Pricing and licensing of software products and services: A study on industry trends

by

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Submitted to the System Design & Management Program in Partial Fulfillment of the
Requirements for the Degree of

Master of Science in Engineering and Management
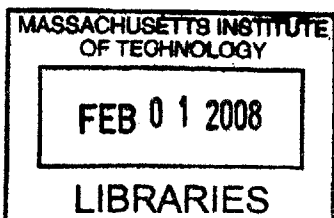
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Abstract

The software product business[1] reached the $150 billion mark at the end of 2005. The pricing and licensing of new products, maintenance services, services and service maintenance have become an important strategy to deliver smooth and steady revenue growth. The main objective of this thesis work is to observe the trends among various revenue prospects such as product sales, maintenance sales, service sales and service maintenance sales revenue. Both qualitative and quantitative analyses are pursued to achieve the research objectives.

The software industry has gone through several transformations from its debut. Initially, it started as service-oriented industry and then transitioned into a product-oriented industry and is currently transforming into a hybrid of both product and service industries. Just as the industry has undergone from a service to a product to a service (more like a hybrid) oriented industry, so too has the product licensing and maintenance licensing scenario been changing. Perpetual licensing has established its strong presence from the very beginning. While both single user and concurrent user licensing models were standard license offerings, concurrent licensing has been eliminated from the enterprise application segment. A usage-based licensing model is gaining popularity but perpetual licensing continues to be the preferred one.

Software firms sell a lot of products early on and fail to keep up the same rate of new sales to new customers. From the regression model, it was observed that the product sales as a percent of total sales decreased by 2.6% each year. As the firm grows older, the firm's rate of growth of product sales decreases. Also, product sales as a percent of total sales increased by 0.88 % for each percentage increase in growth of maintenance sales. Software firms are providing various contents that are included in the maintenance service. Maintenance discounting occurs but not comparable to new product discounting. Fix-time promise in maintenance rather than just the response time commitment is an emerging trend. Software firms are pushing premium maintenance services along with subscription-based licensing offerings. It was also observed that maintenance sales as a percent of total sales increased by 2.1% each year. Also, the maintenance sales as a percent of total sales increased by 0.42 % for each percent decrease in the growth of product sales. At the very early stages of the firm, rate of growth of maintenance sales is low and increases as the firm gets older.

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[1] Software product market referred to here consists of application software (enterprise, technical and entertainment software aimed at business and home users) and system/database management software

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Introduction

1.1 Background

The software industry is different from other industries because of its unique challenges and opportunities. A few of its opportunities include the infinite range of possible products and the very low marginal cost of making additional copies of the product. Few of its challenges are managing product development within the constraints of time and budget and managing software developers.

The software industry has already gone through a bubble, burst and a slow recovery from the burst. The industry started as a service-oriented industry and then turned into product-oriented industry and now it seems moving towards a service-oriented one again (Cusumano, 2004). Just as the industry has transitioned from service to product to service "...more like a hybrid" (Cusumano, 2004), so too has the product licensing and maintenance licensing scenario. In the early days, a single-user perpetual license was the only license offered. Eventually, firms started providing concurrent perpetual licenses. However, concurrent perpetual licenses became obsolete in some segments such as enterprise software applications. Today's customer wants to buy software products as needed rather than buy in bulk with a high initial investment. In today's world, both the macro economics and the micro economics are changing rapidly with a not necessarily promising business outlook. So buyers are becoming strategic and sellers can no longer commit to a pricing scheme. And so the conventional pricing and licensing of software products such as perpetual licensing becomes unsustainable in several situations. The customer needs a dynamic pricing and licensing scheme which provides flexibility to the buyer, is simple to understand and transparent to both buyer and seller. In recent years, usage-based license or term-based license is slowly but steadily getting popular. Though the perpetual licensing model still dominates with 67% of total licenses sold today, it is predicted that term-licenses will gain at least 17% over perpetual-licenses in next two years (Macrovision, SoftSummit, SIIA and CELUG, 2004).

As the industry is getting more and more mature, sales of new products become harder. Software vendors are shifting focus from product license revenue to maintenance license revenue. Competition is getting stiffer along with the maturity of the industry. So vendors are adding more functionality in order to differentiate their products.

In an ideal world, companies with higher percentage of new software license fees (product sales) have more growth and profit potential, especially in good economic times (Cusumano, 2004). However, in a bad economy, product sales get affected in a big way and maintenance sales provide steady cash flow. Software Maintenance Service has become an important source of cash flow. Vendors are providing more and more offerings such as free home usage of the software along with a standard maintenance license.

Software vendors are aggressively moving from shrink-wrap, manual paper-based or dongle-based licensing enforcement to more digitized licensing enforcement process. With the internet gaining popularity, most vendors are moving towards digital product

activation or registration processes. In this process, the customer connects to the vendor's network and gets the activation key.

The question that arises out of this background is what will be the pricing and licensing model of software products for the coming decade and how will new models of licensing impact the top and bottom line of the firm.

1.2 Objective

This thesis explores the trends in pricing and licensing of software products and software maintenance services. While conducting the trend analysis, the thesis also focuses on a snapshot of the industry offerings on new product licensing and software maintenance services. This research focuses on both qualitative and quantitative analyses of software products and maintenance pricing and licensing. From a quantitative aspect, this research focuses on how new product sales, maintenance service sales, profit margin and total sales have been affected by factors such as employee size, age of the firm, Y2K, macro economic factors etc.

This research also studied the following issues:

- The industry strongly believes that as the product sales grow, the maintenance sales also grow immediately or with a time lag. We evaluated whether it was true that when product sales fell, whether the total sales (sum of product revenue, maintenance revenue and service revenue) also fell?

- Factors impacting total revenue (sum of product revenue, maintenance revenue and service revenue) of the firm if the firm is transitioning from a perpetual to term license model?

- Impact of term license on the software maintenance service revenue

- Dominant software pricing and licensing models in the coming decade

1.3 Approaches

The primary starting point for this research was the significant development work coordinated under the auspices of The MathWorks during my summer internship. Further research was conducted through literature surveys in academic and business journals. In addition, market research was conducted with key software firms to forecast the future product and maintenance licenses offerings and trends. Trends in product and maintenance sales revenue were analyzed based on regression analysis to explore the relationship between product sales revenue, maintenance sales revenue and other financial and non-financial factors.

1.4 Structure of the thesis

Chapter 1 provides an introduction to the motivation of the thesis research and outlines the focus area of investigation. It showcases how the software industry is transitioning from a product-based to service-based or hybrid industry and how the pricing and licensing model is also changing. It describes the objective of the research and the approach that will be adopted in this research.

Chapter 2 summarizes the results of the literature review to understand the evolution and the trends in the software industry, industry segmentation based on product function, revenue segmentation and opportunities and the challenges that the industry faces.

Chapter 3 describes the research methodologies in detail. It explains the data collection process, data validation process, modeling and analyzing the data and concerns on this research.

Chapter 4 provides overview on new product license model. It explains types of new licenses, various offerings in detail, new license revenue trends, impact of revenue on transitioning from perpetual to term license and myths on new license models.

Chapter 5 provides overview on software maintenance services (SMS), the cost factors of SMS, variability in the content offering with SMS, pricing of SMS, trends around SMS, the regression analysis on SMS revenue and the impact of term license on SMS revenue.

Chapter 6 presents conclusion of this research with recommendations for future work.

1.5 Chapter summary

This chapter provides an introduction to the motivation of the thesis research and outlines the focus area of investigation. It showcases how the software industry is transitioning from a product-based to service-based or hybrid industry and how the pricing and licensing model is also changing. It describes the objective of the research and the approach that will be adopted in this research.

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2 Literature Review

2.1 Software industry

There is no doubt that computers have affected the way we live. Based on the 2000 census report, 51% of US households or 54 million US households have at least one computer, 55 million people surf the internet and almost all businesses have web sites (US Census Bureau, 2001). The ways computers are utilized are: by government – to assign social security numbers, cut welfare checks, compute and collect tax, navigate space shuttle etc.; by hospitals – to conduct medical examinations, maintain patient records etc.; by retailers – to manage inventory, prepare receipts, charge credit cards etc.; by banks – to record transactions, generate statements, and operate ATMs etc. and so on.

Until 1981, manufacture of computer hardware was a closed system (based on proprietary technology where all the components were designed and produced by the manufacturer). In 1981, IBM's personal computer was released incorporating Microsoft's MS-DOS. Immediately, clones of IBM PC were produced. PCs popularity prompted software companies to develop products compatible with PC. Years 1998-2000 saw the largest growth in software industry. While most other industries have only one SIC code, Software industry stands separate with several SIC codes, for example:

7371: Computer programming services,

7372: Prepackaged software,

7373: Computer integrated system design (development, modification and integration of software to serve networks),

7375: Information retrieval services.

The global software product market grew by 5.2% in 2005 and had reached a value of $155.2 billion by end of 2005 (Data Monitor, 2005). According to this report, the software product market consists of application software (enterprise, technical and entertainment software aimed at business and home users) and system/database management software. Market value figures are assessed at manufacturer selling price (MSP), based on revenues from software sales and licenses. System software accounts for 54.6% of the market's value ($84.7 billion in 2005) whereas application software sector was worth $70.5 billion which represents 45.4% of the market value share. The global software industry is dominated by a small number of very large firms. Industry leaders in the software industry are: Microsoft, Oracle, IBM, SAP, Adobe, Symantec etc.

2.2   Industry segmentation

Software industry is further segmented into three broader categories: application software, application development and deployment software and system infrastructure software.

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                          ┌─────────────────────────┐
                          │  Software Segmentation  │
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Applications	Application Development & Deployment	System Infrastructure
Consumer Applications	Information & Data Management	System & Network Management
Collaborative Applications	Application Development Software	Security Software
Content Applications	Application Lifecycle Management	Storage Software
ERM Application	Application Deployment Software	Networking Software
CRM Applications	Other Development tools	System Software
SCM Applications	Information Access & Delivery Software	
Operations & Manufacturing Applications		
Engineering Applications		

Figure 1: Software Segmentation [Source: IDC's software taxonomy, 2005]

Application software and Application Development and deployment software market consists of enterprise software and personal software with a total market value of $64.4 billion in year 2004. Enterprise software accounted for 52.5% and personal software accounted for 47.5% of the market. Microsoft is the industry leader in application software with market share of 17.8% followed by Oracle and SAP with market share of 6.3% and 4.6% respectively (Data Monitor, 2005).

The system infrastructure market is highly consolidated with total market value of $79.3 billion in 2004. Microsoft, IBM and Oracle alone comprise 53.5% of the market with Microsoft leading the group with 26.6% of market share, IBM with 19% market share and Oracle with 7.9% market share (Data monitor, 2005).

2.3 Revenue segmentation

Software revenue can be segmented into 4 categories as product sales revenue, software maintenance sales revenue, software service sales revenue and service maintenance sales revenue.

Revenue from product sales is the amount paid by the customer to the software vendor for the right to buy or get the license to use the software. In this thesis, from the sample data of 86 firms with revenue data ranging from 1992 to 2004, the average percentage of product sales revenue was 48%.

Revenue from software maintenance is the amount paid by the customer to the vendor to receive periodic patches and upgrades as well as any issues with the software programs. In this research sample data of 86 firms with revenue data ranging from 1992 to 2004, the average percentage of maintenance sales revenue as a percent of total sales is around 31%.

Revenue from service is the amount paid by the customer to the software vendor for customizing, personalizing or implementing the software programs in order to perform the customer's desired functionality. In this research sample data of 86 firms with revenue data ranging from 1992 to 2004, the average percentage of service sales revenue is around 21%.

Revenue from service maintenance is the amount paid by the customer to the software vendor for fixing the software program should it get out of order or broken as well as performing the routine actions which keeps the software program in working order and preventing problems.

2.4 Concerns and or issues

In good economic times, firms with higher percentage of new product sales have more growth and profit potential. However, in bad economic times, customers do not buy new products. Companies that completely depend on new product license experience drastic drop in sales revenue. In order to have a predictable and smooth revenue projection, software companies rely on software maintenance, software services and service maintenance even though they are labor intensive and yield lower profit margins.

2.5 Chapter summary

This chapter summarizes the software industry, software industry segmentation, various sources of revenue and opportunities and challenges the industry faces. It also describes the literature review to understand the evolution and the trend in software industry.

3 Research methodology

This research conducted in this thesis involved gathering data, validating data, and modeling and analyzing the data both from qualitative and quantitative standpoints. Data gathering process included various techniques such as web search, telephonic conversations with sales representatives, intelligence database in pricing and licensing and income statement of various public companies. Both Monte-Carlo simulation and panel regression models were used. Monte-Carlo simulation was used to observe the impact of transitioning from a mainly perpetual-license base to mainly term-license base. Panel regression of the income statement data was conducted to observe the trends in product sales, maintenance sales etc.

