segment	High- Medium	12000-20000
16.5 24.5	Premium Classic, R & W, R & W Special (Red & white)	Medium	<12000
11.5 16.5	Morven Gold	Low- Medium	>5000
10.5 11.5	Diplomat, K2, Royal Filters, Lord King Size	Low	<5000

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[8] **Segmentation data sources for PTC,LTC and ITB are Brand Manager-PTC, Data Analyst-PTC**

International Brands-Segmentation (ITB)[9]

Prices/20 sticks	Brands	Quality-segments	Disposable Income(Rs)
>50	Marlboro, Marlboro Lights, 555, State Express, B & H	Premium	>34999
	Chinese, Southeast-Asian generic cigarettes available or no brands available in this segment	High	20000-35000
	Chinese, Southeast-Asian generic cigarettes available or no brands available in this segment	High-Medium	12000-20000
	Chinese, Southeast-Asian generic cigarettes available or no brands available in this segment	Medium	<12000
	Chinese, Southeast-Asian generic cigarettes available or no brands available in this segment	Low-Medium	>5000
	Chinese, Southeast-Asian generic cigarettes available or no brands available in this segment	Low	<5000

A composite of three segmentation variables are looked at to figure out the segmentation profile for PTC's brand. PTC looks at:

1. Socio economics variables and factors

2. Disposable incomes

3. Lifestyles

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[9] **Segmentation data sources for PTC,LTC and ITB are Brand Manager-PTC, Data Analyst-PTC**

Depending upon these factors and rural/urban classifications PTC picks its segments as in table above. We can see that LTC is absent from the top three segments and is basically a low cost leader in rural areas. ITB's are missing from the last five segments as these international cigarettes are smuggled inside the country illegally and are not officially accounted for in the revenue stream of the country.

2.8.8 Customer Engagement and Marketing Campaigns at PTC: An issue of Changing External Environment[10]:

Under the SA-8000 accountability standards to which BAT-PTC has committed itself and due to changing laws for Tobacco industry in Pakistan, PTC has following limitations in engaging general consumer segments of Pakistani markets and these are:

- ❖ No TV or radio –no electronic waves usage

- ❖ Limitations on 'inspirational lifestyle' advertising

- ❖ Tighter guidelines on adult media usage

- ❖ Health warnings on all materials

- ❖ Restricted branding on promotional items

- ❖ Sponsorship exploitation restricted

- ❖ Marketing directed to adults only-reference media guide lines and adult guide lines

- ❖ Marketing ought to reflect health warning-reference content and consumer health guide lines.

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[10] Source: Interview with Regional Manager PTC.

Under these and many more tougher regulations, policies and increasing shifts in consumer attitudes towards lifestyles PTC has most imperatively come up with the following internal change implications in its trade marketing and distribution strategies and campaigns as an a natural aftermath to these changing external environmental variables:

❖ To be more Innovative

❖ To be more Proactive

❖ To be more Street smart

❖ To be more Consumer focused through out its processes

❖ To be more conscious of social-civic responsibilities

❖ To create more value for consumers money on all our brands by achieving overall operational and business processes effectiveness and efficiencies.

❖ To shift from mass-consumer marketing to micro marketing in its selected brands

❖ Increasing importance of communication at POP.

❖ Intensification of competition for retail medium

❖ Increasing One to one and interactive marketing

❖ Database marketing getting important

❖ Trade marketing to increasingly influence the consumer behaviour

❖ Critical importance of Account/Channel Management and POP management

❖ CRM importance increases.

❖ Trade marketing coverage becomes important.

❖ Growing importance of localised and area/ market/cluster specific promotions

With the help of these internal changes and implications PTC aim to retain and achieve if not already there the following:

❖ Volume-cost leader in rural and urban areas.

❖ Mass availability of PTC's brands in rural areas.

❖ Best consumer engagement practices in the industry.

PTC has successfully adapted almost all of the initiatives to make sure its market success and achieve the required objectives by enhancing its marketing capabilities in:

❖ Restructuring distribution channels

❖ Aligning resources to the challenges of marketing

❖ key account development

❖ sharp sales cycle planning

❖ increase in Merchandising focus

❖ using retail media

❖ by investing in people development

❖ adaptation of Automation in related process

❖ palm-top pilots-implementation of SLASH-RAID etc

❖ Building trade relations

❖ Retail excellence-by best practice manifesto as per SA-8000, ISO 9000 etc.

2.8.9 PTC History:

❖ First multi national company in Pakistan.

❖ 1948- Established Karachi Factory

❖ 1948- commenced pioneering of Virginia cultivation

❖ 1952-installed the re-dying plant at Akora Khattak Factory, which also became the leaf HQ.

❖ 1955-sec, Factory at Jehulm

❖ 1976- a third factory set up alongside the GLT at Akora Khattak

❖ 1991- Closed Karachi Factory

❖ Head office shifted to Islamabad

❖ 2001- installation of lamina press in line 2

2.8.9.1 Important Figures:

Total Cig. Market / Annum 60 Billion on Avg.

❖ **PTC Capacity 27 Billion**

❖ **PTC Market Share 45.6%**

❖ **PTC Value Share 52%**

❖ **Gov. Revenue $183 Million p.a.**

❖ **Performance employees 2079**

2.8.9.2 PTC Manpower:

❖ **Managers** **181**

❖ **Business support officers** **363**

❖ **Workers—Permanent** **1535**

❖ **Workers—Seasonal** **247**

❖ **Grand Total** **2326**

2.8.9.3 Head Office:

❖ Head office is located at Evacuate Center, Agah Khan Road Islamabad

2.8.9.4 Distribution Network:

❖ **Regions:** **05**

❖ **Areas:** **19**

❖ **Warehouses 12**

❖ **Distributors: 370**

2.8.9.5 Jehlum Factory:

Akora factory was established in 1976 approximately 100km from Islamabad towards north on grand trunk road leading towards Peshawar. Main brands are captain, embassy and gold flake. Its capacity is 14 billion sticks per annum.

2.8.9.6   PTC's Export:

Pakistan is now 8th largest producer of Flue Cured Virgina with much brighter scope for development in quality and acceptability by export markets. Pakistan Tobacco Company has recently entered the highly competitive International Tobacco Export market, which is directly contributing towards the foreign exchange earnings for he government and is bringing about new challenges in the quest for tobacco styles that meet international customer requirements.

2.9   Organizational Hierarchy[11]:

PTC is a subsidy of BAT. In Pakistan its organization hierarchy is different from its parent companies organizational structure. The chart below shows the hierarchy and organizational structure.

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[11] Source: interviews conducted from PTC's managers.

(Chairman PTC)

Board of Directors ◄─────

CEO/MD

DMD

Dir. HR **Dir. Mktg.** **Dir. Finance** **Dir. Leaf** **Dir. Production** **Dir. CORA**

MSM **HOB**

TM&D **BM's**

5 RM's **TMTM** **MM** **B'S**

19 AM's

SP's **MR's**

TtMO
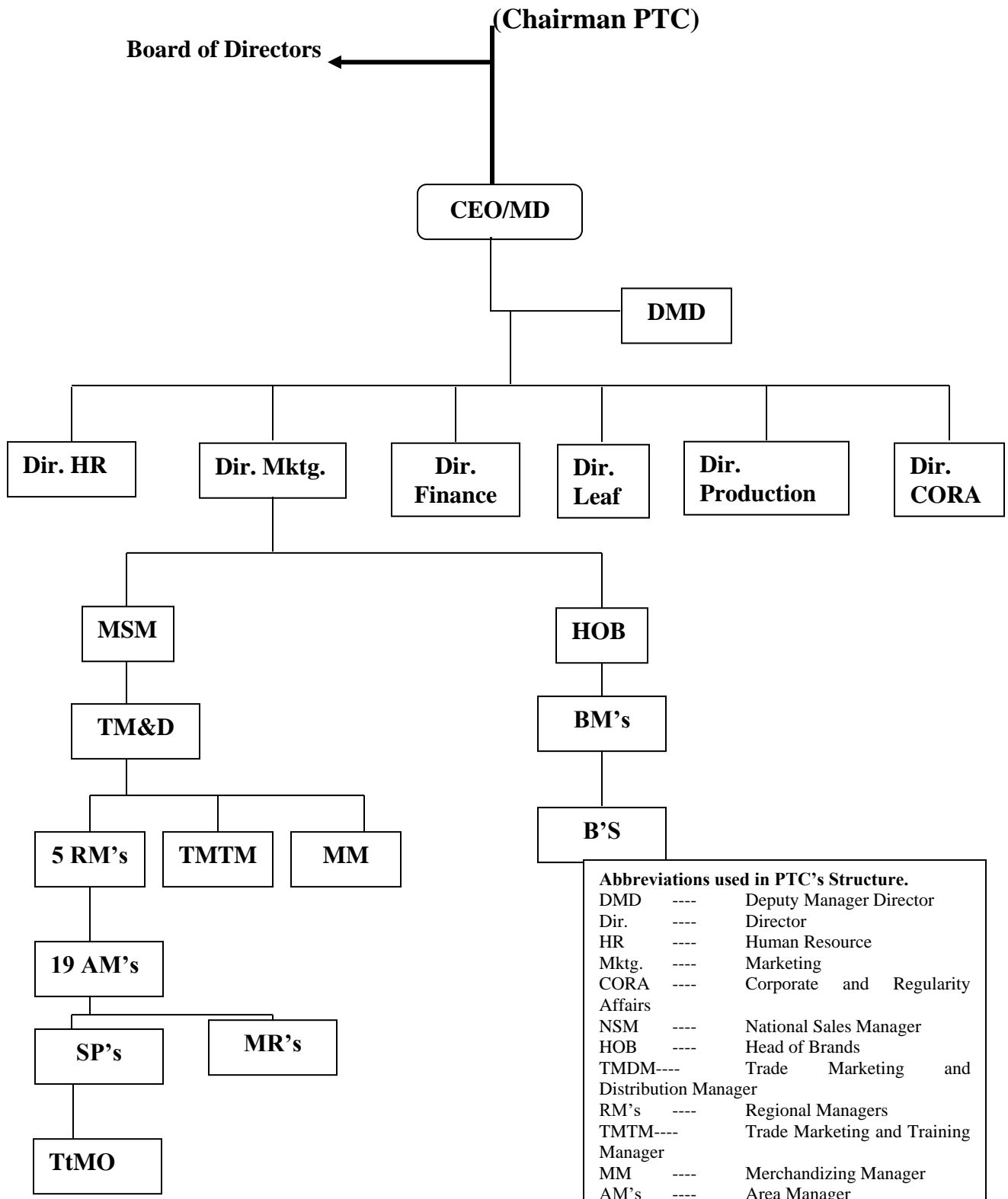
Abbreviations used in PTC's Structure.		
DMD	----	Deputy Manager Director
Dir.	----	Director
HR	----	Human Resource
Mktg.	----	Marketing
CORA	----	Corporate and Regularity Affairs
NSM	----	National Sales Manager
HOB	----	Head of Brands
TMDM	----	Trade Marketing and Distribution Manager
RM's	----	Regional Managers
TMTM	----	Trade Marketing and Training Manager
MM	----	Merchandizing Manager
AM's	----	Area Manager
TMO's	----	Trade Marketing Officers
MR	----	Merchandizing Representatives
SP's	----	Sales Promoters
BM's	----	Brand Managers

CHAPTER 3: LITERATURE REVIEW:

Summary of the Chapter:

This chapter presents an elaborate picture of Customer relationship management (CRM) theory and practice with special emphasis on Sales force automation (SFA), its features, need and vitality for the organization. Furthermore, this chapter covers all the real time aspects of CRM from industry consultant/trade point of view. This section also attempts to explore and relate our study of SFA initiatives at PTC to the current literature on SFA.

3.1 Introduction to CRM:

Many decades ago, in small-town America, before the advent of the supermarket, the mall, and the automobile, people went to their neighborhood general store to purchase goods. The proprietor and the small staff recognized the customer by name and knew the customer's preferences and wants. The customer, in turn, remained loyal to the store and made repeated purchases. This idyllic customer relationship disappeared as the nation grew, the population moved from the farm communities to large urban areas, the consumer became mobile, and supermarkets and department stores were established to achieve economies of scale thorough mass marketing. (Paul Gary 2001)

Although prices were lower and goods more uniform in quality the relationship between the customer and the merchant became nameless and faceless. The personal relationship

between merchant and customer became a thing of the past. As a result, customers became fickle, moving to the supplier who provided the desired object at lowest cost or with the most features. (Paul Gary 2001)

The last several years saw the rise of customer Relationship Management (abbreviated CRM) as an important business approach. Its objective is to return to the world of personal marketing. The concept itself is relatively simple. Rather than market to a mass of people or firms, market to each customer individually. In this one-to-one approach, information about a customer (e.g., previous purchases, needs, and wants) is used to frame offers that are more likely to be accepted. This approach is made possible by advances in information technology. (Paul Gary 2001)

Remember that CRM is and abbreviation for Customer Relationship *Management*, not Customer Relationship *Marketing*. Management is a broader concept than marketing because it covers marketing management, manufacturing management, human resource management, service management, sales management, and research and development management. Thus, CRM requires organizational and business level approaches – which are customer centric – to doing business rather than a simple marketing strategy. (Paul Gary 2001)

CRM involves all of the corporate functions (marketing, manufacturing, customer services, field sales, and field service) required to contact customers directly or indirectly. The term "touch points" is used in CRM to refer to the many ways in which customers and firms interact. (Paul Gary 2001)

3.1.1 History of CRM Market:

Before 1993, CRM included two major markets (Paul Gary 2001, Paul Greenberg 2001):

1. Sales Force Automation (SFA) and

2. Customer Services (CS)

Sales Force Automation was initially designed to support salespersons in managing their touch points and to provide them with event calendars about their customers. SFA's meaning expanded to include opportunity management that is supporting sales methodologies and interconnection with other functions of the company such as production. The SFA capabilities as defined by the industry experts are as follows:

3.1.2 Sales Force Automation Capabilities:

- *Contact Management*: Maintain customer information and contact histories for existing customers. May include point in the sales cycle and in the customer's replenishment cycle.