3.1 Data gathering:

Data was gathered for each of the companies listed in Appendix - B using the following resources:

- Corporate website search: Performed extensive research at each company's website to identify detailed information regarding each company's pricing and licensing model. This includes review of specific product pricing under each license option available through the web store, review of press releases for license model-related news, and review of the company's software license agreement (SLA) when available. This information was available to various degrees from company-to-company.

- Additional web research: In addition to reviewing company websites, substantial effort was invested in gathering information through these data sources:

  o Forms 10K and 10Q as reported to the SEC by publicly traded companies: The level of license model disclosure varied considerably from company to company; however, in some cases we gathered valuable information regarding companies' license model components and the rationale for pursuing such a strategy.

  o Hoovers Online: Performed a search on Hoovers for each of the sample companies. Hoovers online provides comprehensive reports for most companies, including overviews of the company, its products and competitors, recent financial performance and key people.

  o Google searches: For each company we performed a Google search for pricing and licensing detail by product. This sometimes revealed pricing and product information at retailer/resellers websites.

- Firm's revenue/income statement data from Prof. Michael Cusumano:
  o Prof. Michael Cusumano's intelligence database;

- Telephonic/email contact with Company sales representatives:

  o Approached most (but not all) companies' sales forces via phone or email. Began with an introduction as a graduate student at MIT.

  o Most sales reps were willing to share pricing and licensing. While the sales reps often did provide quality information, it was limited to North America and off-the-shelf software. Generally, I did not have much success gathering enterprise pricing information or details regarding global/international pricing.

o   Collaborative conference calls with licensing peers: Held two calls with managers, Pricing/Marketing at Adobe and PTC to discuss pricing & licensing practices. These calls provided valuable qualitative data and historical information on the evolution of each company's license model.

3.2   Collected Data

The data collected through various web searches, conference call and web store experience provided a snapshot of software pricing and licensing across various product/function segments. Once the data gathering phase was completed, a short (2-3 page) profile of each company was written, using the following format:

- Company background;

- License model overview;

- Maintenance/support offerings;

- Promotions and discounts;

- Other

Please see Appendix E o review the Company profiles.

The above data provides a snapshot of the software pricing and licensing arena and the software companies' financial details from 1992 to 2004 as provided by Prof. Michael Cusumano was used to perform the regression analysis to discover the trend in the industry from a pricing and licensing point of view. Financial data consists of time series financial data such as market capitalization, product sales, service sales, maintenance sales, service maintenance sales, other sales, product cost, service cost, maintenance cost, service maintenance cost, other cost, cost of sales in pro forma and GAAP, gross income, net income, operating income, gross margin, whether the company still exists, employee head count etc. This database contains information on a total of 86 companies' financial data out of which 54 companies are still functioning and 32 companies no longer exist. However, out of the 54 companies still in business, only 23 companies reported sales by breaking down the revenue from product sales, service sales, maintenance sales, service maintenance sales and other sales for the time period of 1997 to 2004 consistently. In order to perform the trend analysis, this research takes account of these 23 active companies' financial data from year 1997 to 2004. Please see Appendix C for all data types that were used.

3.3   Modeling and analyzing the result

Analysis of the data collected through various web searches, conference calls and web store experience gave a snapshot of software pricing and licensing and various literature searches on software pricing and licensing gave some qualitative answer to the trend in pricing and licensing. Moreover, regression analysis of the software company's financial details from year 1997 to year 2004 provides various trends in the industry from pricing and licensing point of view. Panel regressions with various input variables were conducted to observe the trend.

A selected company's revenue data such as number of licenses sold per product per quarter, number of maintenance licenses sold per product per quarter, price of products and maintenance, observed and expected growth rate of the company, observed and expected growth rate of the function specific industry segment etc were used in the modeling exercise. This company's revenue was primarily from perpetual licenses. A model was developed using Monte-Carlo simulation to observe the revenue impact if the firm wanted to switch its revenue base mainly from a perpetual-license base to a term-license base.

3.4   Concerns and or issues

Revenue data from 23 companies for the year 1997 to 2004 were used to perform panel regression. It is possible that that those 23 companies (from the total of 86 companies studied) that reported the break down of total revenue (into product sales, service sales, maintenance sales and service maintenance sales revenue) did so in order to provide positive information (bullish forecast) about these companies to investors. In other words, these companies might be highly correlated in some respect and these firms may not represent the population of the software industry. If that is the case, then further research should be conducted to validate the conclusions of this research work.

3.5   Chapter summary

This chapter describes the research methodologies in detail. It explains the data collection process, data validation process, modeling and analyzing the data and concerns and or issues on this research.

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4 New License

4.1 Types of new licenses:

Diversity! Combinations of license attributes provided by sample vendors yield a wide spectrum of license offerings. License attributes can be segmented as license options, license terms, installation types, payment methods, terms and compliances and product flexibility.

Individual	Group	Concurrent	Enterprise/Site	**License Options**
Term: < 1 year	Term: Annual	Term: Three years	Perpetual	**License Terms**
Designated Computer	Standalone Named User	Network Named User	Concurrent user	**Installation Types**
True-up	Pay-as-you-go		Financing	**Payment Methods**
Shrink-wrap agreement	Contract	Dongles	Activation	**Terms & Compliance**
Product-specific licenses/keys	"Product-agnostic" (tokens)		Remix capability	**Product Flexibility**

Figure 2: License attributes

<u>License options:</u> Various types of license options are individual, group, concurrent and enterprise-wide licenses.

Individual or single-user license, as the name implies, gives the licensee the right to install, administer and operate the software only by him/her. This license is also known as the named-user license. Software may only be installed and operated on one or more individual, standalone computers, provided the software programs are only accessible to, and operated by, the named user for that license

The group license option provides the right to use the software programs by a combined work group of named users, up to the maximum number of named users licensed to use each program. The total number of named users of each program on a license does not exceed the number licensed for each program.

A concurrent license provides the right to use the software programs at any time up to the number of concurrent keys acquired for the program. The licensee may have only as

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many licensed users simultaneously operating a software program at any given time based on the number of concurrent keys acquired for that program. Portions of the programs may be installed on individual computers to accelerate startup times, as long as the installations on the individual computers are controlled by the license manager on the network server. Most vendors restrict the concurrent license program to users within one country only.

An enterprise license entitles the licensee to allow all staff members from licensee's enterprise to have access to the software programs. However, it can not be distributed to anyone outside the organization. However, most vendors restrict the enterprise license within a country.

License Term: An important attribute of the software license agreement is duration or term of the license. Perpetual license provides the licensee to use the software programs without any time duration restriction where as term license provides the use of the software programs within the duration specified in the agreement and licensee looses the right to use of the software after that duration. Typically, the durations are 1 year, 3 years and 5 years. However, some specialized software programs are also sold for weekly, monthly or quarterly basis. Licensee will not have the right to use the software programs after the duration of the term.

Installation type: Types of installation that are provided by the vendors are: designated computer, standalone named user, networked named user and concurrent user license.

The designated computer license option allows the licensee to install the software program on a specified computer and irrespective of the number of users. However, a designated computer license can not be installed on a server or distributed computing environment that will allow sharing the computer system by another user.

A named user standalone license allows the licensee to install the software program on a computer system that is not connected to any local area network which may facilitate other users to use the software programs.

A named user network license allows the licensee to install the software programs on a networked system that can only be used by a designated or specified named user. However, that software program can have access to other software programs that are running in the same network but other users will not have access to use this software.

A concurrent license option allows the licensee to install software programs in a central location on a single designated network server. Licensee may have only as many licensed users simultaneously operating a software program at any given time based on the number of concurrent keys acquired for that program. However, portions of the programs may be installed on individual computers to accelerate startup times, as long as the installations on the individual computers are controlled by the license manager on the network server. Most vendors restrict the concurrent license usage to users within one country.

Payment methods: Software licensing may have various payment methods associated with it. These are true-up, pay-as-you-go, financing or without any financial support.

True-up allows the user to add more users to the existing software license with the predetermined price to accumulate the volume discounts. Another true-up scenario is one in which the user initially purchases a lower edition such as standard edition software program license and has the right to upgrade to a higher edition such as an enterprise edition by paying the difference in amount between the product and its upgrade.

Pay-as-you-go allows the licensee to pay based the usage. The usage may be based on total number of license or cost of goods sold etc. Most of the vendors increase the license fee as the usage increases but do not reduce the license fee as the demand decreases.

Financing is another type of payment methods which allows the licensee to pay the license fee in monthly, quarterly or on a yearly basis with or without any discount on interest payment. In other words, licensor finances the licensee upfront and the licensee pays within a certain time period.

Terms and compliances: Various types of terms and compliances of the software program license that are provided by different vendors are shrink-wrap, contract, dongles and activation.

A shrink-wrap type license agreement binds the licensee after the software product wrap is opened. The outside of the box contains a legend stating that the product is subject to license terms available for review after the wrapped box is opened . Shrink-wrap licenses are qualitatively different from standard form contracts and are unenforceable under traditional contract principles because the buyer does not consent to their terms or reach a meeting of the minds with the vendor.

Under the contract type license agreement, the licensor and the licensee agree upon the conditions that are stated on legal paper and with both parties having signed on the agreement.

The dongle based license agreement allows the licensee to use the software program only when the dongle is present. The dongle is a hardware based device which must be placed on the USB/serial/parallel port of the computer for the program to function.

In a product activation type license, the licensee must connect to the licensor's network and get the license key to activate the product and only then is the user allowed to use the software program.

Product flexibility: Various types of product flexibilities observed are product specific license key, product-agnostic license key such as tokens and product remix capabilities.

Product specific licensing provides the license key that allows licensee to use a specific product provided by the vendor in case of vendor provides multiple products.

In product-agnostic licensing, customer buys a specific number of tokens and vendor specifies the number of tokens that are required to run a specific product. Hence, the licensee is not tied up with any specific product and based on the demand, the licensee uses different products. At any time, total tokens used for all the vendor's products will not exceed the total tokens purchased.

A product remixing capability allows the licensee to give up licenses of some products and receive in exchange the right to use some different products. Types of the products that can be added and the exchange values are determined based on the contract agreement.

Software vendors mix and match various types of these attributes to come up with custom made license types that can suit a specific industry, or a specific customers and or specific function.

4.2 Key findings on license Offerings:

4.2.1 Single User Perpetual License

Though new software pricing models based on term and metrics are rapidly gaining popularity, the most popular pricing model in use today is the single-user perpetual license and the concurrent-user license model. Enterprise users still prefer perpetual twice as much as subscription licenses (Macrovision, SoftSummit, SIIA and CELUG, 2004).

Our research revealed that, of the 19 firms surveyed:

- 17 firms provided some sort of "Individual" license;

- Of those 17 firms, 8 provide a user-based license ("named user" or "single user") license, 7 firms provide a machine-based ("designated computer") license, allowing only a single installation, and 2 are unknown;

- Of the 8 firms who provide user-based licensing:

  - 5 of the 8 firms allow a single installation;

  - 3 of the 8 firms provide more than two installations;

    - The MathWorks: Unlimited number of installations, the user can install the software wherever she/he works;

    - Insightful: Unlimited number of installations, but the user can only use one installation at a time;

    - RSI: RSI provides a user-based license limited to four installations.

- 2 firms offer only concurrent licenses (PTC and Synopsys);

- Only 1 firm (The MathWorks) provides the customer with the choice of selecting a Designated Computer installation type or Standalone Named User installation type.

Company Name	Designated Computer	Standalone Named User (2 Installations)	Standalone Named User (> 2 Installations)
The MathWorks			✓
Research System Inc (RSI)			✓
Insightful			✓
Wolfram Research		✓	
MathSoft Inc		✓	
National Instruments		✓	
Microsoft		✓	
SPSS		✓	
dSpace	✓		
Mentor Graphics	✓		
MSC Software	✓		
Symantec	✓		
Adobe	✓		
Oracle	✓		
Autodesk	✓		
Cadence	Unknown	Unknown	Unknown
WindRiver	Unknown	Unknown	Unknown
Synopsys	Not Offered	Not Offered	Not Offered
Parametric (PTC)	Not Offered	Not Offered	Not Offered

Figure 3: Single user Perpetual License

4.2.2 Term License

Term licensing is taking hold as a standard offering across much of this research sample. Some of the software vendors have successfully transitioned their license models from exclusively perpetual licenses to a mix of perpetual and term. By 2006, 50% of the total license will be some sort of term license (Macrovision, SoftSummit, SIIA and CELUG, 2004). As will be described in following sections, the findings of this thesis lend more credence to this prediction.

Of the 19 firms in this sample, 13 provide term license options as a standard part of their license models, while 6 firms do not offer term licenses of any kind. Of the 13 firms that provide term licenses:

- 7 of 13 firms offer three-year term licenses while 7 of 13 firms offer annual term licenses (1 firm offered both);

- 2 of the 6 firms that provide annual term licenses also offer "short-term" licensing (less than one year duration);
    - MSC Software offers weekly, monthly and annual license options;
    - PTC offers quarterly, semiannual and annual license options.

Meanwhile, 7 of the 19 companies in this research sample do not provide term licenses as a standard offering:

- The MathWorks;
- Symantec;
- RSI;
- SPSS;
- dSpace;

- MathSoft Inc;
- Adobe.

As the term license offerings are integrated in companies' license models, one can observe the change in revenue mix from perpetual toward term. This can be observed at Cadence, Mentor Graphics, Synopsys & Wind River. These are all companies with a large number of products and in the Engineering Design Application sector. For example, consider the change in Wind River's revenue mix over the past three years as it has implemented a subscription-based license option focused on enterprise-wide sales:

Revenue Type	2003	2004	2005
Perpetual	65%	57%	52%
Subscription	1%	10%	21%
Service (SMS)	34%	33%	27%
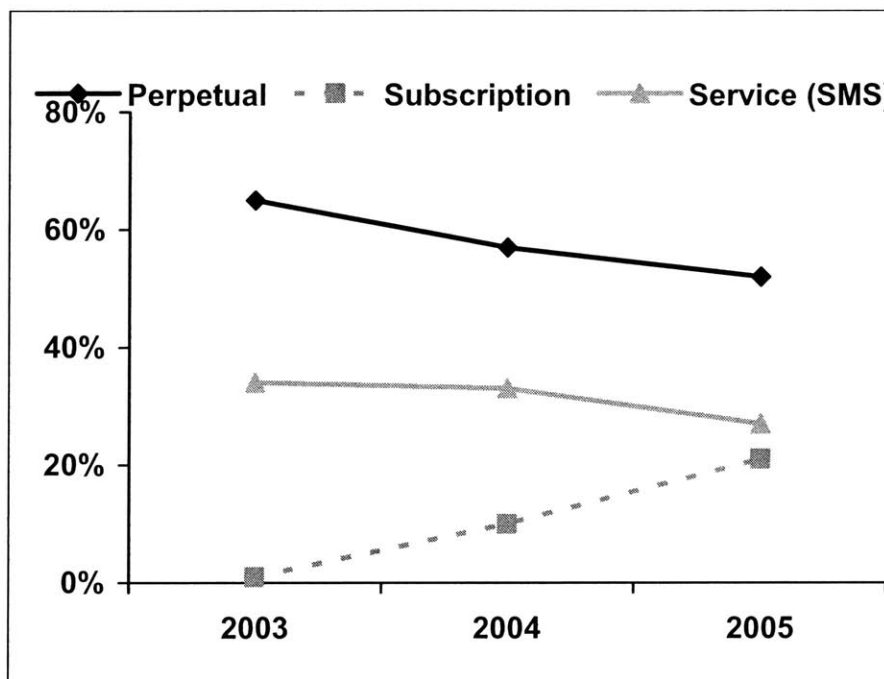
In addition, Wind River included the following commentary in its 10K regarding the evolution of its license model:

"We anticipate that we will continue using both our enterprise licensing and perpetual licensing models. However, the proportion of our business sold under the enterprise license model which is subscription-based is increasing and we expect that this trend will continue. We believe that the enterprise licensing model allows us to:

- Deliver key technology integrated into market specific platforms with less restrictive terms that more closely match our customers' needs;

- Expand opportunities with our strategic customers by offering a simpler and more cost-effective method of accessing our technology and services; and

- Better manage our business model within our strategic customer base and have increased visibility into our earnings stream."

The other companies referenced above appear to have introduced term licensing with similar intentions, for example:

- Synopsis: "We believe making this transition meets our customers' need while enabling us to preserve the value of our technology and enhance the predictability of our business."

- Mentor Graphics: "[Term licensing] provides customers with greater flexibility for product usage, including the option to share the products between multiple locations and reconfigure consumptions at regular intervals from a fixed product list. As customers move away from perpetual licenses and into term licenses, the renewability and repeatability of the Company's business is increased. This provides opportunity for increased distribution of young products earlier in their lifecycles."

While several companies appear to have successfully introduced term licenses into their respective license models, there is no clear consensus on the features of a term offering. Rather, there is a great deal of disparity on several variables, such as:

o Length of term: Ranging from monthly to annual to multi-year;

o Installation types: Some offer term licenses for enterprise-wide installations only (Wind River) while others offer term licenses as a standard installation type.

o Product-remix capability: Some firms allow the customer to remix the license profile during the term, while others do not.

Company Name	< Year Duration	1 Year Duration	3 Years Duration
MSC Software*	✓	✓	
Parametric Technology*	✓	✓	
Autodesk		✓	
WindRiver		✓	
Insightful		✓	
Cadence*		✓	✓
Synopsys*		✓	✓
The MathWorks			✓
Wolfram Research			✓
Microsoft			✓
Mentor Graphics			✓
Oracle			✓
National Instruments	Unknown	Unknown	Unknown

Figure 4: Term License

As the licensing paradigm is changing, most software vendors are not able to decide whether (and to what degree) the company should shift its revenue mix toward term licenses and become less dependent on perpetual license sales for future revenue growth. This discussion should also consider which customer types the vendor is attempting to target with a term option. For example, are the vendors trying to move perpetual customers to term? Or are the vendors attempting to gain new customers for whom their software programs have been price prohibitive? If the vendor's objective is to shift the license mix toward term licensing, the vendor should experiment with term license offerings that are more aggressively priced relative to perpetual licenses plus SMS to attract new customers and/or motivate some perpetual customers to make the jump to term licensing. Another dilemma that today's software vendor faces is whether to offer term licensing for all license options or to limit it to the large group of enterprise-wide licensees because the license administration becomes less cost effective with small customers and low product price points.

As term licensing becomes more prevalent in the software industry, the vendor will need to decide whether to aggressively pursue a term/subscription offering or risk being a late entrant in serving customers attracted to such a license option. The vendor will have to consider to what degree a term model would impact existing customer behavior, its revenue mix, and the Company's willingness to provide additional flexibility associated with remixing features and short-term (monthly/quarterly) licensing options.

4.2.3   Concurrent License

Concurrent licensing is a standard license offering for the Math & MBD, EDA and Mechanical Design markets, while it has been eliminated from the enterprise application segment.

This research reveals that out of 19 firms in this research sample:

- 14 firms offer concurrent licenses and 4 do not provide concurrent licenses (no information is available regarding concurrent licensing for 1 firm).

- Of the 14 firms that offer concurrent licenses, 11 also offer some form of individual license. Therefore the concurrent "multiplier" is known. The following chart exhibits the concurrent license multipliers for these firms relative to their individual license offerings:
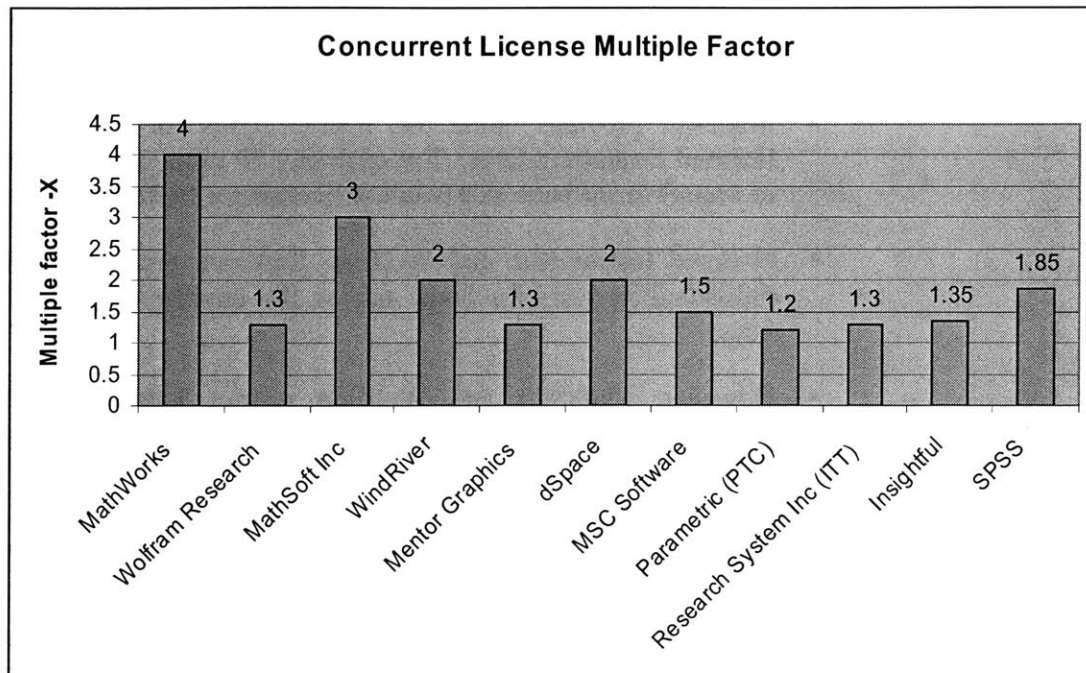
Figure 5: Concurrent License

Key findings for this subset of 11 firms:

- Mean concurrent multiple: 1.9X, with a median of 1.5 and standard deviation of 0.87.

- The MathWorks Inc. charges the highest concurrent multiple vs. Individual, at 4X. PTC charges the lowest concurrent multiple at 1.2X. However, this multiple is based on an individual license that is no longer actively sold, only maintained for SMS revenue purposes. As a result, PTC could have raised the Individual price over time to eliminate any negative feedback associated with the concurrent multiple.

- 82% of these firms have concurrent multiples between 1.2X and 2X

- All the Math & MBD, EDA, Mechanical design and Business analytics firms provide concurrent licenses and none of the firms from the Enterprise Application category provide concurrent licenses.

- Two firms (Synopsis and PTC) only sell concurrent licenses and do not sell named user or node-locked licenses. One should note that PTC still maintains Individual licenses but does not actively sell new Individual licenses.

- Microsoft was offering concurrent licenses for MS Office as late as 2000. Microsoft no longer sells concurrent licenses.

A small number of firms provide additional benefits beyond the standard concurrent offering:

- Three of the 14 firms who provide concurrent licenses also provide home use rights.

  - MathSoft provides home use license rights for twice the number of licensed concurrent keys. For example, 20 users can install a home copy of MathSoft software as a result of licensing a 10-key concurrent license;

  - National Instruments and Wolfram Research provide equal number of individual licenses for home use as the number of licensed concurrent keys.

  - However, MathSoft and Wolfram restrict home-use rights only to customers who are current on maintenance. This is similar to Microsoft's home use policy.

A single vendor (Synopsis) allows product remixing on their concurrent license, while National Instruments appears to be the only vendor to provide "pay-as-you-go" and "true-up" capability for its concurrent license. The companies who offer home use rights with concurrent licenses do not offer the "license borrow" function since they are using an alternative method to deliver off-network access.

For vendors with a high concurrent multiple, concurrent pricing likely inhibits market penetration in two ways. First, new customers may be unwilling to purchase the concurrent license due to the high concurrent multiple. Anecdotal information from sales representatives of vendors with high concurrent multiples describes situations where customers who might have previously purchased a single key to serve a small number of power users now purchase Individual licenses specifically for power users. This limits the vendor's ability to seed the market in new, smaller workgroups. Second, existing concurrent customers may be less willing to try a new product that runs with the existing product given the substantial investment associated with the concurrent key.

4.3 New License Revenue Trend Based On Regression Analysis:

In our database, we have both financial data (such as revenue data, cost data and profit margin data) and non-financial data (such as inception year, employee head count etc.) of 86 firms from 1992 to 2004. However, few data points for some firms and certain years are not available. In this analysis, only those firms are included for which we have continuous information on a recent time frame without any missing data points. We found that 23 firms have all the data points from 1997 to 2004. Also, it was observed that very few firms are disclosing the sales revenue of product, maintenance, service and others separately.

The regression analysis is based upon 23 firms' total revenue, revenue by product sales, maintenance, and service and other sales, age of the firm, total employee count of the firm and various profit margin indicators such as gross profit margin (based on GAAP) variables taken for the time series of 1997 to 2004. Based on the regression analysis, the findings were:

Finding 1 - Product sales as a percent of total sales decreased by 2.6% each year.

Intuition: Not all the firms are able to maintain their level of innovation as they get older. So, new product license sales tend to fall. It might happen that the firm's total revenue is increasing at a higher rate than that of new product sales. Or firms are not extending the product penetration into other industry sectors beyond its current presence.