- *Activity Management*: Provide Calendar and scheduling for individual sales people

- *Communication Management*: Communicate via E-mail and fax

- *Forecasting*: Assist with future sales goals, targets, and projections

- *Opportunity Management*: Manage leads and potential leads for new customers

- *Order Management*: Obtain online quotes and transform inquires into orders

- Document Management: Develop and retrieve standard and customizable management reports and presentation documents

- *Sales Analysis*: Analyze sales data

- *Product Configuration*: Assemble alternate product specifications and pricing Marketing Encyclopedia: Provide updated information about products, prices, promotions, as well as soft information about individuals (e.g., influence on buying decisions) and information about competitors

Compared to SFA, Customer Service (CS) is and after sales activity to satisfy customers. The goal of Customer Service is to resolve internal and external customer problems quickly and effectively. By providing fast and accurate answers to customers, a company can save cost and increase customer loyalty and revenue. CS capabilities are as follows:

3.1.3 Customer service capabilities:

- *Center Management*

- o Provide automated, end-to-end call routing and tracking

- o Capture customer feedback information for performance measurement, quality control, and product development

- *Field Service Management*

  - o Allocate, schedule, and dispatch the right people, with the right parts, at the right time

  - o Log materials, expenses, and time associated with service orders

  - o View customer history

  - o Search for proven solutions

- *Help Desk Management*

  - o Solve the problem by searching the existing knowledge base

  - o Initiate, modify, and track problem reports

  - o Provide updates, patches, and new versions

Today, CRM includes all customer-facing applications, including:

- Sales Force Automation (SFA),

- Customer Service (CS),

- Sales and Marketing Management (SMM), and

- Contact & Activity Management

3.2   Definitions of CRM:

Traditional marketing strategies focused on the four Ps (price, product, promotion, and place) to increase market share. The main concern was to increase the volume of transactions between seller and buyer. [Wyner, 1999] Volume of transactions is considered a good measure of the performance of marketing strategies and tactics.

CRM is a business strategy that looks beyond increasing transaction volume. Its objectives are to increase profitability, revenue, and customer satisfaction. To achieve CRM, a company wide set of tools, technologies, and procedures promote the relationship with the customer to increase sales. [Sweeney Group, 2000] Thus, CRM is primarily a strategic business and process issue rather than a technical issue.

CRM consists of three components:

- Customer,
- Relationship, and
- Management (Figure 1).

CRM tries to achieve a 'single integrated view of customers' and a 'customer-centric approach' [**Roberts-Witt, 2000].**

Customer

CRM

Relationship   (Source: Roberts Witts 2001)   Management

Figure 1. Component of CRM
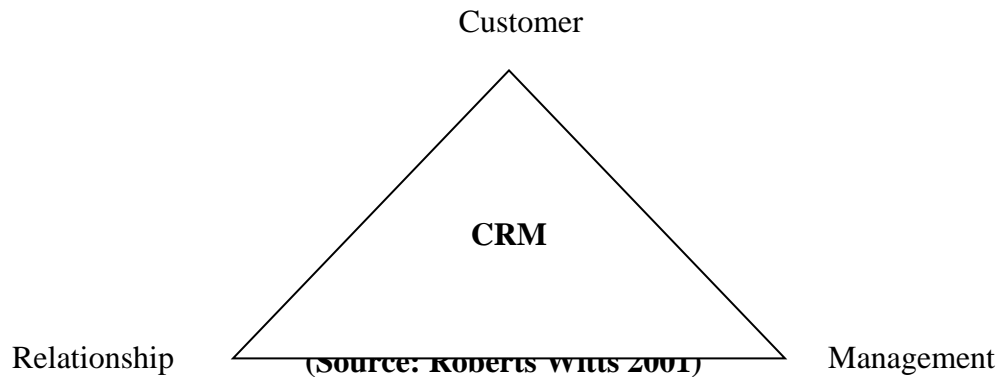
Customer: The customer [...] ny present profit and future growth. However a good customer, who provides more profit with less resource, is always scarce because customers are knowledgeable and the competition is fierce. Sometimes it is difficult to distinguish who is the real customer because the buying decision is frequently collaborative activity among participants of the decision making process [Wyner, 1999]. Information technologies can provide the abilities to distinguish and manage customer. CRM can be thought of as a marketing approach that is base on customer information [Wyner, 1999].

Relationship: the relationship between company and its customers involves continuous bi-directional communication and interaction. The relationship can be short- term or long-term, continuous or discrete and repeating or one time. Relationship can be attitudinal or behavioral. Even through customers have a positive attitude towards company and its products; their buying behavior is highly situational [Wyner, 1999]. For example the buying pattern of airline tickets depends upon whether a person buys the ticket for their family vacation or a business trip. CRM involves managing their relationship so it Is profitable and mutually beneficial.

Management: CRM is not an activity only within a marketing department. Rather it involves continuous corporate change in culture and process. The customer information collected is transformed into corporate knowledge that leads to activities that take advantage of the information and of market opportunities. CRM require a comprehensive change in the organization and its people.

Special software to support the management process involves:

- Field service
- E-commerce ordering
- Self service applications
- Catalog management
- Bill presentation
- Marketing programs , and
- Analysis applications.

All of these techniques, processes and procedures are designed to promote and facilitate the sales and marketing functions.

3.3   Reasons for Adopting CRM: The Business Drivers:

Competition for customers is intense. Form a purely economics point of view, firms learned that it is less costly to retain a customer than to find a new one. The oft-quoted statistics go something like this (Paul Gary 2001, Forester group 2001):

- Be Pareto's Principle, it is assumed that 20% of a company's customers generate 80% of its profit.

- In Industrials sales, it is taken that an average of 8 to 10 physical calls in person to sell a new customer, 2 to 3 calls to sell an existing customer.

- It is 5 to 10 times more expensive to acquire a new customer than obtain repeat business from an existing customer. For example according to Boston Consulting Group [Hildebrand, 2000], the costs to market to existing web customers is $6.80 compared to $34 to acquire a new customer.

- A typical dissatisfied customer tells 9 to 11 people about his or her experience.

- A 5% increase in retaining existing customers translates into 25% or more increase in profitability.

In the past, the prime approach to attracting new customers through media and mail advertising about what the firm has offered. This advertising approach is scattershot, reaching many people including current customers and people who would never become customers. For example, the typical response rate from a general mailing is about 2%. Thus, mailing a million copies of an advertisement, on average yields only 20,000 responses.

Another driver is the change introduced by electronic commerce rather than the customer dealing with a salesperson either in a brick and mortar location or on the phone, in the electric commerce the customer reminds in front of their computer at home or in the office. Thus, firms do not have a luxury of someone with sales skill to convince the customer. Whereas normally it takes efforts for the customer to move to competitors

3.3.1   Cost Goals:

Major cost goals of CRM include:

- Increase revenue growth through customer satisfaction.

- Reduce costs of sales and distribution

- Minimum customer support costs

The following examples illustrate tactics to achieve these goals;

1. To increase revenue growth

    - Increase share of wallet by cross selling

2. To increase customer satisfaction

    - Make the customer experience so pleasant that the customer returns to you for the next purchase

3. To reduce cost of sale and distribution

- Target advertising to customers to increase the probability that an offer is accepted.

- Use applications to decrease the number of direct sales people and distribution channels needed

- Manage customers relationship rather than manage products (a change in marketing)

4. To minimize customer support costs

- Make information available to customer service representative so they can answer any query

- Automate the call center so that representative have direct access to customer history and preferences and therefore can cross-sell (see goal 1)

3.3.2 Size of the CRM Industry:

Estimated of the CRM industries are shown in Table1 and plotted in Figure 2. These illustrations show forecasts made in the 1997 to 2000 period by a number of industry research groups. It is important to realize that the forecasts generally did not specify what they included in their estimates. Therefore it is not possible to tell which expenditures (e.g. hardware, software, mailing, personnel, call centers…) and which revenues are included in the numbers shown.

Note all values shown in Table1 are forecasts; some of the values shown were obtained by taking the forecasters growth rate and then interpolating.

Interpolated values are shades

Table1. Estimated CRM Market Size (Billion $)

	1997	1998	1999	2000	2001	2002	2003	2004	2005	Growth Rate
Aberdeen Group	1.12	1.59	2.24	3.15	4.45	6.27	8.85	12.47	17.59	41%
AMR Research	1.20	1.98	3.27	5.40	7.90	11.50	16.80	26.54	41.94	58%
Forrester Research	0.87	1.07	1.31	1.61	1.98	2.44	3.00	3.69	4.54	23%
IDC 1							23.00			
IDC 2				4			11			
Yankee Group	0.04	0.07	0.12	0.21	0.38	0.68	1.20	2.14	3.80	78%

Shaded Value: Interpolated values based on forecasts (Source: Paul Garry ,2001)

Figure 2: CRM Market Size Estimates

3.3.3 Basic
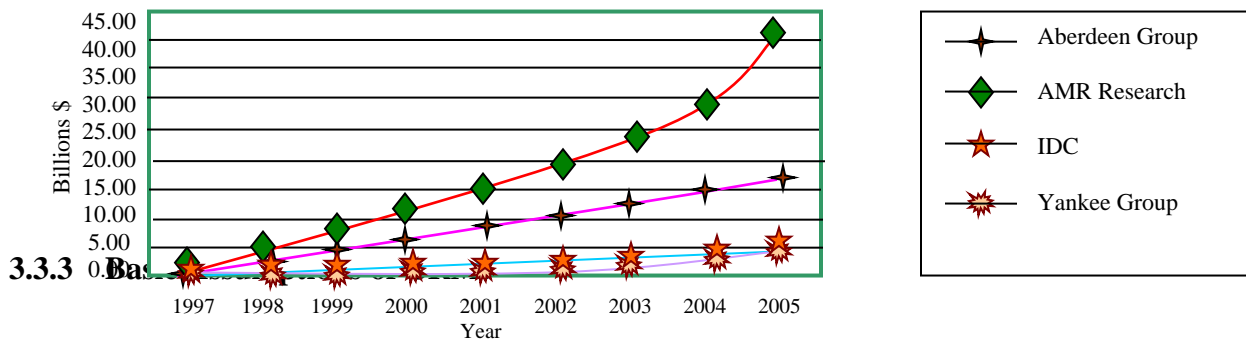
This section discusses basic assumptions of the CRM approach. For each assumption, counter arguments and/or limitations are also presented.

1- *Habitual action*

A basic idea of CRM is that the future behavior of customer id determined by or similar to their previous behavior. In the other words, the people will behave as they did yesterday and a month ago. This assumption is partially right and partially wrong. As time goes by, behavior pattern changes. Therefore, the important thing is the prediction model of future behavior; a company can better serve its customers' changing demands and preferences.

2- *Current customer information is always correct*

It is important to maintain the quality of customer demographic and behavioral information. The right decision requires correct data and information. Can we believe or trust the customer data in the database or in his data warehouse? The customer database comes from a variety of sources and is obtained by different input methods. Considerable attention (and expense) is required for cleansing the data periodically to make it useful for CRM. The firm must update as customer information changes. For example, people move; income levels change; marriages, births, and deaths occur. Admittedly, the correct decision is sometimes made accidentally from incorrect data; however, that is a rare event.

3- *Consumers Want individual, Differentiated Treatment, Services, and Products*

The basic assumption of CRM is that the customer always wants individualized products and services. However, this assumption cannot always be satisfied because a company a company cannot always deliver all of the required products

and services. Furthermore, instead of individualization, customer-buying decisions for products and services often follow fashion or trends. Technology developments are also important in the decision process. Therefore, some argue the importance of providing the right products and services at the right time or moment rather than just providing individualized products and services.

3.3.4 Key CRM Tasks:

"I know who you are, I remember you, and I get you to talk to me. And then, because I know something about you, my competition do not know, I can do something for you my competitors can't do-not for any price**"** [Newell, 2000]

CRM differ from previous method of database marketing in that the database marketing techniques tried to sell more products to the customer for less cost [Seiler and Gray 1999]. The database marketing approach is highly company centric. However, customers were not kept loyal by the discount programs and the one time promotion that were use in database marketing program. Customer loyalty is, indeed, very difficult to obtain to buy. The CRM approach is customer centric. This approach focuses on the long-term relationship with the customer providing the customer benefit s and values from customer's point of view rather than based on what the company wants to sell.

The basic questions that CRM tries to answer are:

1. What is the benefit of customer?

2. How can we add the customer's value?

Four basic tasks are required to achieve goals of CRM. [Peppers, etal. 1999]

1. *Customer Identification*

To serve or provide value to customer, the company must know or identity the customer through marketing channels, transactions, and interactions over time.

2. *Customer Differentiation*

Each customer has their own lifetime values from the company point of view and each customer imposes unique demands and the requirements of the company.

3. *Customer Interaction*

Customer demands change over time. From the CRM perspective, the customer long-term profitability and relationship to the company is important. Therefore, the company needs to learn about the customer continually. Keeping tracks of customer behavior and needs is an important task of a CRM program

4. *Customization / Personalization*

"Treat each customer uniquely" is the motto of entire CRM process. Through the personalization process, the company can increase customer loyalty. Jeff Bezos,

the CEO of Amazon.com said, "Our vision is that if we have 20 million customers, then we should have 20 million stores" [Wheatiey, 2000]. The automation of personalization is being made feasible by information technologies

3.3.5   IT Factor Of CRM:

Traditional (mass) marketing doesn't need to use information technologies extensively because there is no need to distinguish, differentiate, interact with, and customize for individual customer need. Although some urge that   IT has a small role in CRM, [**Computing, 2000**] each of four key CRM tasks depends heavily on information technologies and systems. Table 2 shows this relationship for the marketing process, for the goal, for traditional mass marketing, for CRM, and for the information technologies used in CRM.