Below is a plot of a sample firm (company id 6):
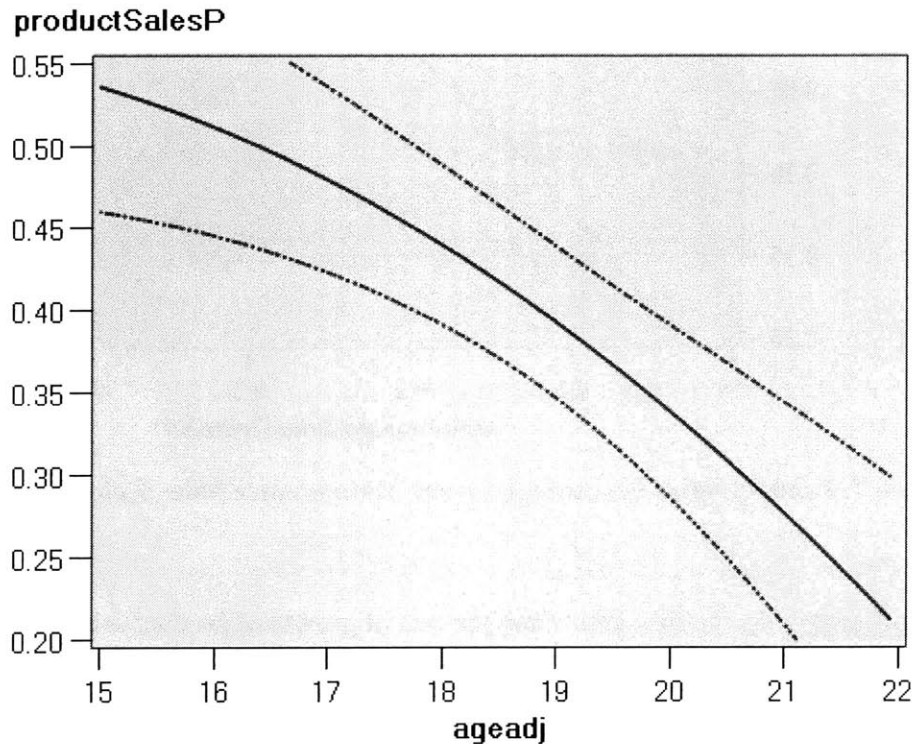
Figure 6: Product Sales Percentage versus Age

Finding 2 - Product sales as a percent of total sales increased by 0.88 % for each percentage increase in growth of maintenance sales.

Intuition: The growth in maintenance sales may not be contributing to the growth in product sales but the reverse may be happening.

Below is a sample plot of a firm (company id 6):
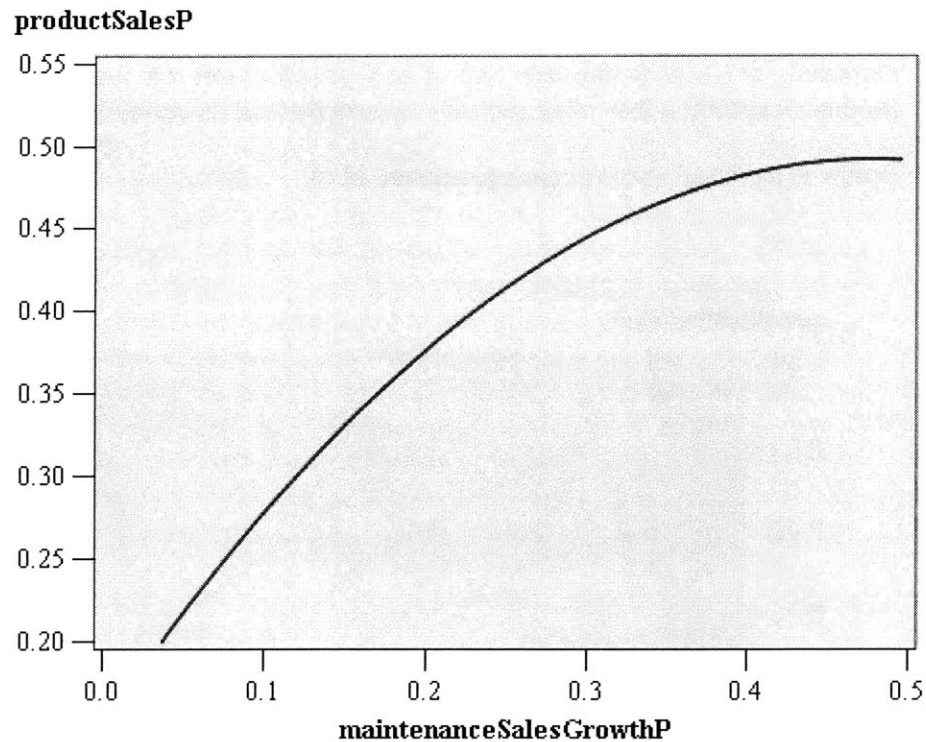
Figure 7: Product Sales Percentage versus Maintenance Sales Growth Percentage

Finding 3 – As the firm gets older, the rate of growth of product sales decreases. In other words, as the firms get older, the product sales percentage gets flatter. In the regression analysis, the coefficient of age is positive and the coefficient of age squared is negative.

Intuition: As the firm gets older, innovation reduces and so the firm does not provide more innovative products. Or the product penetration into the existing industry sector saturates and expansion of customer base into other industry sectors gets tougher.

Finding 4 – Out of 23 firms, 19 firms had a trend of maintenance sales contribution to total sales as increasing and product sales contribution to total sales as decreasing. In other words, maintenance sales revenue of the 19 firms was growing where as product sales revenue was diminishing. 3 firms have some random effect and only 1 firm witnessed the exact opposite behavior.

Intuition: as the new product sales decrease, firms rely more on maintenance sales revenue.

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Below is a plot of a sample firm (firm id 6)

maintenancesalesP/productSalesP
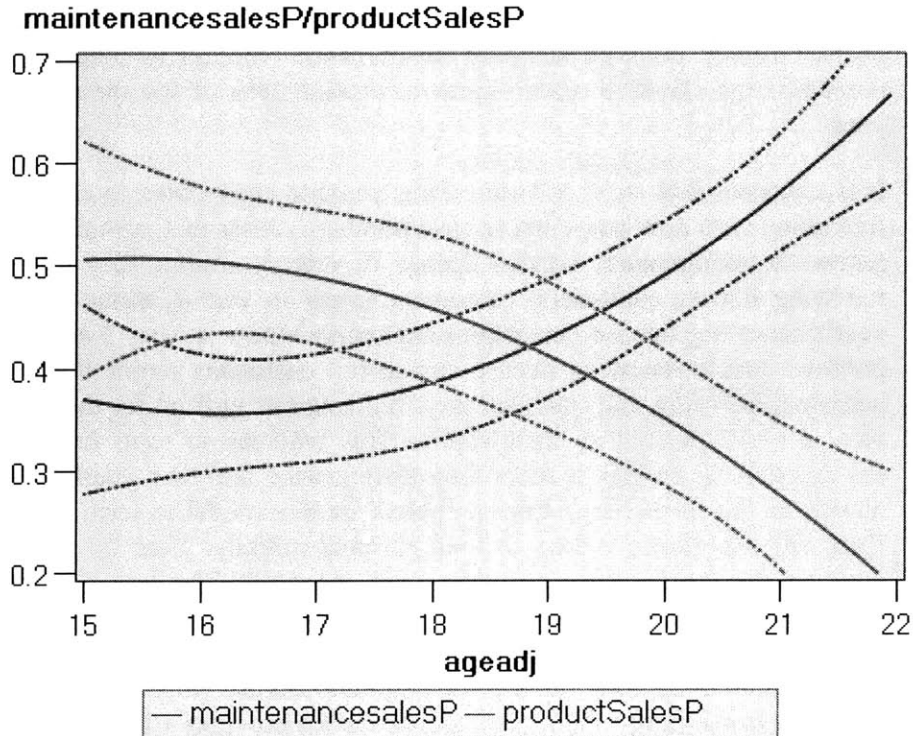
Figure 8: Maintenance and Product Sales Percentage versus Age

For detail of the regression analysis, please see Appendix D.

4.4   Impact of Transitioning From Perpetual To Term License on Revenue:

As the term license is becoming more prevalent, vendors whose revenue stream is dominated by the perpetual license model are trying to transition to a term-based license model. Based on cited research (Macrovision, SoftSummit, SIIA and CELUG, 2004), by 2006, 50% of the software vendors will have some sort of term license. The key finding from that research is that software vendors are quickly moving their primary licensing model from perpetual to subscription in order to meet the more sophisticated needs of their customers. The survey shows that one out of three software vendors are already offering subscription-based models as their primary pricing model and 52% of the respondents expect to be offering subscription models as their primary sales model within two years. This implies that over the next two years, over half of software vendors will be offering some sort of subscription-based or term based licensing.

Term license is a type of usage based license where the usage is estimated by the time duration within which software programs can be accessed by the licensee. Term license provides the right to use the software programs within the duration of the license period.

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If the customer does not renew the term licensing, then she/he loses the right to use the software program. Because of this nature, very high customer retention rates are observed after the initial lock-in period, usually around 90-95%. However this number depends on the nature/function of the software application. In case of specialized application, it is low whereas in case of regularly used software programs, it is as high as 100%. Term license usually includes standard maintenance whereas in perpetual license, customer purchases the standard maintenance at around 18% of the then-current license fee per year.

It is observed that most software firms provide six months to one year of maintenance free along with new perpetual license purchase. After that, around 60% of the customers renew the maintenance service license in year 1, around 70% (of the previous year's renewing license customers) customers renew in year 2, around 75% (of the previous year's renewing license customers) customers renew in year 3 and around 85 % (of the previous year's renewing license customers) customers renew there after. Therefore, in perpetual licensing, the customer pays big amounts upfront for the license and every year pays a small portion as maintenance fees whereas in term license, customer pays a subscription fee (which is more than maintenance fee) on a yearly basis. Because of this nature, as the firms move from perpetual license model to term license model abruptly, firm will experience a drop in total revenue initially. Year by year, total revenue will grow as the term license customer base increases. The less aggressively firms try to transition from perpetual license to term license, the smoother will be the transition in the total revenue trend from year to year. Based on the model, a term license provides better total revenue in the long run and the perpetual license outperforms in short run. Also, it is seen that in the long run, a term license model provides a better revenue forecast than a perpetual license model.

Most of the term licenses bind the customer for a certain time frame. Customers are obliged to pay subscription fees until the end of that period. As the minimum time obligation decreases, term license fee increases. For example, week and month term obligations are priced at 250% and 200% premium over the pro-rated yearly license fee (MSC Software Corp).

4.5   Myths on New License Types:

While there has been much written about the software industry's movement toward pay per use and other forms of license flexibility, in this research, it is evident that the following licensing tactics are used sparingly across our vendor sample:

- Token licensing

- Pay per use & utility pricing

- Short-term (weekly/monthly) rentals

- Product remixing

The true-up licensing model promises in upgrading to higher edition (for example, professional edition) by paying the difference in price between the higher edition and lower edition (for example, standard edition) of the software programs as the customer's demand emerges for a higher edition of software programs. In this research, revenue results shows that the revenue from true-up licensing of those firms who provide true-up licensing is not significant compared to conventional and established licensing models such as a single user perpetual or concurrent perpetual license. In the utility pricing model, usage metrics are defined as the number of uses of the software application, the number of times software program is used or the number of transactions. Financial metrics are defined as pricing based on revenue, cost of goods sold (COGS) or royalties. These last two categories show growth over the next two years effectively doubling in popularity to 45.7% incidence and 23% incidence respectively as described by Macrovision (Macrovision, SoftSummit, SIIA and CELUG, 2004). Very short term licensing such as weekly and monthly terms as well as product remixing are only popular with vendors that provide large number of products (having more than a hundred products) and those products are for specialized software programs.

Revenue draws from these above mentioned licensing models are very negligible as was observed from the sample of these 19 firms. Hence, we can conclude that these licensing models are more myths than reality. However, a variety in license offerings may have attracted customers in buying conventional licenses. In other words, these license offerings might have boosted the license revenue of conventional licenses directly or indirectly. Also, the size of this sample may not be large enough or the vendors with significant revenue from these types of licensing models may not be reporting the revenue split.

4.6 Chapter summary

This chapter provides an overview on new product licensing models. It explains types of new licenses, various offerings in detail, trends in product licensing, impact of revenue on transitioning from perpetual to term licensing and myths around new license models.

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5 Software Maintenance Services

Software maintenance is one of the activities in software engineering and is the process of enhancing and optimizing deployed software, as well as fixing defects (Wikipedia.com, accessed on April 25th). Software maintenance is also one of the phases in the System Development Life Cycle (SDLC), as it applies to software development. The maintenance phase is the phase which comes after deployment of the software in the field.