Table 2: IT Factors in CRM

Source: **Computing, 2000**

Process	Identification	Differentiation	Interaction	Customization
Goal	Identify individual Customer	Evaluate customer Values and	Built a continuing Relationship	Fulfill customer needs

		needs		Generate Profit
Traditional Mass Marketing	Not done	Clustering	Call Center	Sales Service
CRM	Customer profiling	Individual level analysis	Call center management Auto response system	Sales automation Marketing Process automation
Information technologies	Cookies Web sites Personalization	Data mining Organizational learning	Web application Wireless Communication	ERP E-commerce

3.3.6 BENEFITS of CRM:

The principal benefits of CRM are to

- Improve the organizations ability to retain and acquire customers

- Maximize the lifetime value of each customer (share of wallet)

- Improve service without increasing cost of service. [CMG, 2000]

Some of these benefits can be measured and others cannot.

The benefits are shown in Table 3 given below:

Table 3: Benefits of CRM Implementations

	Identification	Differentiation	Interaction	Customization
Source of benefits	Clean data about customer Single Customer View	Understand Customer	Customer satisfaction and loyalty	Customer satisfaction and loyalty
Benefits	Help sales force Cross selling	Cost effective marketing campaign Reduce direct mailing cost	Cost effective customer service	Lower cost of acquisition and retention of customer Maximum share of wallet

(Source: Paul Gary 2001)

Anderson Consulting, based on the survey of 500 executives in six industries (communication, chemical, pharmaceuticals, electronic/high-tech, forest products and retail), believe that a 10% improvement of overall CRM capabilities can add up to $35 million benefits to a $1 billion business unit [Renner, 2000]

More than 57% of CEOs in another survey with 191 respondents believe that the major objective of CRM is customer satisfaction and retention. Another 17% said it is designed to increase cross selling and up selling. [Seminerio, 2000]

3.3.7 Principles of CRM:

The overall processes and applications of CRM are based on the following basic principles.

- Treat Customer Individually

- Remember customer and treat them individually. CRM is based on philosophy of personalization. Personalization means the 'content and services should be designed on customer preferences and behavior.'[Hagen, 1999] Personalization creates convenience to the customer and increases the cost of changing vendors.

- Acquire and Retain Customer Loyalty through Personal Relationship

  Once personalization takes place, a company needs to sustain relationships with the customers. Continuous contacts with the customer – especially when designed to meet customer preferences – can create customer loyalty.

- Select "Good" Customer instead of "Bad" Customers based on Lifetime Value

  Find and keep the right customers who generate the most profit. Through differentiation, A company can allocate its limited resources to obtain better returns. The best customers deserved the most customer care: the worst customer should b dropped.

In summary, personalization, loyalty, and lifetime value are the main principles of CRM implementation.

3.4   Sales Force Automation: A Subset of CRM application at PTC:

Customer demand, retail customers in case of PTC, for instant information and faster service whilst demanding competitive prices and narrower margins continues to pressure organization's sales force for higher productivity at lower costs. Pakistan Tobacco Company's ability to equip its field sales team to more efficiently handle scheduling, order entry, order status, promotions, and pricing requests is determining competitive advantage between it and its competition the LTC. PTC's deployment of mobile computing solutions to their field sales force may be the difference between winning or losing business in today's fast-paced Tobacco industry marketplace.

The move toward extending Supply Chain Management out to the Field Sales Force is a function of the emphasis your customers are putting on reliable and timely service. With a greater selection and choice of providers and a greater availability of products from which to choose, customers are expecting more for their money. That puts organization in the position of having to meet ever-higher expectations while still containing costs.

3.4.1   Technology enhancement:

A sales force requires constant communication with the home office for sales leads, invoicing, inventory tracking, order fulfillment, and other supporting information. Until

recent advances in wireless technology field staff had to make do with laptops that required a physical connection and voice-based mobile phones neither providing the added value of mobility.

A new breed of user friendly Internet capable applications on smart phones and mobile devices are freeing the traditional sales force from their desks and allowing them to be incredibly effective.

Sales personnel now have access to the same information and tools as their peers back at the office. Wireless devices have the ability to synchronize with real time and localized data in a more efficient manner than other devices.

In case of PTC, we are not at the point to use wireless communications systems, however handhelds with mobile printing and docking options are available to instantaneous print and upload data to the server at the distributor's office from where the data is transferred daily to HQ-PTC to the central database server for the access to respective mangers and decision makers.

3.4.2   Perceived Benefits of SFA to PTC as per SFA industry literature[12]:

- ❖ Improving supply chain efficiency by integrating various levels of corporate activity.

- ❖ Improving productivity and lowering costs by increasing efficiency in everyday work processes.

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[12] Paul Gary 2001, Paul Greenberg 2001, www.saleslogix.com

❖ Improving cash flow by accelerating payments from customers – increasing the efficiency of gathering the data needed to create and deliver invoices to the customer.

❖ Reducing paperwork and double handling by using wireless interfaces to capture data and immediately store it in back office systems.

❖ Improving response time and co-ordination between mobile workers and those at fixed locations to maximize efficiency.

❖ Improved flexibility in point of Purchase and on the spot order and customer management.

❖ Up to date real time access to vital databases regarding customer and product.

❖ Greater effectiveness and productivity of the sales force.

❖ Improved customer interactions.

❖ Streamlined business processes

3.4.3 Key Elements of SFA Applications:

The key features of a mobile sales force automation application include:

❖ Ease of Use and convenience

❖ Seamless integration with enterprise systems

❖ Secure exchange of information

❖ Reduction in pilferage and shrinkage

❖ Reduces errors and mistakes

❖ Reports and analytics made easy.

3.5   Studying the Impact of SFA on an Organization:

To researcher's knowledge this will be the first of its kind study that have never been done before. We do find studies measuring customer loyalty programs, customer stratification indexes and organization effectivencess but no study has so for been done with special reference to SFA's qualitative or quantitative effect on any Pakistani business Organization.

CHAPTER 4: SALES FORCE AUTOMATION AT PTC: FROM BEGINNING TO THE END

Summary of the chapter:

This chapter relates and analyzes a complete case study of automation of the sales force at PTC and its distributors, Asif And Company (AC), in Islamabad. It studies

the pre and post scenarios of PTC's sales processes and also elaborates on features, functions and benefits of automation.

4.1   What is SFA?

Sales force automation (SFA) was ranked among the top *enterprise software solutions*[13] deployed during the "new economy" boom of the 1990s. Designed to provide management with better access and insight to sales and marketing efforts, SFA is supposed to make the sales force more effective and productive.

With the added pressures of a tough economy and accompanying constraints on expenditures, companies are learning to do more with less, and are looking for creative ways to better use the human assets they already have. Smart companies are always seeking an opportunity to get more from their existing sales forces.

And how do companies achieve this? Through automating their existing sales force. SFA is basically designed to help sales-force acquire and retain customers, to cultivate customer relationships, reduce administrative time, document and communicate field activities, provide robust account/customer and product management, and , basically to make salesperson activities something that earns them and their respective companies money. In SFA, all or most of the salespeople activities are streamed line and are empowered by hardware and software tools of information technology like mobile computing devices, laptops, PDAs-Hand-Held devices (Palm) etc. Through SFA, sales people are acting smart in the field having a complete view, at their finger tips, of their customers, company strategy/policy knowledge, sales and marketing knowledge, product

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[13] www.crmcomunity.com and www.saleslogix.com

knowledge, and above all they are in control of making quick and flexible decision regarding their day to day activities. On the decision maker's end, SFA help gather a 360 degree view of the market and customers, and help create a real time database that can be used to make accurate real time decision.

4.2   PTC's Trade Marketing and Distribution (TM&D):

PTC has a distribution network of 370 dealers and a sales force of over 3000 helps PTC bring its goods to the market. PTC uses its exclusive dealers to reach the retails outlets that carry PTC's brands. And these exclusive dealers are a part of PTC's TM&D department which falls under the domain of PTC's overall marketing department[14].

TM&D is a department which manages and builds channels relationships for PTC's products. It looks after PTC's distributors' activities on day to day basis and also the important retailers. More discreetly it trains and helps distributors in developing skills and several activities like (interview with regional manager):

- ❖ Merchandising activities for retailers

- ❖ Relationship building techniques

- ❖ Customer advisory roles and techniques

- ❖ Selling techniques

- ❖ Ownership of customer experience

- ❖ Distribution and logistics matters

- ❖ Effective communication techniques

- ❖ Technology training and change management

Please refer to organizational hierarchy chart in chapter number 3.

❖ And many more

PTC's Islamabad area exclusive distributor is Asif and Company (AC) based in Melody market Islamabad. AC carries the PTC's entire brand line and serve all the sectors of Islamabad, AC has a total sale force of 14 people, out of which 11 are active and 3 are in reserve. AC also have an Office staff of 9 -12 people, including a distribution general manager, Key punch operator- person who deals with the desktop application of SLASH, and few FSOs (field sales officers) who monitor the customer issues, daily sales territory issues and customer relationship building along-with direct sales people.

4.3 Pre- Automation Scenario: A Need for SFA at PTC and its Distributor:

Before SFA, a typical day of a salesman at AC started with a salesman coming in getting the daily paperwork ready, loading his van/truck with daily demand of customers as prepared through the existing customer record/order and history of the area to be visited. He goes on the road and goes on his daily beat. According to AC's daily retail reach strategy, a beat of a salesman is an area of at least 50-55 [15]shops/retail outlets that has to be visited every day by each salesman. Each of those eleven salesmen has three beats per week that is beat A, B and C. e.g**.**

AC's Salesman weekly beats in Islamabad Region:

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[15] 50-55 shops is the most current target, it was less then that before PDA's came into action: source is Key Punch Operator at PTC's Islamabad distributor office.

Beat	Salesman Name	Days of the week	Sector in Islamabad
A	Mr. X	Monday & Thursday	G-11
B	Mr. X	Tuesday & Friday	G-10
C	Mr. X	Saturday& Wednesday	G-9

(Source: Key Punch Operator at Asif and Company)

This way each salesman has 3 beats per six days and one beat means visiting same target area twice a week on two separate days. In short at minimum each sales-man visits one cigarette retailer twice a week for order and delivery and yes salesman at AC also acts as a delivery person. All the paper work was done manually on the spot and on average sales-man used to take a minimum of 20-30 minutes from the time he entered the shop, processed order and cash memo, got back to the van to get the required cigarette cartons. The same time slot was used for other activities like merchandising, display, customer issue resolutions, and relationship building. This was the expected target given to each sales man for 50-55 shops on each day. And, once the sales man came back to office/warehouse, he was supposed to make a daily sales report-DSR summarizing all days total field activities and records. This used to take another 2-3 hours in office.

One can well imagine the magnitude of human error throughout this process and how it can possibly affect the productivity of sales-men, sales volume and growth prospects of PTC's products and above all customer relationships going bad due to mismanagement, faulty and erroneous records and history keeping of order and contact management.

This was all at the distributor's end at the **PTC's** end, complete market picture, capturing competitors and PTC's own brand's position, measuring product visibility, customer profiling and management, effective territory management all are dependent on daily sales reports from their distributors which in-turn relied solely upon the daily field-record management, data collection in shape of cash and credit memo by the sales man. And this is the same salesman who is responsible for customer relationship building activity like merchandising along with the core activity of selling and delivering PTC's product to 50-55 shops. Just imagine the domino effect of one error in the whole process, be it a human one, that can create a total, marketing, production and logistics night-mare for an organization of the size of the PTC.

The challenge for PTC was increasing since its products spread all across Pakistan in general and in reference to Islamabad territory as well. The costs of errors at the salesmen end and overheads involved, in the collection, feeding, analysis and reporting of sales information to the local, regional offices and to the corporate managers at the head office were becoming incessantly lofty due to the traditional and routine sales-man activities and methods.

The erroneousness in sales figures either due to human fault or deliberate manipulation was also witnessed and was understood to be a major factor for the organization's misperceptions and miscalculations about the brand's position and availability in the local territory. These inaccurate sales figures could also arise when

data entry operators manually entered the paper based data in the computer systems which was latter-on transferred to the brand mangers at head office.

4.4 Crucial Strategic Realizations by PTC's and AC's Managers:

PTC's and AC's decision makers realized the need for a solution to these problems and issues. They realized that in-order to keep their over all market leadership in Pakistani tobacco industry at present and in the future they have to make sure that the (Murtaza Mankani & Hammad Toor :PTC):

❖ Effective and efficient management of distributors, retailers and wholesalers on a nation wide basis starts from an effective management of a single area may be like Islamabad. In other words, if they could somehow effectively manage one small area like Islamabad the results could be translated for the nation wide market by adopting the same techniques.

❖ They should develop a strong capability to provide a consistently accurate sales/demand data to not only across their distribution chain but also across the whole enterprise and as well as backward and forward value creating functions/departments.

❖ To nab the evil from the bud, that is to overcome the hurdles like time delays, mismanagement of data and data entry errors at the distributors/salespeople end.

❖ And in the last but not the least reinforcing the above three points that to accurately know where PTC's sales stands at the end of the day on the nation-wide and local area wide level, to find out on consistent basis that which areas are not performing up to the mark, which are running low on supplies and which way consumers perceptions and preferences are changing, if any. And doing all this while reducing over all costs and overheads.

PTC managers realized that to address these issues they have to automate their sales process and eliminate traditional paper and pen methods. The benefits of automation may not be instant and as systematic as they are perceived in their important realizations but they will definitely materialize once the automated process start to function smoothly once the glitches are over. In this regards, PTC's managers contacted yEvolve of Karachi, an automation solution provider.

4.5   Automating Sales and Sales Force at PTC and AC:

Founded in 1999, **yEvolve** (Pvt) Ltd, a leading mobile technology solution provider focused on mobile CRM/PRM solutions for the distribution, health, retail and insurance sectors, took the challenge of providing end to end solution to Pakistan Tobacco

Company in its effort to automate the sales cycle. The company's client portfolio includes top nationals and multinationals such as Procter & Gamble, Unilever Pakistan, Roche Pakistan, Tapal Tea Pvt Ltd, Reckitt Benckiser Pakistan, AKD Trade and Ali Gohar & Company.