The software maintenance phase involves changes to the software in order to correct defects and deficiencies found during field usage as well as the addition of new functionality to improve the software's usability and applicability.

Software maintenance as defined by IEEE [1993] is "The modification of a software product after delivery to correct faults, to improve performance or other attributes, or to adapt the product to a modified environment". In a broad sense, software maintenance consists of four parts i.e. Corrective maintenance, Adaptive maintenance, Perfective maintenance and last but not the least, Preventive maintenance.

In the corrective maintenance mode, fixing bugs in the code are done in order to make the product work as promised. In the adaptive maintenance process, modifications are done to make the product adapt to new environments. In perfective maintenance, code modifications are done in order to accommodate changes in user requirements. Finally, in preventive maintenance, documentation is updated and modifications are made to make the product more maintainable. All changes to the system can be characterized by these four types of maintenance. Corrective maintenance is 'traditional maintenance' while the other types are considered as 'software evolution.'

Development effort and time is required to maintain the product and both cost money. Also, as the products get older, it requires more effort and time, and hence more money to keep the product updated with new requirements. So, the maintenance phase must be as cost efficient as possible. In the process of software product maintenance, our first effort is to try to understand the existing design. Secondly, reverse engineering must be done in order to restructure. Finally, the product must be debugged and tested to make sure the new changes are working properly.

Corrective maintenance involves fixing the bugs or defects found by both the user and the QA (Quality Assurance) team. Defects result from coding error, logic error and design errors (Takang and Grubb, 1996). Coding error occurs due to flaw in source code or incorrect implementation of detailed design. Logic error occurs due to incorrect implementation of design specifications, faulty logic, and insufficient data availability during design and coding, thus invalidating the tests. Design error occurs when changes made to the software are incomplete or incorrect, with insufficient explanations, wrong communication etc. Defects are also found due to data processing errors and system performance errors. Bugs or defects are usually reported by the end user or QA team whenever application does not adhere to the agreed upon specification.

Adaptive maintenance deals with the change required in the product due to modification or improvement in hardware or operating systems. The term environment in this context refers to the totality of all conditions and influences which act from outside upon the system, for example, business rule, government policies, work patterns, software and hardware operating platforms (Takang and Grubb, 1996) etc. As soon as the change in the environment is realized, an adaptive maintenance requirement is recognized. An example of change in environment due to government policy is the FCC's rule of implementing local network portability (keeping the same phone number while changing the carrier). Acceptance this change causes the immediate maintenance of telephone provisioning applications to implement the regulation. Another example is the modification or release of a new operating system requiring adaptive maintenance of the database that runs on this particular operating system. As the operating system is updated to a higher version, the database application that runs on that operating system must be modified to make it work.

Perfective maintenance mainly deals with accommodating new or changed user requirements. Perfective maintenance concerns functional enhancements to the system and activities to increase the system's performance or to enhance its user interface (Van, 2000). A successful piece of software tends to be subjected to a succession of changes, resulting in an increase in the number of requirements. This is based on the premise that as the software becomes useful, so do the users tend to experiment with new cases beyond the scope for which it was initially developed (Takang and Grubb, 1996). Examples of perfective maintenance include modifying the Human Resource Management System to incorporate a new union settlement, adding a market intelligent report in the sales analysis system, improving a Graphical User Interface to make the product more user-friendly.

Preventive maintenance concerns activities aimed at increasing the system's maintainability, such as updating documentation, adding comments, and improving the modular structure of the system (Van, 2000). The long-term effect of corrective, adaptive and perfective changes increases the system's complexity (Takang and Grubb, 1996). As a large program is continuously changed, its complexity, which reflects deteriorating structure, increases unless work is done to maintain or reduce it. This work is known as preventive change. The change is usually initiated from within the maintenance organization with the intention of making programs easier to understand and hence facilitate future maintenance work (Takang and Grubb, 1996). Examples of preventive change include restructuring and optimizing code and updating documentation.

5.1   Software Maintenance Cost:

Various studies have been conducted in the past to calculate the proportion of maintenance cost to new product development cost. In this research, the average of the cost ratio was found to be 8.63. The total cost of system maintenance is estimated to comprise at least 50% of total life cycle costs (Van, 2000). The proportional maintenance costs range from 49 % for a pharmaceutical company to 75% for an automobile company (Takang and Grubb, 1996). In many large-scale software systems, only one-fourth to one-third of the entire life cycle costs can be attributed to software development and most effort is spent during the operations and maintenance phase of the software life cycle

(Zelkowitz, Shaw and Gannon, 1979). In their study of 487 data processing organizations, Lientz and Swanson reported on the proportion of maintenance effort allocated to each type of maintenance (Lientz and Swanson, 1980). On average, corrective maintenance accounted for slightly more than 20% of the total. Adaptive maintenance accounted for slightly less than 25%. Perfective maintenance accounted for over 50%. In particular, enhancements for users accounted for 42% of the total maintenance effort. Only 5% was spent on preventive maintenance activities. In order to increase the maintainability of software, we need to know what characteristics of a product affect its maintainability. There has been a great deal of speculation about what makes a software system more difficult to maintain. There are some program characteristics that are found to affect a product's maintainability. According to Martin and McClure, these factors include system size, system age, number of input/output data items, application type, programming language, and the degree of structure (Martin and McClure, 1983).

Larger systems require more maintenance effort than smaller systems. This is because of the greater learning curve associated with larger systems and the increase in complexity involved with an increased number of functions. Van points out that less maintenance is needed when less code is written (Van, 2000). The total number of lines of the source code is the one of the main determinant of total cost during maintenance as well as initial development. For example, a 5% change in a module of 100 lines of code is more expensive than a 10% change in a module of 50 lines of code. Also, older systems require more maintenance effort than do younger systems, because software systems tend to grow larger with age, become less organized with changes, and become less understandable with staff turnover.

5.2   Software Maintenance from a Service Perspective:

Niessink and Van proposed software maintenance be seen as providing a service, whereas software development is concerned with the development of products (Niessink and Van, 2000). However, this is not yet widely recognized. Within the software maintenance domain, the focus is still on product aspects. The final phases of software development supposedly concern the delivery of an operations manual, installing the software, handling change requests and fixing bugs (Van, 2000). A service is defined as an essentially intangible set of benefits or activities that are sold by one party to another (Niessink and Van, 2000). According to Van, the major differences between products and services are as follows (Van, 2000):

- Services are intangible

- Services tend to be more heterogeneous than products

- Services are produced and consumed simultaneously, whereas production and consumption of products can be separated

- Services are perishable, products are not

According to Michael Cusumano, "for most enterprise software companies, the two sides of the business – products and services – are impossible to separate completely"

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(Cusumano, 2003).The line that separates products from services is blurred. For example, lawn mowing is a relatively pure service, while packaged food is a relatively pure product. There is a product-service continuum for software development and maintenance. For example, adaptive maintenance can be seen as a hybrid of product and service, whereas corrective maintenance is a product-intensive service, and software operation is a relatively pure service. A custom software development is a service intensive product (Niessink and Van, 2000). According to Niessink and Van Vliet, customers judge the quality of software maintenance differently from how they judge the quality of software development (Niessink and Van, 2000). This implies a need to carry out software maintenance through different processes from those used by the average software development organization.

There are a few aspects of software maintenance that set it apart from the other phases. Software maintenance cost comprises more than half of the total software development cost. Also, without software maintenance, it is impossible to solve the problems within the product after its release and many disasters can happen because of immature software. Some characteristics of software that affect software maintenance are system size, age, and structure. Understanding the characteristics of software will make software maintenance more efficient. It is also important to look at how software maintenance fits into the relationship between products and services. Software maintenance, including software operation, has relatively more aspects of a service than a product, whereas software development resembles a product more than a service.
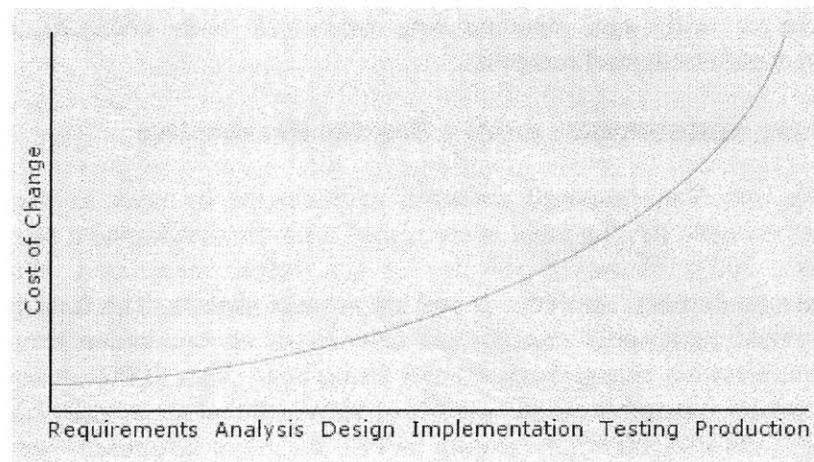
Figure 9: The cost of change rising exponentially over time (Beck, 1999)

5.3   Variability in the Content of Software Maintenance Services Offerings:

Taking into account all of the different maintenance offerings results in a large superset of content pieces from across the 19 firms that this thesis is based upon. Various types of maintenance content include:

- Software patch updates
- Software major version upgrades

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- Receiving upgrade CD's by mail
- Receive technical support through web portal, email, or phone with various hours of availability for phone support (weekday vs. 24/7)
- Application engineer availability for conference calls of certain time intervals
- Free home use licenses.
- Discounts on add-on applications, documentation material, and training
- Dedicated technical support contact (with pager access)
- Access to online developer exchange/portal.
- Support from senior technical staff/ senior application engineer

5.4 Pricing of Software Maintenance Services:

Most vendors, in fact all the 19 vendors that this research was based on still charge annual maintenance fees as a percentage of the license fee. The standard range is 14% to 25% percent of the list license fee (then-current license fee). Most vendors generally discount license fees only in competitive situations or with large deals. However, the percentage charged to annual maintenance hardly gets discounted. Though the percentage of then-current list license fee charged for maintenance hardly gets discounted, the influential customer still exerts pressure to get flexibilities regarding maintenance entitlements such as premium maintenance at base level maintenance price. In one way, maintenance fee protects the annuity revenue stream. More interestingly, even with strong competition, no vendor is deviating from this trend. However, this does not mean that the maintenance package as a whole is non-negotiable. Although tough on price points, if the customer can exert some leverage, firms offer significant concessions and flexibilities regarding maintenance offerings. Most vendors have entry-level maintenance programs at the lowest percentage of license fees and then have premium-priced offerings such as silver, gold or platinum etc. at higher percentage rates with additional benefits. Some vendors are willing to include some of the offerings of the premium-priced maintenance in the base-price maintenance. Additional concessions include maintenance caps i.e. not to exceed increases year over year, improved service-level response times, dedicated customer support agents, 24/7 support for severity-one incidents, on-site consultants included for a limited time and limited technical account manager time. Flexible payment methods, such as monthly or quarterly maintenance payments, have appeared in the contract.

In this research of 19 firms, the data suggests wide variations in the content of maintenance offerings from firm to firm. We found:

- 18 of the 19 firms offer some maintenance program. Only Adobe does not offer SMS. However, it does offer a software upgrade plan providing the right to upgrade the software for two years.

- For the remaining 18 firms who offer a maintenance program we have gathered pricing information for 15 of those firms. The pricing structure for three of the firms (Autodesk, Cadence, Microsoft) is unknown.

- The average SMS fee of these firms is 17.86% of the license fee with a standard deviation of 2.5%.
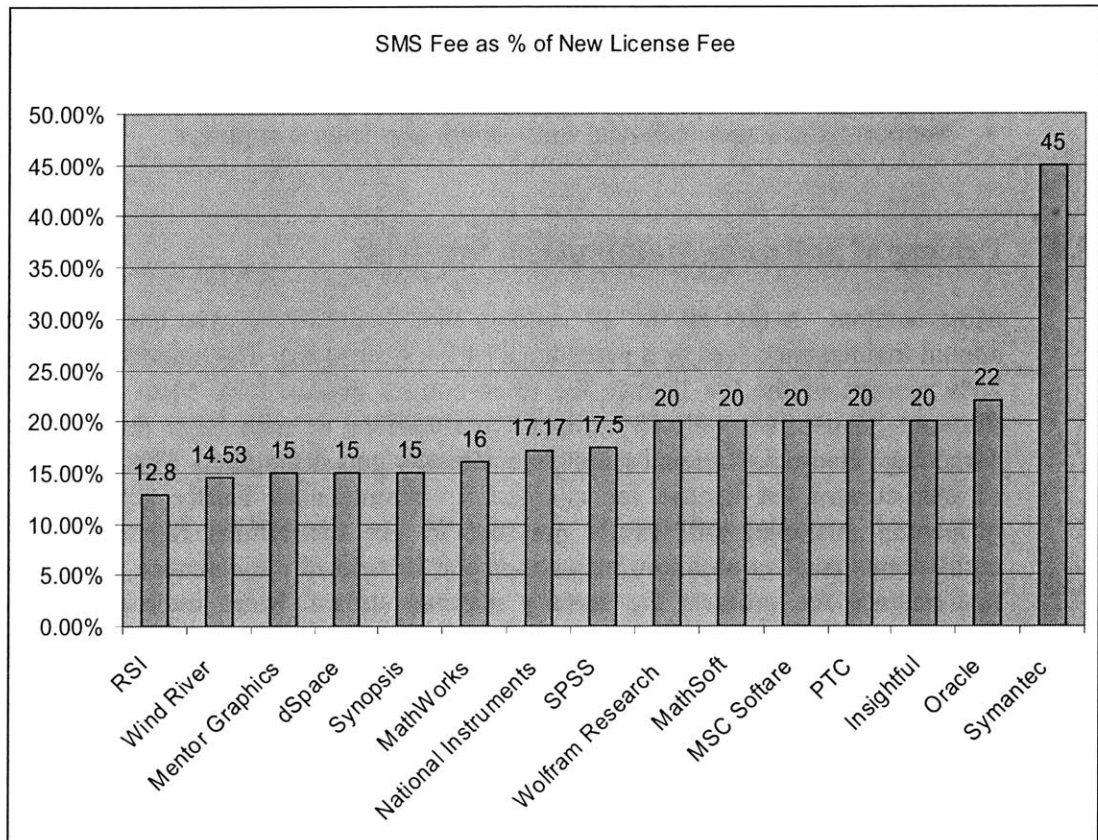
Figure 10: Maintenance price

Maintenance Discounting: For 13 of the 19 firms, we studied whether or not the firms engaged in maintenance discounting. No vendor provides discount on its specified percentage of then-current license fee as maintenance fee. However, 7 out of these 13 firms provide volume discounts on maintenance and 6 firms do not provide volume discount on maintenance.

Maintenance Content: At the conclusion of data gathering exercise, a wide variation in maintenance content from firm to firm was evident, for example:

- 9 out of 19 firms provide an "upgrade-only" program either in lieu of, or in addition to a "% of TCP" option.

- Only 1 of the 19 firms (Oracle) provides a "tech support only" program.

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- 10 firms include maintenance with the new license purchase, with 9 of the 10 offering one year of maintenance and one firm (dSPACE) providing six months of maintenance.

- Regarding technical support hours, 12 of the 19 firms provide standard technical support during weekday working hours, while five firms provide 24/7 standard support. 24/7 Support is typically associated with a premium SMS offering.

Maintenance Reinstatement: Again, there is a wide variation in reinstatement practices across the sample, for example:

- Five firms charge back maintenance payments to reinstate licenses;

- Two firms charge both "back maintenance" and a reinstatement fee (Oracle and Insightful);

- Three firms do not charge either back maintenance or a reinstatement fee. These three firms who do not charge reinstatement fee all happen to provide an upgrade-only option.

5.5 Regression Analysis:

In our database, we have both financial data and non financial data such as inception date, employee head count etc. of 86 firms from 1992 to 2004. However, few data points for some firms and certain years are not available. In this analysis, only those firms are included for which we have continuous information on a recent time frame without any missing data points. We found 23 firms have all the data points from 1997 to 2004. Also, it was observed that very few firms are disclosing the sales revenue of product, maintenance, service and others separately.

The regression analysis is based on the total revenue of 23 firms, their revenue by product sales, maintenance, and service and other sales, age of the firm, total employees of the firm and various profit margin indicators such as gross profit margin (based on GAAP) taken for the time period of 1997 to 2004. Based on the regression analysis, our findings were:

Finding 1 - Maintenance sales percentage increases by 2.1% each year.

Intuition: as the firm gets older, firm's sales people are stressing the importance of maintenance. So, the maintenance retention percentage i.e. percentage of maintenance buyer of the total product buyer may be getting better from year to year and which may contribute to this 2.1% increase in revenue. There is no evidence that vendors are increasing the price of maintenance which is a percentage of then-current product sales.

Below is a plot of a sample firm (company id 6):

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maintenancesalesP
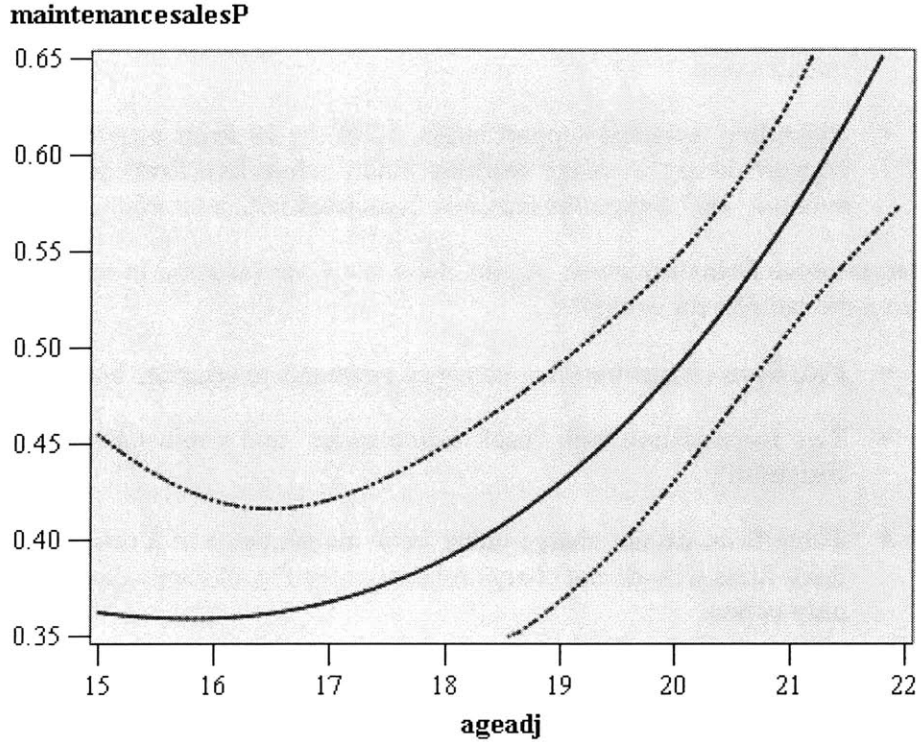
Figure 11: maintenance sales percentage versus Age

Finding 2 - Maintenance sales percentage increases by 0.42 % for each percentage decrease in growth of product sales.

Intuition: Firms are not producing innovative product as these firms are getting bigger and older. Or the product demand is getting saturated. Hence the rate of growth of product sales is diminishing and it prompts the firms to increase maintenance sales to meet the shareholder expectation.

Alternatively, as product sales drops, maintenance revenue simply becomes a bigger portion of total sales. This may not be a conscious strategy executed by the firms and it is just a mathematical reality.

Below is a sample plot of a firm (company id 6):

maintenancesalesP
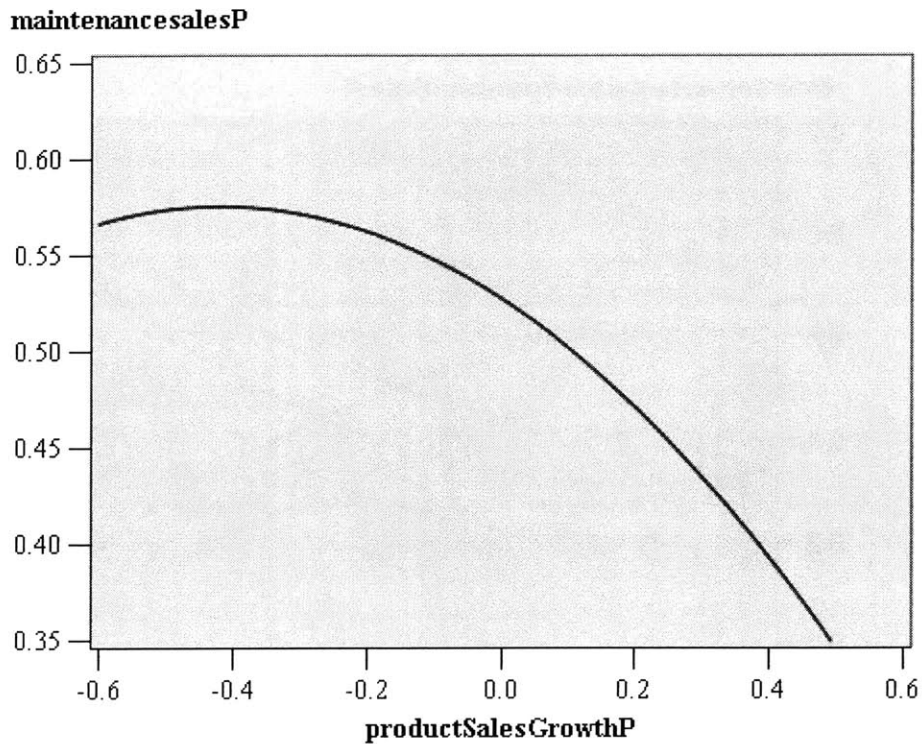
Figure 12: Maintenance Sales Percentage versus Product sales growth Percentage

Finding 3 – At the very early stages of the firm's life, rate of growth of maintenance sales is low and increases as the firm gets older. In other words, at early stage of the firm, the rate of growth in maintenance sales percentage is flat. As the firm gets older, the rate of growth in maintenance sales percentage increases. In the regression analysis, the coefficient of age is negative and the coefficient of age squared is positive.

Intuition: Most firms provide at least 6 months or one year of maintenance free along with the new license purchase. Also, as the firm gets older, its maintenance customer base gets bigger and bigger. Maintenance revenue is a type of annuity that the customer pays to the vendors. The time lag between product purchase and maintenance purchase along with the size of the initial customer may be contributing to the flatter initial maintenance sales revenue.

Findings 4 – Out of 23 firms, 19 firms had a trend of maintenance sales contribution to total sales as increasing and product sales contribution to total sales as decreasing. In other words, 19 firm's maintenance sales revenue is growing where as product sales revenue is diminishing. 3 firms exhibited some random effect and only one firm had just the opposite behavior.

Intuition: It is generally believed that as product sales increase, maintenance sales also increase. However, it seems the reverse is not true. As product sales decrease, the firm's strategy tends to improve maintenance sales revenue.

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Below is a plot of a sample firm (firm id 6)

maintenancesalesP/productSalesP
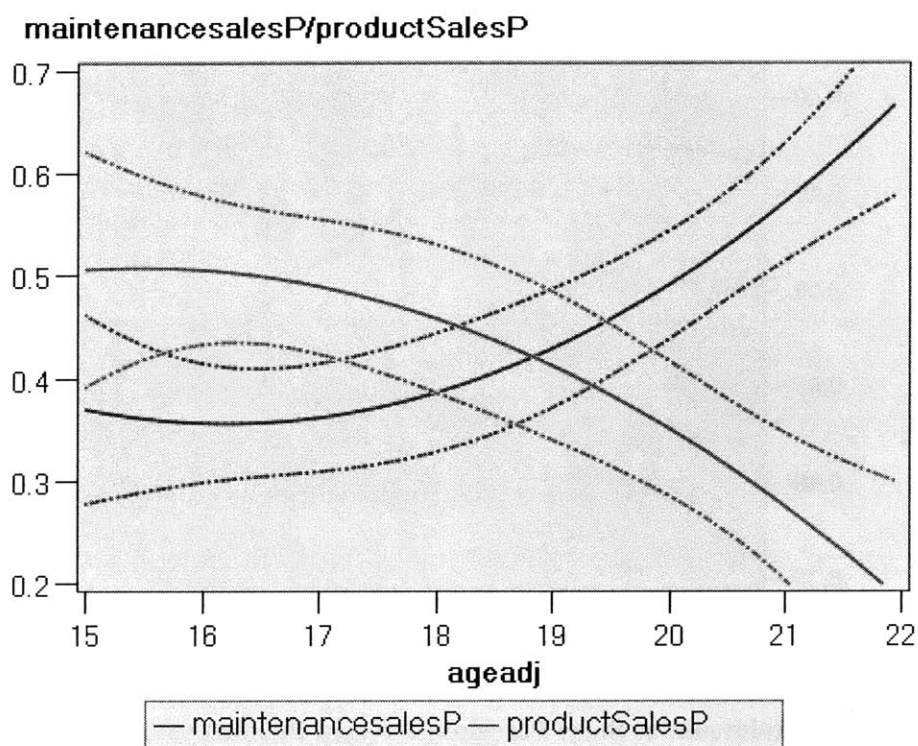
Figure 13: Maintenance and Product Sales Percentage versus Age

Findings 5 – Out of 23 firms, the relationship between the rate of growth of maintenance and product sales and the age has mixed result.