After comprehensive consultations with business and technology teams at PTC, yEvolve decided to implement its sales force automation-PALM powered-solution known as SLASH (Sales Automation Solution for Handhelds). This solution allowed PTC's Islamabad distributor to use palm handhelds in collection of sales data from the market. YEvolve developed a software application, SLASH, for the palm device that is highly customized and has been designed specifically as per the data collection requirement for PTC. Sales data previously collected in the traditional pen and paper way is now 100% automated.

According to yEvolve:

"Sales Automation Solution for Handhelds (SLASH) is a hand held based solution for secondary sales monitoring and reporting and was the result of extensive research by yEvolve on the local sales and distribution needs of the Fast Moving Consumer Good Sector (FMGC) sector.

At PTC, SLASH helps to aggregate, report and transmit sales data captured in the field by order bookers, salesman and distribution staff to be passed on to key decision makers.

Data capture is facilitated by distributor order bookers carrying Palm hand-helds with the SLASH Bridge TM front and application pre-programmed on each device. Each distributor office is equipped with the SLASH Control Room TM desktop application which allows syncing of Palm data onto the desktop. Reporting trends such as sales per area/product/customer, forecasting and targets, sales histories and sales force management are all handled by SLASH Control Room TM.

Management at PTC has a link to each distributor operating the SLASH system via the Internet. Consistent reporting through standard data formats enables key management at PTC to gain a true picture of the secondary sales in each area. What started as a pilot project in one city (Islamabad) is now being rolled out on a nation wide basis.

The SLASH project has received commendable feedback from the British American Tobacco group as a mobile CRM success story for the Asia region**."**

4.6 SLASH at PTC: An Introduction to the SLASH:

Let us see some important functionality and features of SLASH, its technology and useful benefits of automation of sales force at AC. The total project cost of automating Sales force at AC exceeded a little over 1 million rupees inclusive of the cost of device at approximately Rs38000 per piece. Initially the hardware was imported from Singapore.

The SLASH project for PTC was launched on September 2002. **Please see a detailed work flow diagram and pre-post scenarios of SLASH on the pages to come.**

4.6.1   Important Features of SLASH[16]:

❖ Support for a range of mobile platforms including Palm OS$_R$, Pocket PC a

❖ Order booking automation with easy to use "click and point" editing functionality

❖ Brand wise sales summaries can be generated while still out in the field

❖ In-built database connectivity for ODBC(OBJECT ORIENTED DATA BASES CONNECTIVITY) compliant systems including Oracle, SQL Server and MS Access

❖ Powerful reporting features including drill down for area, brand and customer wise sales views

❖ User and security level management

4.6.2   SLASH has three key Components[17]:

❖ A data collection application that can run on any handheld device supporting Palm-TM OS. This is used by the sales person for filling out order forms and surveys.

❖ A windows-based GUI application with a centralized database that runs on a simple Pentium-based PC at the distributor's office. This is used for

[16] www.yEvolve.com
[17] [17] www.yEvolve.com

generating reports and charts for brand performance, salesmen performance etc.

❖ A powerful web-based application that uses the data from the centralized database to generate meaningful reports and charts, allowing management accessibility to these reports from virtually anywhere in the world.

4.6.3 Technology Environment and Development Platform of SLASH:

Handheld Device (applications):

❖ Visual C++/C

❖ Code Warrior

❖ AppForge

❖ OVAL (For EPOC Platform)

❖ Satellite Forms

Desktop Application[18]:

❖ Front-end: Microsoft Visual Basic 6.0

❖ Back-end: Oracle, SQL Server, MS Access

❖ Seagate Crystal Report and reports are also created in MS excel.

Web Interface and Connectivity[19]:

❖ ASP, Perl, PHP, JSP

❖ Java Script, DHTML

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[18] www.yEvolve.com
[19] www.yEvolve.com

❖ XML

4.7 POWER OF SLASH: The Functions and The Benefits

SLASH uses the power of automation that a Palm device can provide and it combines with the power of desktops to report every activity undertaking across PTC's distribution channel. To PTC, SLASH offer a mix of channel metrics that include the management of information regarding sales staff, products categorization, sales areas customers and categories, sales histories, daily sales orders, inventory, purchase, returns, expenses as well as income statements.

In effect, SLASH offers the perfect view of the sales and distribution processes of PTC and its sole distributor AC in Islamabad. **The data by sales-man in field can be captured on the spot on the go and Palm devices they carry facilitate the smooth and time saving functioning of their day to day selling, merchandising and distribution activities by providing mobile *sales-force* with the following functions at their fingertips:**

❖ Menu driven and easy point and click navigation

❖ Complete order management, contact management and calendar management facility.

❖ Ability to access a complete up to date customer and product databases and history files while on the move

❖ Handling redemptions automatically

❖ Generating End of Day summaries and other related reports while still in the market.

❖ Availability of the PTC's latest promos, marketing campaigns and other related activity knowledge on the fingertips

❖ and Mobile Printing facility

Once the day's work is over and at the end the sales-man come back to Melody market office. Now, instead of toiling in another 2-3 hours of arduous paper work they can connect the hand held device to the Control Deck desktop Component (CDDC) of SLASH and data can be synchronized or uploaded to the desktop via a "One Button' push functionality. How long it takes? Approximately few seconds! No errors, No human mistakes, No painful data entry/key punching procedures, no deliberate manipulation of data can be done and has to be taken as it is and in the end every body goes home happy!

The Control Deck desktop Component -CDDC - is a Windows based desktop component with powerful reporting capability and provides a detailed window menu driven options on the distribution operations of channel/distribution partners. AC's key punch operator and PTC's data analysts can print and analyze various types of reports in few minutes, which, in Pre-Automation environment, used to be a full day's work or some times in case of digging up manually the history files it used to be a few days work. Now *PTC's analysts, mangers and distributors* can create, make, and analyze following and more **reports and summaries** in **few minutes which were extremely difficult and time consuming previously**:

- ❖ Area/product wise sales(also Brand performance, own and competitors)

- ❖ Purchase orders/cash memos details

- ❖ Distributor sales history(product, brand, area wise)

- ❖ Customer sales history(product, brand, area wise)

- ❖ Area sales history (by choice ,from all angles)

- ❖ Forecasting and targets of brands, sales people and overall products

- ❖ Sales force management and productivity (routes assignment, commission, performance, salaries etc.)

- ❖ Marketing and sales campaigns advertisement promos, reports and analysis

- ❖ Different drill down features to help make tactical and strategic decisions

These are the functions that are available to AC and PTC's workers after the automation of sales process and their sales force the *over all benefits*[20] to the PTC and AC are summarized as follows:

- ❖ *SLASH has Eliminated* pen and paper in data collection, analysis of data and reporting.

- ❖ *SLASH Provides* a user friendly pen-based interface that replicated the routine sales order taking process.

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[20] www.yEvolve.com

❖ *SLASH Reduces* time, cost and effort and above all human error in sales figures reporting.

❖ *SLASH Increases* sales through a better understanding of the customer and their buying patterns and preferences.

❖ *SLASH Improves* customer relationship management and inventory levels by micro-monitoring the sales force.

❖ *SLASH Quickens* management decision making by providing prompt access to market information.

❖ *SLASH Facilitates* consistent reporting formats for all distributors thus, ensuring SLASH compatibility with legacy systems

❖ *SLASH helped Improve* partner relationship management

4.8   A critical Analysis of the Benefits of SLASH:

A thinker once said "A man's mind once stretched never goes back to its original dimensions", and we say that is the case with PTC. Once you stretched your process for the good, it would not go back to its old performance. PTC's sales force before it was automated had some chronic problems which are typical to any pen and paper based

system or a process. Since SFA, their achievements in human comfort and productivity have not yet been or never were objectively quantified. This is some thing very difficult to do, however, qualitatively speaking, after thorough research; most of the benefits are just those that are listed above. And if some one comes along saying that how can we prove that. The answer, we simply cannot, you just ask those who are effected, or, may be we can attempt to prove those benefits but that will involve, either, a lot of conjecture and guess work from PTC's manager's point of view, or, an in-depth sophisticated statistical and financial manipulation of data will be required. In the final chapter of this study, we will however present a thorough analysis of the benefits that are acquired by the PTC and AC and the customers due to the automation of sales force and sales process. There will some number crunching, but nothing substantial with in the scope of thesis research. Interviews from many mangers, supervisors and salesman have made this quantitative and qualitative out comes of this study possible and our thesis question would also be dealt with in our final analysis and conclusion to the research in the final chapter.
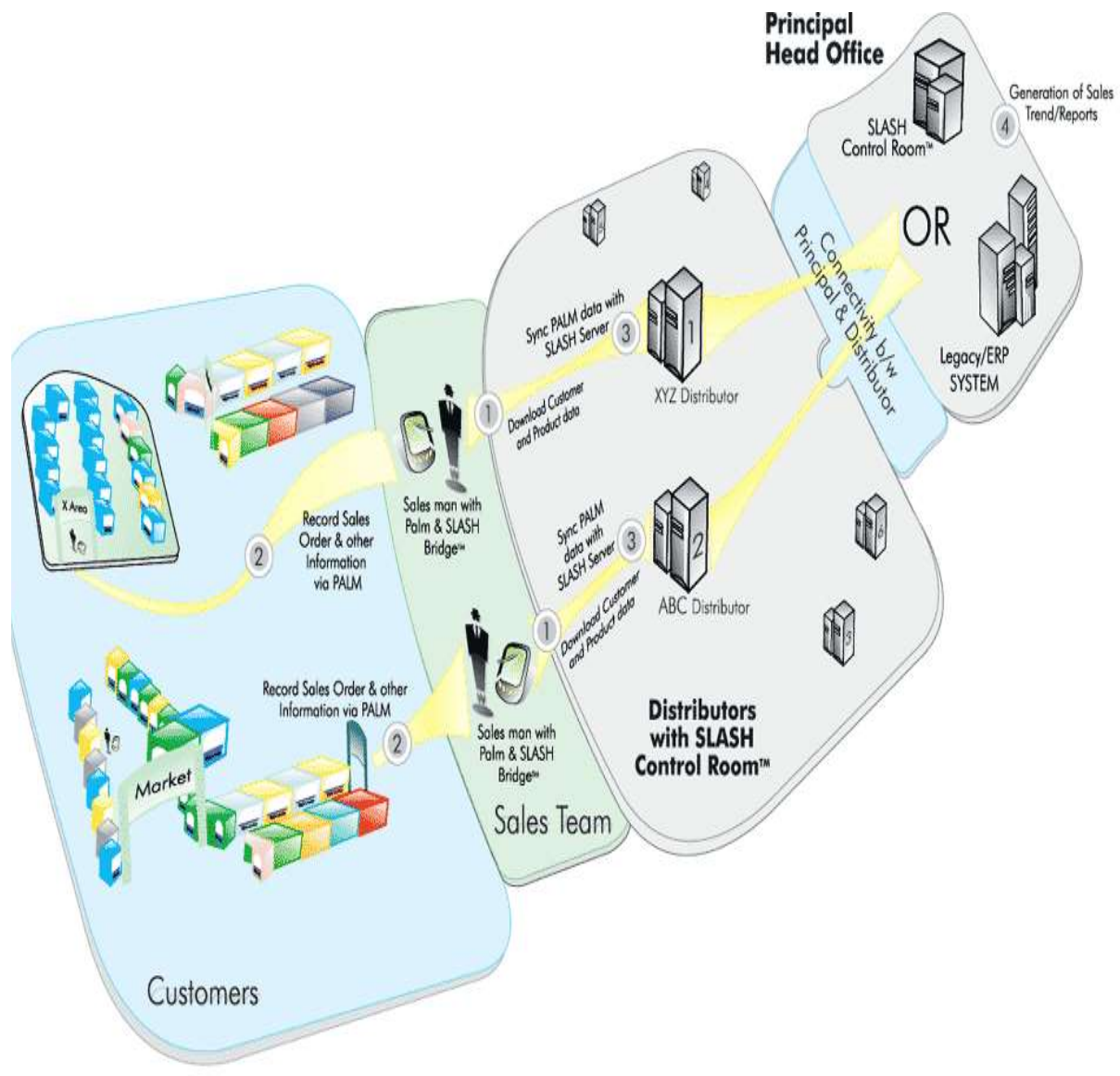
SLASH WORK FLOW DIAGRAM

(www.yEvolve.com)

SLASH
SALES AUTOMATION
SOLUTION FOR HAND HELDS

Sales partner alignment involves finding the right automation solution and turning the question mark (as shown in Figure 1) into a powerful Partner Relationship Management (PRM) Tool.

PRM Tools are becoming popular among leading FMGC companies in Pakistan who have turned the promises of PRM into practical benefits using yEvolve's Sales Automation Solution for Handhelds (SLASH).