Product sales growth percentage = P

Maintenance sales growth percentage = M

Relationship with respect to age	Number of firms
P goes down and M goes down	14
P goes down and M goes up*	6
P goes up and M goes down*	2
P changes and M constant	1
P goes up and M goes down	1
P constant and M changes	0

* Two firms have both "P goes down and M goes up" and "P goes up and M goes down" pattern for the observed time duration.

For detail of the regression analysis, please see Appendix D.

5.6 Trends in Software Maintenance:

As the software industry gets mature, the trends in software maintenance are changing. Some of the trends are:

- Most of the vendors are not compromising with the percentage of the then-current license fee as maintenance fee, yet these very vendors are providing more benefits within the current level of maintenance subscription. For example, with the standard maintenance offerings, vendors are adding benefits otherwise offered to premium offerings.

- The service level agreement between the vendor and the customer always states the time within which the vendor must start working on fixing the problem after a problem occurs. However, service level agreement does not include the time by which vendor must fix the problem. In fact, vendors usually argue that it would be almost impossible to guarantee the fix time because of nascent hardware problems and the complexity of software applications. As businesses are getting globalized, software applications are required to be available almost 24/7. As more business critical and highly customer-facing processes are getting automated, customers are facing profound financial liabilities if the software is not functioning as it supposed to. As a result, tremendous pressure has been placed on vendors to take more responsibility of their customer's liabilities that is caused due to unavailability of the software application. The first software vendor to demonstrate leadership in this area was BEA Systems, which is now offering a premium maintenance program called Mission Critical Support (MCS) Continuum. This program offers immediate response time to severity-one incidents and system restoration which usually equates to a temporary work around/fix in six hours or less. If that is not achieved, BEA offers penalties to customers, which are approximately $20,000 per instance to a maximum of $60,000 per year. After the MCS offer from BEA Systems, other software vendors have started offering similar guarantees.

- On demand or subscription (Term license) based license offerings includes standard or basic maintenance. However, compared to the perpetual license with maintenance, on demand/subscription/term license offer less and attracts customers to buy premium maintenance offerings with the subscription license. For example, Salesforce.com only offers a two-day response time to incidents in basic support and requires Silver or Gold support to get to a four hour response time. Vendors are discounting heavily on on-demand or subscription based license offerings with minimal maintenance and then providing premium maintenance offerings to compensate the discount. Some vendors are providing premium priced services such as designated support, engineering resources or priority call handling for free for the first six months or first one year and then the customer must buy those services for the contract time period.

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Trend or disruptive?

However, some observations that are seen in software maintenance seem more like disruptions than trends yet these disruptions may become trends. Those disruptions are as follows:

- Major vendors support application software for certain fixed time frame (such as 5 years or 10 years) and then extend by certain time frame (1 or 2 years) after the successor product release whichever comes later. After that time frame, if the customer still wants the support and does not want to migrate to a successor release of the product, then the customer can buy the hot fix support at a premium price. However, this premium price for a hot fix is still not attractive for customers. Customers are now starting to resist the hot fix pricing which may force vendors to provide hot fix support at lower price or original product support for a longer duration.

- Third party support offerings have been around for some time. But third party maintenance support as a substitute to vendor provided maintenance support is some what new. For example, TomorrowNow provides support to PeopleSoft and J.D.Edwards ERP applications and Rimini Street provides support to Siebel systems products.

5.7 Impact of Term License on Maintenance Revenue:

It is widely believed by the vendors that term licensing would reduce the maintenance price as a percentage of license fees as the term license fee includes the standard maintenance fee. Most vendors that provide term licensing offer the benefits that are included on standard maintenance offerings but are less than that of conventional standard maintenance offerings. In order to conceptualize the impact, an analysis is done based on a purely financial point of view.

Let the perpetual new license fee of any specific product be "P", conventional maintenance fee as a percentage of license fee be "m" and Term license fee as a percentage of perpetual new license fee be "t". Let the risk free discount rate be "r". As majority vendors provide perpetual license with six month or one year maintenance free, we have two scenarios. In scenario 1, free maintenance on year one is not included in the perpetual license and in scenario 2, one year maintenance is included in the perpetual license.

The same product being sold to same customer with similar customer benefits must be priced similarly. So, if a customer buys perpetual license and maintenance of that product for infinite time would have similar benefit as buying term license for infinite time assuming the maintenance benefits provided in both the cases are same and the price for the option to quit the term license is approximately same as price paid in perpetual license to use the software without maintenance.

Scenario 1(Without free maintenance in year one):

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In the case of a new perpetual license and the maintenance agreement from the time of purchase of the new license, present value of cash outflow is P + (m/r)P. Similarly, present value of the cash outflow for the term license with infinite time frame would be equals to (t/r)P. However, both these options provide the same benefits to the customer. Hence (t − m) must be equal to r.

If (t − m) i.e. the difference between the percentage of term license fee and the maintenance license fee is greater than the risk free interest rate, then customers are paying more and if that difference (t − m) is less than risk free discount rate "r", then vendors are leaving money on the table.

However, from the observations, it seems that the difference between percentage of term license fee and maintenance license fee is much greater than the risk free interest rate. Also, maintenance benefits that are included on term license are lesser that the benefits of conventional maintenance offerings.

Scenario 2 (Perpetual license with 1 year free maintenance):

In the case of new perpetual license and the maintenance agreement after one year of purchase of the new license, present value of cash outflow is P + (m/r(1+r))P. Similarly, present value of the cash outflow for the term license with an infinite time frame would be equal to (t/r)P. However, both these options provide the same benefits to the customer. Hence (t − m) must be equal to r − (t*r - r²).

In this scenario, (t − m) is smaller than r and smaller than that of scenario 1, as t is around 25% to 45% where as 'r' is in the range of 4% to 7% depending upon macroeconomic conditions. Also the term t*r −r² is positive and a very small number in the range of 1 to 2%.

If (t − m) i.e. the difference between the percentage of term license fee and the maintenance license fee is greater than the risk free interest rate minus 1-2%, then customers are paying more and if that difference (t − m) is less than risk free discount rate "r" minus 1-2%, then vendors are leaving money on the table. However, from the observations, it seems that the difference between percentage of term license fee and maintenance license fee is much greater than the risk free interest rate. Also, maintenance benefits that are included on term license are lesser that the benefits of conventional maintenance offerings.

5.8 Chapter Summary:

This chapter provides an overview on software maintenance services (SMS), the cost factors of SMS, variability in the content offering with SMS, pricing of SMS, trend on SMS, the regression analysis on SMS revenue and the impact of term license on SMS revenue. Maintenance sale is growing at a 2.1% rate on a year to year basis. As the percentage of product sales growth decreases, maintenance sales percentage increases. Also, at initial stages of the firm, maintenance sales percentage is flat and it increases as the firm gets older. Most vendors believe that term license will reduce total maintenance

revenue, but in reality, term license increases the total maintenance revenue because of two reasons. First, term license includes an inferior maintenance offering which stimulates sales of premium maintenance. Second, the implied maintenance fee that is included in the term license is much higher than the stand-alone basic maintenance fee.

6 Conclusions

The purpose of this thesis was to study the trends in product license offerings, product license revenue, maintenance license, and maintenance revenue. All of the observations, conclusions and comparisons presented have been made an effort to contribute to the learning of pricing and licensing of software products and maintenance services. In this final chapter, observations are summarized from both qualitative and quantitative research and recommendations are made for further study on software pricing and licensing.

6.1 Product License Trend - Usage based License

The software industry has gone through several transformations from its debut. Initially, it started as service-oriented industry and then transitioned into a product-oriented industry and is currently transforming into a hybrid of both product and service industries. Just as the industry has undergone from a service to a product to a service (more like a hybrid) oriented industry, so too has the product licensing and maintenance licensing scenario been changing. Perpetual licensing has established its strong presence from the very beginning. While both single user and concurrent user licensing models were standard license offerings, concurrent licensing has been eliminated from the enterprise application segment. Still, the perpetual license model is the most preferred license model having 64% popularity but this popularity is diminishing. However, enterprise users still prefer perpetual (both single user and concurrent user) license models. Combination of various license attributes provides a wide spectrum of license offerings targeting each customer segment. A usage based or term based license model is getting its foothold with 25% vendors providing this license model. Today, 36% enterprise users prefer usage based license model. It is expected that this number will reach the 50% mark in coming two years.

6.2 Product License Revenue Trend

Software firms sell a lot of products early and fail to keep up the same rate of new sales to new customers. The results from regression analysis validate this observation. From the regression model, it was observed that the product sales as a percent of total sales decreased by 2.6% each year. It may be possible that the firms were not producing innovative products as they got older and bigger or that the firms are not extending the product penetration into other industry sectors beyond their current presence.

It was observed that product sales percentage increased by 0.88 % for each percentage increase in growth of maintenance sales. It is possible that the growth in maintenance sales is not contributing to the growth of product sales percentage but reverse may well be happening.

As the firm gets older, the firm's rate of growth of product sales decreases. In other words, as the firms get older, the product sales percentage gets flat. The product penetration into the existing industry sector saturates and expansion of customer base into other industry sectors does not happen.

As the new product sales decreases, the firm relies more on maintenance sales revenue to meet the shareholder's expectation. This pattern is observed among 19 out of 23 firms.

6.3   Maintenance License Trend

While most software firms are not discounting on the percentage of the net license fee as maintenance fee, yet software firms are adding more and more benefits from year to year. Discounting on software maintenance certainly occurs but not to the extent of new product discounting. However, heavy discounting on the license fee has a ripple effect on the maintenance revenue.

As more business critical and highly customer-facing processes are getting automated, customers are demanding fix-time promise in maintenance rather than just the response-time commitment. So, software firms have started offering services such as guarantee of system availability or offer to pay a penalty.

Software firms are pushing premium maintenance services along with on-demand or subscription (term license) based license offerings (this license includes standard or basic maintenance). Firms are providing inferior offerings included in the subscription license compare to standard or basic maintenance that offered as stand alone. Some software firms are providing premium priced services - such as designated support, engineering resource or priority call handling for free for the first six months or first one year and then the customer must buy those services for the contract time period along with subscription license.

6.4   Maintenance License Revenue Trend

Maintenance sales percentage increases by 2.1% as the firm gets a year older. The maintenance retention percentage i.e. percentage of maintenance buyers of the total product buyers may be getting better from year to year and which may contribute to this 2.1% increase in revenue.

Maintenance sales percentage increases by 0.42 % for each percentage decrease in growth of product sales. It may be that these firms are not producing innovative products as they get bigger and older or that the product demand is getting saturated. Hence, product sales are diminishing and it prompts the firms to increase maintenance sales to meet the shareholders expectations.

At the very early stages of the firm, rate of growth of maintenance sales is low and increases as the firm gets older. In other words, at early stages of the firm, the rate of growth of maintenance sales percentage is flat and it increases as the firm gets older.

It is generally believed that as the product sales increase, maintenance sales also increase. However, it seems the reverse is not true. As the product sales decreases, the firm's strategy tends to improve maintenance sales revenue to maintain total sales growth.

6.5 Future work

A critical area of future research would be to run the regression model with a larger sample size. Not many publicly-traded software firms report the sales breakdown on product sales, maintenance sales, service sales and service maintenance sales. A different approach must be adhered to acquire the data across all segments of the software industry. Further, the regression model must incorporate the macroeconomic factors to find out how the revenue trend is getting impacted with those.

Research could be conducted by running similar regression models with each segment of the software industry to understand the trend in each segment. This will provide further information on how each segment is different from the whole industry and how each segment is correlated to each other.

Further research should also be conducted to observe the impact of transitioning from a term established perpetual license model to a subscription based license model on the firm's total revenue.