Sales Information Flow Between
Distributor → **Principal**

Figure 1

Custom Spread Sheet/Application

ERP

Distributor Manager

Salesman

Sales Manager

Sales Form

Paper based Sales Reports & Brand Summaries

Booker

Brand Manager

Problem:
Lack of automation (manual data entry process) and slow paper based data collection process

Result:
Process Takes up to 4-6 weeks and gives out of date information to Principal

Problem:
Sales results from distributors are slow and late

Result:
True Picture of market is not attainable

PRE SFA

(www.yEvolve.com)

Figure 2 shows how SLASH helps to align a company's entire distributor/partner network, by automating the basic data collection and reporting functions
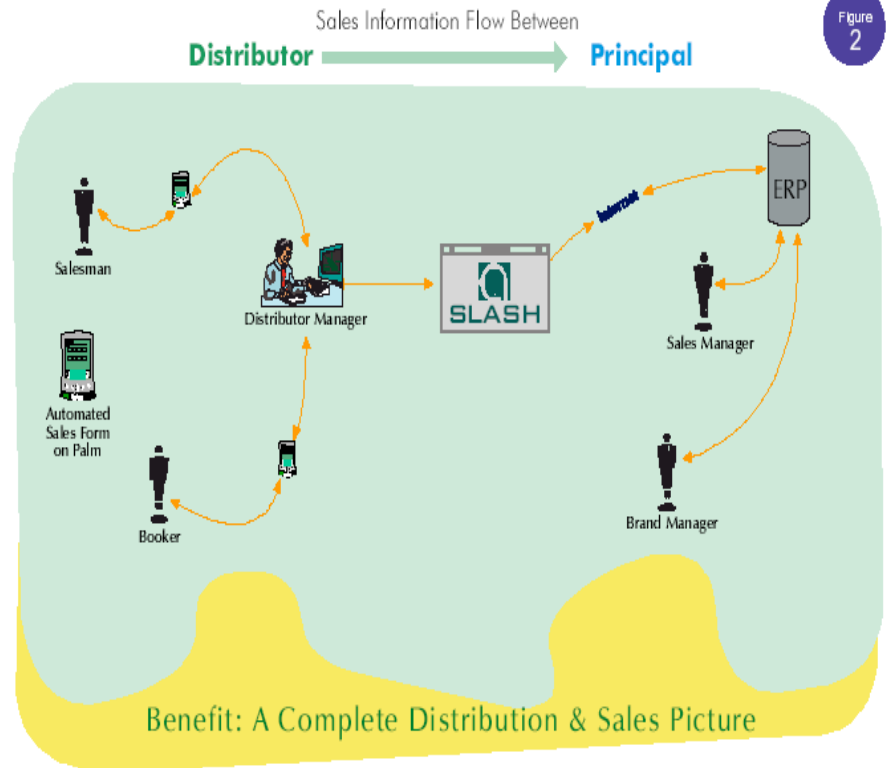
POST SFA

(www.yEvolve.com)

CHAPTER: 5   ECONOMETRIC MODELS FOR PTC

Summary of the chapter:

This chapter explains the details of the different econometric models and techniques, which could be used in studying relationships between different dependent ad independent variables of PTC, with the complete specifications, parameters and appropriate estimation techniques. The variables and relationships between them are derived from the business and economic theory and observational research.

5.1   An Introduction to Econometrics and Its Applicability in reference to our Research:

Econometrics is a standard combination of mathematics, statistics and economic sciences to develop the models and understand the impact of variables on each other, to develop standard dynamic models to understand the relationships between different business processes and phenomena, to test theories and hypothesis and to understand the real reasons behind façade of economic and business activities. Most essentially it is a vital and commonly used tool to conduct business and economic research. It deals with qualitative as well as quantitative research questions and studies; it also gives a realistic, time tested, and reliable picture of the topic of research.

In a typical econometric research, a mathematical model is developed based on observational research, academic theories or empirically established facts. This mathematical model of any business process is then transformed into statistical model by

giving it a random error term. And eventually a functional form of a given model is developed. Once the model gets developed, researchers start to shop for appropriate estimation model/method. For instance, most commonly used model OLS-ordinary least squares is used to estimate relationships between quantifiable variables whose value can be any number. On the other extreme, estimations are done through binary dependent variables whose values of variables estimated for dependent functions are between 0 and 1.

In our research regarding the effect of PTC's sales force automation on its sales performance in general and customer relations in particular, a very reasonable and actionable set of models are developed with all the details in the following sections.

We have broken up our research questions into different models. From the understanding of business theory, our observations from PTC's sales process and econometrics, we understand and develop following functional models.

    A. linear model

    B. semi log model

    C. log-linear model

    D. Dummy Dependent variable model

We choose general sales, sales volume, sales growth, sales elasticity and customer loyalty, the proxy of the customer relations, as our dependent variables. And several independent variables like, Sales Automation-PDA, number of visits by PTC's salesman, number of effective visits, hot weather, price and disposable income etc taken up as an

independent variables. To study the impact of independent variables on our dependent variables which are quantitative in nature we use OLS and multiple regressions model and to study the impact of qualitative dependent variables we use binary dependent variable model. Reason for doing so is explained in respective sections.

5.1.1   Reasons for using Econometrics in our Research:

The first reason for employing the econometric techniques to test our major and minor research questions is to come up with a standard model, which when put to test with real time data can validate our qualitative observational research that SFA has positively impacted the efficiency of general sales processes of PTC and has helped to strengthen its customer relationships.

The second reason for using these sophisticated techniques is to formulate a PTC's sales function model based on primary research conducted by the researcher and to put in use the business theory from sales management text books. It is left to put in actual testing conditions for the future researcher hoping that a complete access to PTC data sources will be available.

5.1.2   This Chapter's Organization:

After general introduction to econometrics and its application for our research, four functional models for measuring sales volume, sales growth, elasticity and customer

loyalty for PTC products are presented. All the coefficients, signs and variables are individually defined and explained. First three models are presented individually followed by their estimation techniques and theory of those techniques. Fourth model is presented in the end followed by the estimation methodologies available and also the academic literature behind those estimations. In the end there is a brief conclusion for this chapter.

5.1.3   Assumptions:

1. These models are only for the stationary data (where mean, variance and covariance are time invariant.)
2. Models are all linear in nature.

5.2   PTC Sales Econometric Model:

The main factors affecting sales of tobacco industry product are economic and socio-demographic factors: income, employment, importance of agricultural and industrial sector, education, household size, ownership of household appliances, urbanization, age of population, cultural factors: religion, attitude towards product, usage of product, distributional factors: retail structure, outlet characteristics, and competitive factors: primary and secondary competition, tariffs etc.

5.2.1   General Function for Sales of Pakistan Tobacco Company (PTC):

$$(-) \qquad (-) \qquad\qquad\qquad (+)$$

Sales = f (price, weather (hot or cold), numbers of visit by a sales man, numbers of

  (-)   (+)   (-)

effective visits, use of new technology viz. SFA/SLASH or PDA etc., taxes (sales tax etc.),

  (+)   (+)   (+)   (+)

advertisement, population, income level (disposable income), locality (developed etc.),

   (+)   (+)   (+)

salary and commission of sales agent/person, experience of sales person, age of

                 (+)   (+)   (-)

customer (young etc.), type of brand, availability of brad, religion (i.e. it forbids) etc)

Plus sign (+) shows the increase in sales while negative sign (-) is an indication of decline in sales. Different types of specifications can be used for this function of PTC Model depending upon the nature of problem. For example, whether we are measuring a) sales volume, b) sales growth, c) elasticity (of sales) or we may be interested in overall result of sales and d) product/consumer(customer) loyalty (toward different brands of PTC). Only such variables will be included in the regression analysis, which are very crucial for sales of tobacco products.

As far as estimation of these model is concerned the Ordinary Least Squares (OLS)[21] technique can be applied for a), b), and c) models, whereas, both time series as

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[21] The most commonly used method of estimating the Parameters in a linear Regression equation. The procedure is to minimize the sum of the squares of the vertical distances between the data points and the estimated regression line (or plane) (i.e. to minimize the sum of the squared residuals). This can be shown to result in the general formula (in matrix notation):

$$\hat{\beta} = (X'X)^{-1} X' Y$$

where $\hat{\beta}$ is the Vector of parameter estimates,
        X is the Matrix of observations in the Independent Variables,
and Y is the Vector of observations on the dependent variables.
In the simple two variable case this formula reduces to $\beta = \sum_i x_i y_i / \sum_i x^2_i$

well as cross section data can be used for this purpose, but in case of autocorrelation or serial correlation[22] (when the time series as well as cross section data will be applied on the models) and hetroscedasticity[23] problems (when cross section data is used) Orcutt Method[24] or AR (1) and Generalized Least Squares (GLS)[25] specifications can be applied respectively. In case of d) where our dependent variable is of qualitative nature (dummy variable), the OLS is not an appropriate technique, so, we can use binary dependent variable model (the details are given in the following text/ discussion). We will also present the theory and application of these techniques. The functional form of a), b), c) and d) are given as follows. There are given four models for sales of PTC's products

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where x_i and y_i are the deviations from the means of the independent and dependent variables respectively. Under certain conditions this procedure can be shown to be the Best Linear Unbiased Estimator (BLUE).

[22] An econometric problem in which the current value of the error term in an equation is correlated with its own past values showing E $(e_t e_{t-1}) = \sigma \neq 0$, normally indicating that some systematic influence has been omitted from the equation. Nth order serial correlation is the correlation of the current value of the Residual with its value N periods ago whereas first order (Markov Process) is given as the form

$$e_t = \sigma e_{t-1} + v_t,$$ where e_t is the residual
v_t is a Stochastic disturbance, and
σ is the autocorrelation coefficient

The term autocorrelation usually denotes the version of the problem which occurs in Cross-Section rather than in Time-Series data, in which the residual for one observation is correlated with those for other observations i.e. $E(e_{it} e_{jt}) = \sigma \neq 0$ where $i \neq j$.

The major consequences of the problem are that the OLS estimator is not the BLUE in that it does not yield estimates with minimum Variance. There is seen the value of Durbin-Watson (where D.W ≈ 2 shows no autocorrelation or serial correlation).

[23] An Econometric problem in which the variance of the error term in a regression equation does not remain constant between observations. E $(e_i)^2 = \sigma i^2 \neq \sigma^2$. The problem arises most often in cross section data, and results in the OLS procedure not producing BLUE.

[24] The name of a commonly used procedure designed to estimate the parameters of an equation whose residuals are subject to serial correlation, whereby the data are subjected to partial first difference before estimation by OLS. It approximates to the GLS estimator.

[25] GLS (also known as Aitken Estimator). A member of the least squares family of estimators applicable to cases where the variance covariance matrix of the disturbance term of the regression equation does not consist of zeros in the of diagonal position, and or does not have identical diagonal elements (representing the problems of auto correlation and hetroscedasticity respectively). Under these circumstances OLS in not the BLUE, while GLS is.

5.3 Four Functional Models For Sales Of Pakistan Tobacco Company's Brands:

$S_{it} = \alpha + \beta P_{it} + \gamma V_{it} + \lambda V_{it}^2 + \theta Y_{it} + \varphi T_{it} + \delta A_{sit} + \rho N_{it} + \mu W_{it} + \omega M_{it} + \varepsilon_{it}$ ….. (**Model A**)

$S_{it} = \alpha + \beta LnP_{it} + \gamma LnV_{it} + \lambda LnV_{it}^2 + \theta LnY_{it} + \varphi LnT_{it} + \delta A_{sit} + \rho LnN_{it} + \mu W_{it} + \omega LnM_{it} + \varepsilon_{it}$ …….. (**Model B**)

$LnS_{it} = \alpha + \beta LnP_{it} + \gamma LnV_{it} + \lambda LnV_{it}^2 + \theta LnY_{it} + \varphi LnT_{it} + \delta A_{sit} + \rho LnN_{it} + \mu W_{it} + \omega LnM_{it} + \varepsilon_{it}$ ….. (**Model C**)

$L_{it} = \alpha + \beta P_{it} + \gamma V_{it} + \lambda V_{it}^2 + \theta Y_{it} + \varphi T_{it} + \delta A_{sit} + \rho N_{it} + \mu W_{it} + \nu G + \varepsilon_{it}$ ….. (**Model D**)

Where i = 1,2, …, n (it denotes different observations) and t = 1,2, …, T (it is used for different time periods), and these subscripts are used to describe the nature of data i.e. whether it is cross sectional or time series.

5.3.1 Definition of Variables and Expected Signs in the models:

Note: **Ln** term is used for Logarithm.

Sit = Sales volume of PTC products-brand wise or as a whole (where in case of equations *b* and *c* it will be sales growth and sales elasticity respectively)

Lit = Loyalty toward Tobacco or PTC products-could be brand wise as well (customer loyalty)

Pit = Price level (it affects negatively)

Vit = number of visits (it affects positively)

Vit^2 = number of effective visits-transaction induced by the salesman (returns to visits are diminishing)

Yit = Income level/ Disposable Income of consumer/customer (it affects positively)

T = Taxes (i.e sales tax, excise tax etc.), (it affects negatively)

Asit = Sales force automation (it affects positively)

Nit = Population (it can be population size or population growth), (it affects positively)

Wit = Weather or Season (Hot Weather), (it affects negatively)

Mit = Advertisement (it affects positively)

Git = Availability (of item), (it affects positively)

εit = Random Error Term (E(εit)=0, $E(εit)^2 = σ^2$, E(εit εjt) =0), the terms are mean, variance and covariance respectively. It is called a white noise process.

α >0, β<0, γ>0, λ<0, θ>0, φ<0, δ>0, ρ>0, μ>0, ω>0, ν>0

Where: α is the intercept of the model, it captures the average effect of all excluding variables. In this model its sign will be positive. It is important to know that when we include the variable of Sales force automation its magnitude will be reduced while value

of (R^2)[26] will improve. Whereas, β, γ, ..., ν which are coefficient of independent variables and these are actually slope parameters of the model, they explain the relationship between the dependent and independent variables. Some variables show positive while others show negative relationship between them.

5.4 The details of First Three Models (A, B, C):

5.4.1 The Linear (trend) Model-A:

$$S_{it} = \alpha + \beta P_{it} + \gamma V_{it} + \lambda V_{it}^2 + \theta Y_{it} + \varphi T_{it} + \delta A_{sit} + \rho N_{it} + \mu W_{it} + \omega M_{it} + \varepsilon_{it} \ldots\ldots.. \textbf{(a)}$$

In such types of models we regress S_{it} (Sales Volume) on P_{it} (Price level), A_{sit} (SFA) and so on. The variables like P_{it} (Price level), A_{sit} (SFA) are regressors/independent variables or trend variables. By *trend* we mean a sustained upward or downward movement in the behavior of a variable. If the slope coefficients (β, γ, ..., ω) in (**a**) are positive, there is an *upward trend* in S_{it}, whereas if it is negative, there is a *downward trend* in S_{it} given the effect of all other regressors in the list. They are used to capture the marginal effect and/ or measure the (per unit) rate of change. The coefficient (β) is the marginal change in S_{it} due to one unit change in P_{it}. There is negative relationship between these two variables; it means that a one rupee increase in price level causes a β times decrease in sales volume, similarly due to SFA there will be δ rise in sales volume (so, there is seen the

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[26] A statistic which summaries the explanatory power of an equation. It is the proportion of the variation in the dependent variable which is accounted for by the composite variation of the explanatory variable and is defined as

$$R^2 = 1 - \sum e^2 / \sum y^2$$

Where $\sum e^2$ is the residual sum of squares, and $\sum y^2$ is the sum of squares of the dependent variable. Thus R^2 lies between zero and unity. The closer to zero it is, the less is the explanatory power (the higher the residual variation as a proportion of the total), and vice versa for values close to unity.

numerical value of slopes, in order to see the extent of change). The intercept coefficient

(α) is average sales volume if effect of all the other variables is equal to zero. While the

random error term (ε_{it}) is included to capture the effect of excluding variables, which are

not given in the list of our regressors but they affect the sales of PTC's tobacco products

i.e. government. This is assumed to be normally distributed with zero mean and constant

variance

5.4.2 Semi Log Models (Log-Lin Model-B):

$$LnS_{it} = \alpha + \beta P_{it} + \gamma V_{it} + \lambda V_{it}^2 + \theta Y_{it} + \varphi T_{it} + \delta A_{sit} + \rho N_{it} + \mu W_{it} + \omega M_{it} + \varepsilon_{it} \ldots\ldots (b)$$

Where Ln = natural log (i.e., log to the base e, and where e = 2.178).

When we are interested in finding out the rate of growth of certain business or economic

variables such types of models are used. This model is like any other linear regression

model in that the parameters α, β, γ, …, ω are linear. The only difference is that the

regressand is the logarithm of S_{it} and the regressors are price level, income level,

automation etc.

Models like b) are called **semi log models** because only one variable (in this case the

regressand) appears in the logarithm form. For descriptive purposes a model in which the

regressand is logarithmic will be called a **log-lin model**. In this model *the slope*

coefficient measures the constant proportional or relative change in S_{it} for *a given*

absolute change in the value of the regressor(s) that is,

For example: β = Relative change in regressand / Absolute change in the regressor(s)

and so on.

If we multiply the relative change in S_{it} by 100, the above formula will then give the percentage change, or the growth rate, in S_{it} for an absolute change in the regressors (i.e. P, Y, As etc.). The model describes the constant relative (β etc.) or constant percentage (100. β) rate of growth (if $\beta > 0$) or rate of decay (if $\beta < 0$) in the variable S_{it}. Here we can say that a one rupee increase in price level causes β% decrease in sales, the effect of other variables can be described in same fashion. While α is average sales. But for the validity of these models time series should be stationary. Otherwise other techniques like cointegration etc can be applied.

5.4.3   Log-Linear Model-C:

$$LnS_{it} = \alpha + \beta LnP_{it} + \gamma LnV_{it} + \lambda LnV_{it}^2 + \theta LnY_{it} + \varphi LnT_{it} + \delta A_{sit} + \rho LnN_{it} + \mu W_{it} +$$

$$\omega LnM_{it} + \varepsilon_{it} \ldots\ldots.. \text{ (C)}$$

Where Ln = natural log (i.e., log to the base e, and where e = 2.178). This model is linear in the parameters α , β, γ,…, ω, linear in the logarithms of the variables S_{it}, P_{it}, $V_{it, \ldots}$, M_{it}, and can be estimated by OLS regression, if the assumption of the classical linear regression model are fulfilled (like the above two given models). Because of this linearity, such models are called log-log, double-log, or log linear models.

One attractive feature of the log-log model, which has made it popular in applied work, is that the slope coefficients (β, γ, …, ω) measures the elasticity of dependent variable (S_{it}) with respect to independent variables (P_{it}, $V_{it, \ldots}$, $M_{it,}$), that is, the percentage change in S_{it} for a given (small) percentage change in P_{it}, $V_{it, \ldots}$, M_{it}. Thus, if S_{it} represents the sales of

tobacco brands and P_{it} its unit price, β measures the price elasticity of sales. If the relationship between these two variables is such as in this model will then give the estimate of the price elasticity (-β). Similarly, δ is sales force automation elasticity of sales of tobacco brands and its direction is opposite of price elasticity (-β) because is positive. The other variables can be explained in same manner. The alternative name of this model is **constant elasticity model**. The magnitude of the coefficients (in absolute term) will tell about the elastic one (when value is greater or equal to 1) and inelastic (when value is lesser than1) one effects i.e. whether sales of tobacco products are price-elastic or price-inelastic (in case of price) and so on.

In all of four models: $i = 1,2, \ldots, n$ (it denotes different observations) and $t = 1,2, \ldots, T$ (it is used for different time periods), and these subscripts are used to describe the nature of data i.e. whether it is cross sectional or time series.

5.4.4 Revisiting the definition of variables and Expected Signs:

Note: Ln term is used for Logarithm.

Sit = Sales volume (where in case of equations *b* and *c* it will be sales growth and sales elasticity respectively)

Pit = Price level (it affects negatively)

Vit = number of visits (it affects positively)

Vit^2 = number of effective visits (returns to visits are diminishing)

Yit = Income level/ Disposable Income (it affects positively)

Tit = Taxes (i.e sales tax, excise tax etc.), (it affects negatively)

Asit = Sales force automation (it affects positively)

Nit = Population (it can be population size or population growth), (it affects positively)

Wit = Weather or Season (Hot Weather), (it affects negatively)

Mit = Advertisement (it affects positively)

εit = Random Error Term (E(εit)=0, E(εit)^2 =σ^2, E(εit εjt) =0), the terms are mean, variance and covariance respectively. It is called a white noise process.

$\alpha >0$, $\beta<0$, $\gamma>0$, $\lambda<0$, $\theta>0$, $\varphi<0$, $\delta>0$, $\rho>0$, $\mu>0$, $\omega>0$

α is the intercept of the model, it captures the average effect of all excluding variables. In this model its sign will be positive. It is important to know that when we include the variable of Sales force automation its magnitude will be reduced while value of (R^2)[27] will improve. Whereas, β, γ, …, ν which are coefficient of independent variables and these are actually slope parameters of the model, they explain the relationship between the dependent and independent variables. Some variables show positive while others show negative relationship between them.

Now, we present the regression technique (i.e. OLS), for a), b) and c) in details as follows.

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[27] A statistic which summaries the explanatory power of an equation. It is the proportion of the variation in the dependent variable which is accounted for by the composite variation of the explanatory variable and is defined as

$$R^2 = 1-\sum e^2 / \sum y^2$$

Where $\sum e^2$ is the residual sum of squares, and $\sum y^2$ is the sum of squares of the dependent variable. Thus R^2 lies between zero and unity. The closer to zero it is, the less is the explanatory power (the higher the residual variation as a proportion of the total), and vice versa for values close to unity.

5.5 Regression Analysis (Least Square Method i.e. OLS etc.)

5.5.1   Definition:

Regression analysis is used to estimate quantitative functional relationships between dependent variables and one or more independent causal variables from actual data - experimental, time series, cross sectional - when the relationship among the variables is statistical in nature rather than exact. By a statistical relationship it is meant that the dependent variable's observed values are generated by a probability distribution that is a function of other causal variables (as in this study where we are looking at the determinants of sales of PTC products we are using this technique in order to quantify our analysis which is of qualitative nature otherwise).

The values of such variables are determined by the behavior of people and hence these variables are stochastic. Empirical investigation of the relationships among them requires the tools of statistical inference, including regression analysis. This is true, whether the purpose is to forecast future sales or the performance of PTC or to predict the impact of a new innovation or government regulation on the tobacco industry.

As here we might wish to estimate the relationship between the sales of PTC products in a given geographical area and the income or any other variable such as **SLASH** / **PDA** etc.

If this relationship is assumed to be linear, the hypothesis is that

$Y = a + bx + u$[8]

where Y = expected sales, X = total income or use of PDA (or there may be any other variable from the list of our basic sales function of PTC), and u = error term.

This relationship is represented graphically by the upward sloping line in Figure 1. The data that will be used to estimate the parameters of this relationship consists of paired observations of X and Y: X_i and Y_i for n time periods i= 1,...,n and are represented in Figure 1 below by the points plotted around the line.
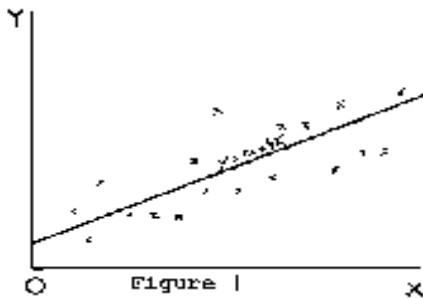
Figure 1

The errors, u, in equation 1 above consist of differences between the actual observed values of Y and the expected or average values of Y determined by the linear relationship with X. They are represented graphically in Figure 1 by the vertical distances between each point (representing an X, Y observation) and the line (representing the relationship between X and the expected value of Y).

There are a number of reasons why these errors will arise?

   a. Measurement: The sales figures may have been inaccurately recorded.

   b. Causal factors left out of account: Sales may have been affected by changes in prices or other variables influencing consumer purchase decisions that have not been included in the hypothesized relationship.

c. Random behavior of people: People do not always behave the same way each time they confront the same circumstances.

d. Misspecification: The functional form of the relationship may have been incorrectly specified.

Least squares regression is a means of estimating the parameters of the equation hypothesizing Y as a function of X. Graphically, it is a means of fitting a line to the scatter of paired observations of X and Y in Figure 1. It involves choosing $\hat{a}$ and $\hat{b}$, estimators of the true parameters a and b, so as to minimize the sum of the squared differences between the actual values of Y and the estimate of Y given by the regression equation. These differences are the estimated values of the errors, e_i for i = 1...n. The least squares estimators $\hat{a}$ and $\hat{b}$ minimize

$$\sum_{i=1}^{n} e_i^2 \text{ where } e_i = Y_i - \hat{Y}_i \ , \ \ \hat{Y}_i \ = \ \hat{a} - \hat{b}x_i, \text{ and}$$
$$n = \text{the number of observations}$$

Expressions for $\hat{a}$ and $\hat{b}$ can be derived by setting the first partial derivatives with respect to $\hat{a}$ and of the sum of the squared estimated errors equal to zero and solving the two simultaneous equations that result, to get

$$\hat{b} = \frac{\sum_{i=1}^{n} (X_i - \overline{X})(Y_i - \overline{Y})}{\sum_{i=1}^{n} (X_i - \overline{X})^2}$$

and $\hat{a} = \overline{Y} - \hat{b}\overline{X}$

where $\sum_{i=1}^{n} X_i/n$

and

$\sum_{i=1}^{n} Y_i/n$

If the errors are random with a zero mean, that is E(u)= 0, the estimators, $\hat{a}$ and $\hat{b}$, of the parameters, a and b, of the true relationship obtained through least squares regression are statistically best. They will be closer on average to the true parameters than any other unbiased estimators in general use, regardless of the number of observations.

In the example cited above there is a one way causal relationship between X and Y. For example Income or PDA effects sales but not vice versa. Frequently in studies a two way causal relationship exists between variables.

5.6   Multiple Regression:

Where two or more independent variables affect the dependent variable, it is important to include them in the regression equation.

If the true relationship is $Y_i = a + b_1 X_{i1} + b_2 X_{i2} + u_i$

the regression equation is $\hat{Y}_i = \hat{a} + \hat{b}_1 X_{i1} + \hat{b}_2 X_{i2}$

The estimators $\hat{a}$, $\hat{b}_1$, $\hat{b}_2$ are chosen so as to minimize

$$\sum_{i=1}^{n} e_i^2 = \sum_{i=1}^{n} [Y_i - (\hat{a} + \hat{b}_1 X_{i1} + \hat{b}_2 X_{i2})]^2$$

The values of the estimators can be determined by setting

$$\frac{\delta \sum_{i=1}^{n} e_i^2}{\delta \hat{a}} = 0, \quad \frac{\delta \sum_{i=1}^{n} e_i^2}{\delta \hat{b}_1} = 0, \quad \text{and} \quad \frac{\delta \sum_{i=1}^{n} e_i^2}{\delta \hat{b}_2} = 0$$

and solving these equations to get three simultaneous "normal" equations that can in turn be solved to get $\hat{a}$, $\hat{b}_1$ & $\hat{b}_2$

Note that $\hat{b}_1$ is the best estimate of the effect on Y of changes in X_1 when X_2 is constant, and $\hat{b}_2$ is the best estimate of the effect on Y of changes in X_2 when X_1 is constant.

All important causal variables must be included in the equation. If some are omitted and they are correlated with those included, the least squares estimators will be biased. And in such circumstances other techniques such as GLS etc. (we have discussed above) will be applicable

In above discussion we have presented the sales function of PTC, and then different functional forms of such function are also given in the text. After that we have discussed the estimation techniques for these models. The theory and working of such techniques are discussed in details. But the important thing is that **basically we want to see the impact of PDA on the sales and customer loyalty. It is the fact that such**

Technology/machine has significantly affected the profitability of the Tobacco industry in general and PTC in particular. It has substantially reduced the overall leakages in the sales process of the PTC. There can be seen the theft reduction, time saving, decrease in paper record keeping, increase in the confidence of customer, increase in sales volume and overall increase in the customer loyalty. But most of the benefits are of the qualitative nature, so, in order to quantify our relationships we have applied econometric techniques to our analysis for that purpose we have made the Multiple Regression Models.

We can also develop the Simple Regression Function for such purpose where we will take only one explanatory variable such as PDA. In this way we can capture the direct effect of automation on the time consumption, sales volume, sales growth, and customer loyalty. Many intervening variables are also there but Time Consumption, Customer Loyalty, and Sales Volume Growth Volume are very important and for them we will develop the models. For that purpose both X) and Y) techniques will be used.

1) $T_{cons} = \beta_0 + \beta_1 \, PDA + U$

2) $S_{vgv} = \alpha_0 + \alpha_0 \, PDA + U$

3) $L_{cut} = \gamma_0 + \gamma_0 \, PDA + U$

Where

T_{cons} = Time Consumption (there is negative relation ship)

S_{vgv} = Sales Volume Growth Volume (there is positive

Relationship)

L_{cut} = Customer Loyalty (there is positive relation ship)

$\beta_0, \alpha_0, \gamma_0 > 0$ whereas $\beta_1 < 0$, $\alpha_0 > 0$ and $\gamma_0 > 0$

Note: In order to avoid dummy variable trap (because PDA is dummy variable), we can drop the intercept terms i.e. $\beta_0, \alpha_0, \gamma_0.$

5.7   Details of the Fourth Model:

5.7.1   Dummy Dependent Variable Model-D:

$L_{it} = \alpha + \beta P_{it} + \gamma V_{it} + \lambda V_{it}^2 + \theta Y_{it} + \varphi T_{it} + \delta A_{sit} + \rho N_{it} + \mu W_{it} + \nu G_{it} + \varepsilon_{it}$ …….. (**d**)

As, in above given model d) where we want to study the customer loyalty toward PTC brands. A person either is loyal to brand or not. Hence, the dependent variable, customer loyalty (L_{it}), can take only two values: 1 if the person is loyal to PTC brand and 0 if he or she is not.

So, question arises how do we handle models involving dichotomous response variables (given in above case)? That is, how do we estimate them? Are there special estimation or we can use OLS setup. To answer these and related questions the certain approaches are used to estimate such models where regression on dummy dependent variable is given. These include the logit model, the probit model and gompit model etc. But logit and probit are the two most commonly used techniques. We shall also use the logit model in

order to estimate the above given model **d**) because both the models are comparable. But, the choice between the two is one of (mathematical) convenience and ready availability of computer programs. On this score, the logit model is generally used in preference to the probit. So, we have given the interpretation about the parameters of logit model only. But in these models interpretation of the parameters is not straightforward as is in case of OLS etc. So, we look at the meanings of parameters in the following lines, but the details of the models are given in the end.

5.7.2 The Logit Model:

In our customer loyalty model

$P_i = E(L_{it} = 1| P_{it}, V_{it}, ..., G_{it}) = \alpha + \beta P_{it} + \gamma V_{it} + \lambda V_{it}^2 + \theta Y_{it} + \varphi T_{it} + \delta A_{sit} + \rho N_{it} + \mu W_{it} + \nu G_{it}$

Where (P_{it}) is price level, V_{it} is number of visits, G_{it} is availability of brand and $L_{it} = 1$ means person is loyal to PTC products. The following representation of this model is considered.

$$P_i = E(L_{it} = 1| P_{it}, V_{it}, ..., G_{it}) = 1 / 1 + e^{-Z_i}$$

Where $Z_i = \alpha + \beta P_{it} + \gamma V_{it} + \lambda V_{it}^2 + \theta Y_{it} + \varphi T_{it} + \delta A_{sit} + \rho N_{it} + \mu W_{it} + \nu G_{it}$

It is easy to verify that as Z_i ranges from $-\infty$ to $+\infty$, P_i ranges between 0 and 1. if P_i is the probability of customer loyalty, then ($1 - P_i$) is the probability of not loyal to PTC brand, then we get ($P_i / 1 - P_i = e^{Z_i}$), which is simply the odds ratio in favor of customer loyalty-

the ratio of the probability that a person is loyal to the probability that he is not loyal. Thus, if $P_i = 0.8$, it means the odds are 4 to 1 in favor of the customer loyalty toward the PTC brand. Now if we take the natural log of the function, we get,

$$Lgit = ln\ (P_i\ /\ 1\text{-}\ P_i) = Z_i = \alpha + \beta P_{it} + \gamma V_{it} + \lambda V_{it}^2 + \theta Y_{it} + \varphi T_{it} + \delta A_{sit} + \rho N_{it} + \mu W_{it} + \nu G_{it}$$

That is, $Lgit,$ the log of odd ratio, is not only linear in variables but also linear in the parameters. Lgit is called the logit, and hence the name logit model.

The interpretation of the logit model is as follows: β, γ, …,ν, the slopes, measure the change in $Lgit$ for a unit change in P_{it},V_{it}, ..., G_{it}, that is, it tells how the log-odds in favor of customer loyalty change as price level or income level etc. changes by a unit, say, Rs.10. The intercept α is the value of the log-odds in favor of customer loyalty towards PTC brand if all the regressors (P_{it},V_{it}, ..., G_{it},) are zero. Like most interpretations of intercepts, this interpretation may not have any physical meaning.

Where i = 1,2, …, n (it denotes different observations) and t = 1,2, …, T (it is used for different time periods), and these subscripts are used to describe the nature of data i.e. whether it is cross sectional or time series.

Now, we present the binary dependent variable technique (i.e. logit or probit), for model d).

5.7.3   Definition of Variables and Expected Signs:

Lit = Loyalty toward tobacco or PTC products (customer loyalty)

Pit = Price level (it affects negatively)

Vit = number of visits (it affects positively)

Vit^2 = number of effective visits (returns to visits are diminishing)

Yit = Income level/ Disposable Income (it affects positively)

Tit = Taxes (i.e sales tax, excise tax etc.), (it affects negatively)

Asit = Sales force automation (it affects positively)

Nit = Population (it can be population size or population growth), (it affects positively)

Wit = Weather or Season (Hot Weather), (it affects negatively)

Git = Availability (of brand), (it affects positively)

εit = Random Error Term (E(εit)=0, $E(εit)^2 = σ^2$, E(εit εjt) =0), the terms are mean, variance and covariance respectively. It is called a white noise process.

$α > 0, β < 0, γ > 0, λ < 0, θ > 0, φ < 0, δ > 0, ρ > 0, μ > 0, ν > 0$

5.8 Binary Dependent Variable Model (Logit, Probit estimation technique.):

This estimation technique is used for model d) of PTC. In this class of models, the dependent variable, L_{it} (customer loyalty) , may take on only two values- L_{it} might be a dummy variable representing the occurrence of an event for example person is loyal to

PTC's brand, or not loyal to a PTC brand. As, we may be interested in modeling the customer loyalty (L_{it}) of PTC's brand in our sample (whether loyal or not), there is a list of independent variables or regressors i.e. use of **PDA**s, income level, taxes, age, and other observable characteristics, which we denote as x (i.e. list of all the regressors (explanatory variables identified for the PTC Model) in the following discussion of binary dependant variable model. The goal of this model is to quantify the relationship between the individual characteristics of regressors and the impact on probability of being loyal or not. The working of the model or its theory regarding the PTC's sales model can be seen below.

5.8.1   Theory:

Suppose that a binary dependent variable, L_{it}, takes on values of zero and one. A simple linear regression of L_{it} on x is not appropriate, since among other things, the implied model of the conditional mean places inappropriate restrictions on the residuals of the model. Furthermore, the fitted value of L_{it} from a simple linear regression is not restricted to lie between zero and one.

Instead, we adopt a specification that is designed to handle the specific requirements of binary dependent variables. Suppose that we model the probability of observing a value, i.e. customer loyalty for PTC's product, of one as:

$$\mathbf{Pr\ (\mathit{Li}=1/\ x_i,\ \beta) = 1\text{-}\ F\ (\text{-}x_i'\ \beta),}$$

where F is a continuous, strictly increasing function that takes a real value and returns a value ranging from zero to one. The choice of the function F determines the type of binary model. The function can be explained as probability of L is equal to one i.e. customer is loyal to PTC product given the values of x (regressors/ explanatory variables) and the nature of relationship (size and sign) can be understood by the βs (coefficients of explanatory or independent variables). It follows that

$$\mathbf{Pr\ (L_i = 0/\ x_i,\ \beta) = F\ (-x_i^/\ \beta),}$$

Given such a specification, we can estimate the parameters of this model using the method of maximum likelihood[28]. The likelihood function[29] is given by:

$$\ell(\beta) = \log \ell(\beta) = \sum_{i=0}^{n} L_i\ (\log 1\text{-} F(\text{-}x_i^/\ \beta)) + (\ 1\text{-} L_i)\ \log F(\text{-}x_i^/\ \beta)$$

The first order conditions for this likelihood are nonlinear so that obtaining parameter estimates requires an iterative solution.

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[28] A term descriptive of a general econometric estimation technique which involves the maximization of the likelihood function of the sample observations with respect to the values of the parameters of the equation (s) being estimated. It chooses those values of the parameters which are 'most likely' to have generated the sample observations.

[29] In econometrics, a means whereby the most likely true model can be inferred from a finite set of observations on events hypothesized to be generated by the model.
Let $L\ (y_1, y_2, ..., y_n/\ \beta)$ be the joint probability density function (pdf) of the sample observations $y_1, y_2, ..., y_n$ conditional on β, where β is a vector of parameters in the underlying model generating the ys. Then if the pdf is rewritten as $L\ (\beta\ /\ y_1, y_2, ..., y_n\ )$ this implies that for given a set of observations $y_1, y_2, ..., y_n$ the function $L\ (\beta\ /.\ )$ is a function of the parameters β and is called the likelihood function . Since β is in general unknown in Maximum Likelihood estimation the value β is chosen for which $L\ (\beta\ /.\ )$ is a maximum. In Regression, the OLS estimator is a Maximum Likelihood estimator provided the Disturbance Term is White Noise.

There are two alternative interpretations of this specification that are of interest. First, the binary model is often motivated as a latent variables specification. Suppose that there is an unobserved latent variable Li^* that is linearly related to x:

$$Li^* = x_i'\beta + u_i$$

where u_i is a random disturbance. Then the observed dependent variable is determined by whether Li^* exceeds a threshold value:

$$Li = \begin{cases} 1 & \text{if } Li^* > 0 \\ \\ 0 & \text{if } Li^* \leq 0 \end{cases}$$

In this case, the threshold is set to zero, but the choice of a threshold value is irrelevant, so long as a constant term is included in x_i. Then

$$\begin{aligned} \mathbf{Pr}\ (Li = 1/ x_i, \beta) &= \mathbf{Pr}\ (Li^* > 0) \\ &= \mathbf{Pr}\ (x_i'\beta + u_i > 0) \\ &= 1 - F_u\ (-x_i'\beta) \end{aligned}$$

where F_u is the cumulative distribution function of u. Common models include probit (standard normal), logit (logistic), and gompit (extreme value) specifications for the F function.

In theory, the coding of the two numerical values of L is not critical since each of the binary responses represent an event. This restriction yields a number of advantages. For one, coding the variable in this fashion implies that expected value of L is simply the probability that L =1:

$$E\ (Li=1/\ x_i,\ \beta) = 1.\ \textbf{Pr}\ (Li\ =1/\ x_i,\ \beta) + \textbf{0}.\ \textbf{Pr}\ (Li\ =0/\ x_i,\ \beta)$$

$$= \textbf{Pr}\ (Li\ =1/\ x_i,\ \beta)$$

Thus, we have the second interpretation of the binary specification: as a conditional mean specification. It follows that we can write the binary model as a regression model:

$$Li = 1\text{-}\ F\ (x_i^{/}\ \beta) + \varepsilon_i,$$

Where ε_i is a residual representing the deviation of the binary y_i from its conditional mean. Then

$$E\ (\varepsilon_i\ /\ x_i,\ \beta) = 0$$

$$Var\ (\varepsilon_i\ /\ x_i,\ \beta) = F\ (x_i^{/}\ \beta)\ (1\text{-}\ F\ (x_i^{/}\ \beta))$$

Now we see the Probit, Logit and Gompit models

Probit $\mathbf{Pr}\ (Li=1/\ x_i,\ \beta) = 1\text{-}\ \Phi(\text{-}x_i^{/}\ \beta) = \Phi(x_i^{/}\ \beta)$ where Φ is

the cumulative distribution function of the standard

normal distribution.

Logit $\mathbf{Pr}\ (Li=1/\ x_i,\ \beta) = 1\text{-}\ e^{\text{-}xi/\beta}/\ (1\text{+}\ e^{\text{-}xi/\beta})$

$= e^{\text{-}xi/\beta}/\ (1\text{+}\ e^{\text{-}xi/\beta})$ which is based

upon the cumulative distribution function for the

logistic distribution.

Extreme value $\mathbf{Pr}\ (Li=1/\ x_i,\ \beta) = 1 - (1\text{-}\ exp\ (\text{-}\ e^{\text{-}xi/\beta}))$

(Gompit) $= exp\ (\text{-}\ e^{\text{-}xi/\beta})$ which is

based upon the Cumulative Distribution Function (CDF)

for the Type-I extreme value distribution.

Note that this distribution is skewed.

Note: Interpretation of the coefficient values is complicated by the fact that estimated coefficients from a binary model cannot be interpreted as the marginal effect on the dependent variable. The marginal effect of x_i on the conditional probability is given by:

$\partial\ \mathbf{E}\ (L|\ x,\ \beta)\ /\ \partial\ x_j = f\ (\text{-}x^{/}\ \beta)\ \beta_j$

where $f(x) = dF(x)/d(x)$ is the density function associated with F. Note that β_j is weighted by a factor f that depends on the values of all of the regressors in x. Note also that since the density function is nonnegative, the direction of the effect of a change in x_i depends only on the sign of the β_j coefficient. Positive values of β_j imply that increasing x_i will increase the probability of the response; negative values imply the opposite.

An alternative interpretation of the coefficients results from noting that the ratios of coefficients provide a measure of the relative changes in the probabilities:

$$\partial\, E\,(L\,|\,x,\,\beta)\,/\,\partial\,x_j\,/\,\partial\,E\,(L\,|\,x,\,\beta)\,/\,\partial\,x_k\ =\beta_j\,/\,\beta_k$$

5.9   Conclusion:

These four functional models can be further manipulated to get accurate exact impact of sales force automation on sales, sales process, salesmen performance and customer relationships of PTC. The nature of our dependent variables and specially our research query is such that the effects of independent variable cannot be isolated from each other. In other words, we cannot pinpoint the changes in dependent variables on just one independent variable in any other way then what is already done here. We have to study and statistically study PTC's sales process efficiency and its relationship with automation. And this effort i.e. our effort, could be a good start. With a better and full access to the PTC's databases and a bit of variable manipulation in our model, it will be easy to get exactly what we want. However, for this level of research, ample work has been put forward.

CHAPTER 6: ANAYLSIS, CONCLUSION & RECOMMENDATIONS

Summary of the Chapter:

This chapter presents a final analysis and the results of the field research with a brief conclusion and some valuable recommendations for PTC.

6.1   Analysis of the impact of Automation on PTC's Sales and customer Relations:

Before researcher launches himself into dissecting and analyzing all that has been gathered through qualitative observations given by all the SFA-concerned people of PTC and AC, let us look at the commonly established general industry statistical-benefits of automation of sales and sales force. According to Janice Reynolds, a CRM and Sales automation Industry expert and well known author, automation of sales and sales related process generally have the following impact on the organization that impalement a good solution:

❖ 10% increase in gross sales revenue per sales professional

❖ 5% decrease in cost per sale mainly due to the ability to target specific suspects, prospects and the customer.

❖ 5% or more increase in closed deals because of the targeted approach allowing sales staff to concentrates on contacts that are more likely to result in a done deal

Now in PTC's context such aggregated details are not available to support the fact that SFA indeed increases efficiencies in sales process and enhances customer relations and loyalty, but there is a lot of observational research on qualitative factors and elements. Nevertheless let's look at, in tabulated[30] form, the quantitative & qualitative differences between pre and post SFA scenarios at AC as studied and surveyed through our research.

Table: 1   Positive Impact of SFA-as per our hypothesis statement in chapter 1

Sr. No	Factors/ variables[31] Impacted	Before SFA	After SFA	Impact/ Change (approximated)
1	# of orders per day	35-40	40-45	+13.39%
2	Avg. size of the order	Not Disclosed	Not disclosed	+20%
3	Number of shops visited per day(Avg)	40-45	50-55	+23.5%
4	Number of days worked	6	6	0%
5	Actual selling time	4-5 hrs	6-7 hrs	+45%(approx)

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[30] Table 1 & 2 both present data in favor of our hypothesis stated in first chapter. Analysis is give in sub-sections 6.1.1, 6.2.2 and 6.1.3 of this chapter

[31] These variables/factors were measured over different qualitative and quantitative scales and synchronizing the result in similar (one-identical) unit was not possible because of the nature of queries asked, and variables themselves.

	per day			
6	Non selling time(paper work-time wasted) per days	Approx 120 minutes	15 minutes	-88.00% (8 times less)
7	Total expenses	Increased	Increased	Not disclosed
8	Advertising display set up time	Less(1)	More/substantially increased (100)	+100%
9	Perusal meetings-relationship development with customer	1	100	+100%
10	Training provided to retailers	Average((Not disclosed)	Increased	Twice
11	Value adding services	Average	Increased	Twice
12	Time saved by salesman in office-paper work	3 hrs per day	15 minutes(approximate)	12 times less
13	Time saved by KPO(Key Punch Operator is AMC's	3 hrs	Less then a minute (approximate)	100% saving of time

	data operator)			
14	Customer perception of trust due to PDAs	0	100	100% increase
15	Theft & error reduction	Not disclosed	V. Good	Very good/substantial
16	Ease in customer/order/inve ntory management	Not good	Very good/excellent	100% improvement
17	Critical Summaries, reports, up-to-date data availability	Not Good/tim e consumin g	Excellent	100% improvement
18	Market value	Good	Excellent	100% Excellent
19	Image enhancement	Good	Excellent	100%
20	True Picture of market	Good	Excellent	100%

Source: Interviews with several managers and supervisors at PTC and AC

Most of these variables are mix and match of qualitative and quantitative nature.

There are few sharp outcomes of automation at PTC on the sales itself, the processes

of sales and the people related with it. A simple basic feature of any automaton

relating to CRM is that it most essentially affects three core fundamental building blocks of the organization and they are:

1. the people

2. the processes

3. and the legacy systems (techno-ware, both soft and Hard)

In our case, we are interested only in studying the impact of sales force automation on a particular process and every thing that is influenced by or attached to it. More objectively, SFA is a subset of CRM and with in SFA's domain, while we are at it exploring the sales process changes and changes in customer relations, we can also look at other related basic elements like the people, and the impact on legacy systems.

6.1.1 The change in the process, People and the Legacy systems:

As mentioned before and specially in chapter 4 of this study that all of these basic elements have beneficially changed towards building a vantage point of PTC and AC. The summary of these changes are observable on three fronts, The Organization-PTC, the distributor-AC and the Customers-Retailer shop keepers. Some of these observations may look redundant, but they are reported the way they are in reality and certainly, redundancy does not make them in-eligible to report, it just shows the frequency of occurrences. These benefits to three main players are summarized in the table below:

Table: 2 Analysis of Benefits (in favor of the hypothesis stated in the chapter 1) of SFA to PTC, AC and Retailers.

Sr.NO	Variables/ Elements	PTC-Organization	AC- Distributors	Customer-Retailer
1	Increased Coverage area of Sales man	Increased volume of sales/sales growth	Same as PTC+	More Availability of sales man
2	Increased time saving from the core process of selling to increase value added services for retailers	Increased Relations building/More loyalty	Same as PTC+	Customer satisfaction/getting value for their money
3	Increased/better image due to PDA/ sophisticated force	Goodwill enhancement/brand equity building	Good will+ more self value/ job satisfaction	Trust due to less human error and proud to be a channel member
4	increased Databases viability/strength and availability	True Picture-at finger tips/know where they stand	Same as PTC	Increased trust on company record keeping

5	Record management:	❖ accurate distributors sales records ❖ customer/brand wise sales trends ❖ claims and free stock tracking ❖ salesman wise sales records	❖ customer a/c ❖ customer lists Merchandising All these elements increase distributors productivity	Trust and confidence
6	Time saving	❖ accurate reports/data available on one click-fast decision making	❖ Increases over all sales ❖ KPO(key punch operator) time saving Increases distributor productivity	Trust, confidence and relationship building
7	Planning	❖ Promotions and campaigns easy now ❖ Distributors working strategy available	Distributor can prepare his own forecasting and trend and shipment plans.	Trust, confidence relationship enhancement-loyalty enhancement

		❖ Sales man targets and competition planning		
8	Evaluations	❖ Distribution evaluations against target made easy ❖ Channel wise sales and shares	❖ Sales man evaluations ❖ Periods specific customer evaluations	Trust, confidence relationship enhancement- loyalty enhancement
9	Report	❖ Accurate sales report ❖ Outlet wise summary ❖ Automated forms availability ❖ Market share reports- competition analysis	❖ Sales tax calc easy ❖ Area/market wise sale report ❖ On hand monitoring	Trust, confidence relationship enhancement- loyalty enhancement

Source: Interviews with several managers and supervisors at PTC and AC

6.1.2   Net Result 1 : A Direct Impact On PTC's overall Sales Figures:

The data is more then sufficient to build a strong case for automation and incur relevant costs of one million or more. As per the direct impact on sales volume and growth,

according to a rough estimate there has been a sale of approximately twenty six million sticks of cigarette in the year since after the automation of the sales force at AC in Islamabad as compared to a 22.5 million sticks before the automation (KPO Islamabad). That is an increase of approximately 15.5% with in a year time. However, researcher cannot attribute all that growth to only one factor like automation or technology, it could be any one or a combination of the following factors that could be responsible for such a growth for instance, growth in population, government policies, preference of consumers to smoke, lifestyles and changes in disposable income. That is one of the reason that we need sophisticated econometric modeling to isolate the variables with the percentage change and impact they make on dependent variables. The magnitude and direction of the change is studied in such models and final culprits are exactly isolated

6.1.3   Net Result 2: A Direct Impact on PTC's Customer Loyalty:

In more then real sense, what else could better be construed of 15.5% growth in volume of sales-that is if we hold everything citrus paribus /constant- as that this is an increase in customer loyalty for The PTC? Customer loyalty that goes through what may be 6-8 stages before it actually materializes. Its where PTC:

1. differentiate its tobacco products according to customer needs giving that special processing to its leaf
2. offers unmatched convenience through customer knowledge that is finely integrated into its business processes
3. cross sells and up-sells its enhanced products to its retail customers
4. encourages incentives on increased sales per end customers

5. creates adaptable customer service competencies through enhanced customer knowledge in its organization

6. continually meet the changing need and perception of the end users

7. incentives to internal customers to retain the external ones

PTC engages itself in these or some of these steps with the help of well integrated automated processes inclusive of SFA and is able to create a loyal customer base. The outcomes of automate sales processes in collaboration with these multi dimensional stages is not very murky in nature as it seems so.-that is its increased customer loyalty or enhanced customer relationships. But you get to grow sense of it while you are at it as the nature of topic is abstract as well as hard to scale up to. According to PTC's managers there customer relations have grown excellent as result of the deployment of PDAs.

6.2   Conclusion:

The analysis in section 4.7 of chapter 4, table 1, table 2 and subsequent sections namely net result-1 and net result-2 of this chapter (chapter 6) confirm our hypothesis stated earlier in the chapter one. By looking at these qualitatively measured variables we can safely say that SFA bears positive impact on overall sales, sales process efficiency, sales-man performance and customer relationship/loyalty. It shows that a successful business model has been adapted by the PTC for its distributor partners and by the distribution Partners for its retail buyers. We conclude our study by positively asserting our fundamental research

topic that the sales force automation at PTC has definitely enhanced its customer relations and increased its sales efficiency.

However, under upcoming tough WTO scenarios strong new foreign competitors are expected to land on Pakistani soil such as Phillip Morris and also the possible adaptation of relationship technologies by PTC's existing competitors, PTC still need to enhance and reinforce its marketing and related technologies, adapt them to the full scale even at premium costs and above all work on its enterprise wide customer relationship focus and strategies.

Some valuable recommendations are added as a separate section in this chapter. The section 6.3 encompasses all that can be possibly adapted by PTC in reality and customer oriented strategic focus has been emphasized and enumerated in length.

6.3   Recommendations:

How do we give recommendations to a value leader about the value leadership? The answer is Simple and straight, by asking them to retain their leadership. Just reinforce on what they are doing, rather, extend their capabilities to become matchless and non-copy-able by the competitors. This occurs only once you build your functional strengths into your core competencies and into your organizational coordinated abilities. PTC already has most of it in form of the best practices organizations in Pakistan. The Class A certificate in their MRP-11, An ERP (enter resource planning) is already a land mark achievement which need to be reinforced by integrating forward with their channel partners. In this regards researcher strongly recommends that:

1. A full enterprise-wide CRM system must be studied and implemented, with complete back end support of data ware-housing solutions for the decision makers.(remember breadth-taking, breakthrough technologies).The details of the benefits of this recommendation are explained one after another from bullet 4 to 7.

2. More advanced SFA solutions with fully wireless- mobile connectivity to central databases are available. It is time for PTC to replace existing technology with them.

3. A full enterprise-wide backward (suppliers) and forward (distributors, agents) integration of databases and IT systems.

4. A complete web enabled extranet/intranet, enterprise-wide web connectivity and enablement for backward and forward partners.

5. PTC must use their existing relationships to maximize revenues. PTC should focus on establishing stronger relationships with existing customers, retaining "good" customers, and weeding out "bad" ones. The lifetime value of a customer defines his or her value to PTC's business, and maximizing relationships between PTC and customers with high lifetime values through up-selling and cross-selling through CRM-SFA technologies can push average revenue per existing customer. With CRM/SFA, customers' lifetime value can be maximized by retaining them at previously impossible retention levels. At the same time, acquisition costs for existing customers are leveled down to almost zero for new sales of new products or new brands that PTC will or can sell.

6. PTC should use customer knowledge to consistently deliver excellent products with impressionable services. The implementation of effective CRM & Advanced SFA solutions should surprise PTC's customers with how well PTC knows them. It must help overcome the often-observed frustration that customers have in repeating the same information to different departments, if there is any. When knowledge about an individual customer aggregates over time and allows the company to deliver personalized service, it increases switching costs for the customer. This lock-in arises from the customer having to explain his needs over again to a prospective seller.

7. PTC should develop repeatable sales processes. Effective SFA/CRM facilitates integration of customer knowledge through supporting technology (Itself under present circumstances) and allows companies to use knowledge of past transactions to effectively sell to both new and existing customers. Effectively integrating knowledge management and CRM means that PTC's customers can expect to have consistent, dependable, and accurate answers to their questions in every interaction with PTC or one of their channel members. A long-term customer-centric CRM perspective facilitates usage of accumulated knowledge about the customer for building a more intimate, value-added relationship

8. PTC must deliver value and develop customer loyalty. Loyalty can be stimulated by proactively using collected information to resolve issues before they become problems. Further, by showing the customer that PTC knows them, and offering

products and services that already consider their needs, PTC can help establish

dependence on their products/brands over time.

CHAPTER 7: GLOSSARY

BAT   BRITISH AMERICAN TOBACCO

PTC   PAKISTAN TOBACCO COMPANY

LTC   LAKSON TOBACCO COMPANY

ITB   INTERNATIONAL TBACCO BRANDS

CRM   CUSTOMER RELATIONSHIP MANAGEMENT

SFA   SALES FORCE AUTOMATION

SLASH   SALES AUTOMATION SOLUTIONS FOR HANDHELDS

OLS   ORDINARY LEAST SQUARES

GLS   GENERAL LEAST SQUARES

PMI   PHILIP MORRIS INDUSTRIES

ATT   AFGHAN TRANSIT TRADE

TM&D   TRADE MARKETING & DISTRIBUTION

AC	ASIF AND COMPANY
POP	POINT OF PURCHASE
OS	OPERATIG SYSTEMS
SQL	SEQUENTIAL QUERY LANGUAGE
GUI	GRAPHIC USER INTEFACE
PC	PERSONAL COMPUTER
OVAL	A PROGRAMING LANGUAGE FOR PALM DEVICES
MS	MICROSOFT
ASP	ACTIVE SERVER PROGRAMING
PERL	A LANGUAGE
PHP	COMPUTER APPLICATION
JSP	JAVA SERVER PROGRMING
DHTML	DYNAMIC HYPERTEXT MARKUP LANAGUAGE
XML	XTENSIBLE MARK UP LANGUAGE
PDA	PERSONAL DIGITAL ASSISTANT

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