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8 Appendix

8.1 Appendix – A (Industry Segmentation)

Application Software:

Consumer Applications	Collaborative Applications	Content Applications	ERM Applications	SCM Applications	Operations and Manufacturing Applications	Engineering Applications	CRM Applications
· Consumer software	· Integrated Collaborative Environment (ICEs)	· Content management	· Financial applications	· Logistics	· Services operations management	· Mechanical Computer-assisted Design (CAD)	· Sales
	· Messaging applications	· Authoring software	· Human Capital Management (HCM)	· Production Planning (PP)	· Manufacturing	· Mechanical Computer-assisted Engineering (CAE)	· Marketing
	· Team Collaborative Applications (TCAs)	· Translation/ globalization	· Payroll	· Inventory management	· Other back office	· Mechanical Computer-assisted Manufacturing (CAM)	· Customer services
	· Conference applications		· Procurement			· Product Information Management (PIM)	· Contact center
	· Other collaborative applications		· Order management			· Other engineering	
			· Business Performance (BPM) and financial analytic applications				
			· Project management				
			· Enterprise asset management				

Application Development & Deployment Software segment:

Information and Data Management Software	Application Development Software	Application Life-Cycle Management	Application Deployment Software	Other Deployment Software	Information Access and Delivery Software
· Relational Database Management Systems (RDBMS)	· Unified Development Environments (UDEs)	· Automated Software Quality (AS)	· Application Server Software Platforms (ASSPs)	· Other programmer development tools and utilities	· End-user query, reporting, and analysis
· Pre- and post-relational database management systems	· Third-generation Languages (3GLs)	· Software configuration management (SCM)	· Integration Server Software Platforms (ISSPs)		· Data mining software
· Object-oriented DBMSs	· Software construction components		· Message-oriented middleware (MOM)		· Packaged data mart/ data warehouse products
· XML database management systems	· Analysis, Modeling, and Design (AMD) tools		· Transaction Server Middleware (TSMW)		· Technical data analysis
· End-user DBMSs	· Web site design/ development tools		· Web Server Software (WSER)		· Spatial information management software
· Data Management Facilities (DMF)			· Application deployment adapters/connectors		· Enterprise portals
· Data Movement and Replication (DMR) software					· Content access tools
· Data Connectivity Software (DCS)					

System Infrastructure Software Segment:

System and Network Management Software	Security Software	Storage Software	Networking Software	System Software
· Event automation tools	· Identity and access management	· Backup and archive software	· Enterprise connectivity software	· Operating systems and subsystems
· Job scheduling tools	· Threat management software	· Storage replication software	· Remote control software	· Clustering and availability software
· Output management tools	· Secure content management	· Storage resource management software		· Virtual user interface software
· Performance management software	· Security and vulnerability management software	· File system software		· Virtual machine software
· Change and configuration management software	· Other security software	· Other storage software		· Other system software
· Problem management software				
· Network and service management software				

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8.2 Appendix – B (Firm List)

The findings presented in this document are the result of qualitative analysis of the following 19 software companies:

- Adobe Systems
- Autodesk
- Cadence Design Systems
- dSpace
- Insightful (Splus)
- MathSoft Inc.
- Mentor Graphics
- Microsoft
- MSC Software
- National Instruments
- Oracle
- PTC
- RSI
- SPSS
- Symantec
- Synopsis
- The MathWorks
- Wind River
- Wolfram Research

8.3 Appendix – C (Regression Metadata)

Regression data consists of information of 86 companies from Year 1992 to 2004. For each company, the following information was tabulated for each year. For some years, company detail was not available as the company was not established or closed or simple because data was not available.

Column name	Column Name	Column Name
govid	servicemaintenancesales	opincpf
companyid	othersales	opincgaap
companyname	totalsales	netincgaap
classification	prodcost	restate
producttype	servcost	reason
classificationtype	servmntcost	intactivetype
markettype	othercost	prodcostp
fyend	nonrecost	servcostp
inceptionyear	costsalespf	mntcost
ticker	costsalesgaap	mntcostp
fiscalyear	grossincpf	servmcostp
fymonth	grossincgaap	othercostp
fyadj	rd	grossmarginpf
inactive	sm	grossmargingaap
inactiveyear	ga	rdp
marketcap	sga	smp
marketcap2	acq	gap
age	rst	sgap
ageadj	stockcomp	totalopcostpfp
fprod	othernr	totalopcostgaapp
enternum	totalopcostpf	opincpfp
productsales	totalopcostgaap	opincgaapp
servicesales	totalcostpf	netincgaapp
maintenancesales	totalcostgaap	employees

8.4 Appendix – D (Regression Result & Analysis)

Regression 1:

Dependent variable is percentage of maintenance sales out of total sales minus other sales.

Independent variables are:

- Adjusted age
- Product sales growth percentage with respect to that of last year
- Dummy variable Y2K which is 1 for year 1998 and 1999 otherwise 0.
- Dummy variable Recession which is 1 for year 2001 and 2003 otherwise 0.

Fit Statistics			
SSE	0.8196	DFE	153
MSE	0.0054	Root MSE	0.0732
R-Square	0.7167		

F Test for No Fixed Effects			
Num DF	Den DF	F Value	Pr > F
22	153	10.63	<.0001

Parameter Estimates						
Variable	DF	Estimate	Standard Error	t Value	Pr > |t|	Label
Intercept	1	0.089505	0.0359	2.49	0.0138	Intercept
ageadj	1	0.021409	0.00293	7.32	<.0001	ageadj
productSalesGrowthP	1	-0.00457	0.00217	-2.11	0.0365	productSalesGrowthP
Y2K	1	-0.0274	0.0155	-1.77	0.0791	
recession	1	-0.00253	0.0134	-0.19	0.8502	

Result analysis:

F test rejects the null hypothesis with confidence interval of greater than 99.9%
Adjusted age and product sales growth in percentage are significant with 95% confidence interval. As the age of the company grows by 1 year, it contributes to 2.1% growth of maintenance revenue. As the product sales growth percentage increases by 1 percent, maintenance sales percentage reduces by 0.45%
Impact of Y2K dummy variable is significant with 90% confidence interval.

Below is a sample of maintenanceSalesP vrs age of the company id 6
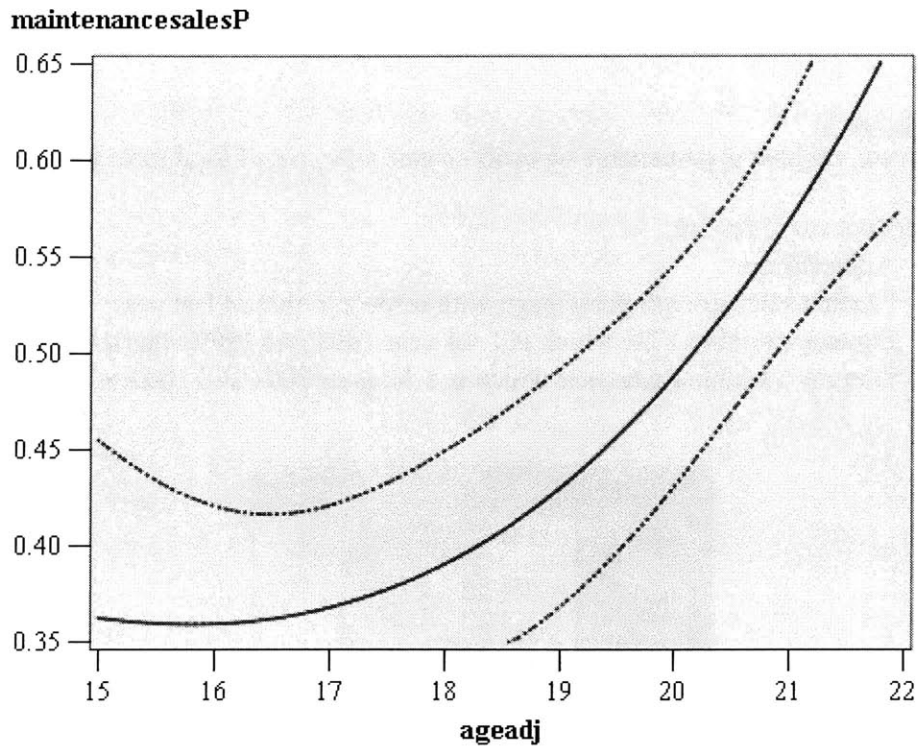
A sample graph of product sales growth vrs maintenance sales percentage - company id 6
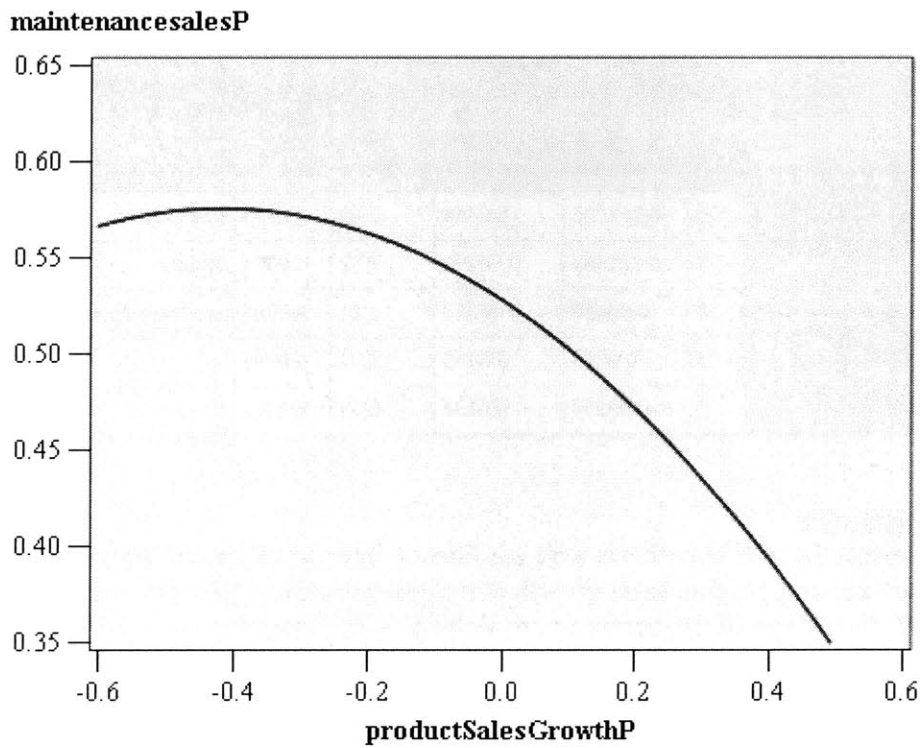
Regression 2:

Dependent variable is percentage of maintenance sales out of total sales minus other sales.

Independent variables are:
- Total sales minus other sales in Million adjusted to inflation
- Adjusted age
- Square of adjusted age
- Product sales growth percentage with respect to that of last year
- Dummy variable Y2K which is 1 for year 1998 and 1999 otherwise 0.
- Dummy variable Recession which is 1 for year 2001 and 2003 otherwise 0.

Fit Statistics			
SSE	0.7938	DFE	151
MSE	0.0053	Root MSE	0.0725
R-Square	0.7256		

F Test for No Fixed Effects			
Num DF	Den DF	F Value	Pr > F
22	151	9.44	<.0001

| Parameter Estimates						
Variable	DF	Estimate	Standard Error	t Value	Pr > |t|	Label
Intercept	1	-147.408	77.5416	-1.90	0.0592	Intercept
totalSalesMReal	1	0.000056	0.000049	1.15	0.2522	
ageadj	1	-0.12787	0.0783	-1.63	0.1044	ageadj
ageSquare	1	0.000037	0.000019	1.90	0.0591	
productSalesGrowthP	1	-0.00427	0.00216	-1.98	0.0499	productSalesGrowthP
Y2K	1	-0.02998	0.0156	-1.92	0.0562	
recession	1	-0.00197	0.0133	-0.15	0.8830	

Result analysis:

F test rejects the null hypothesis with confidence interval of greater than 99.99%

Square of adjusted age and product sales growth in percentage are significant with 95% confidence interval.

Coefficient of Adjusted age is negative where as coefficient of square of adjusted age is positive which indicates at early stage of the company, age has very negligible impact on Maintenance sales and its impact is greater as the company gets older.

Impact of Y2K dummy variable is significant with 94% confidence interval.

Total sales adjusted with inflation and dummy variable Recession are not significant.

Regression 3:

Dependent variable is percentage of maintenance sales out of total sales minus other sales.

Independent variables are :
- Total sales minus other sales in Million adjusted to inflation
- Adjusted age
- Square of adjusted age
- Product sales growth percentage with respect to that of last year

Fit Statistics			
SSE	0.8141	DFE	153
MSE	0.0053	Root MSE	0.0729
R-Square	0.7186		

F Test for No Fixed Effects			
Num DF	Den DF	F Value	Pr > F
22	153	9.25	<.0001

Parameter Estimates						
Variable	DF	Estimate	Standard Error	t Value	Pr > |t|	Label
Intercept	1	-147.172	77.7614	-1.89	0.0603	Intercept
totalSalesMReal	1	0.000041	0.000048	0.85	0.3969	
ageadj	1	-0.12452	0.0784	-1.59	0.1145	ageadj
ageSquare	1	0.000037	0.000020	1.89	0.0602	
productSalesGrowthP	1	-0.00467	0.00216	-2.16	0.0322	productSalesGrowthP

Result analysis:
F test rejects the null hypothesis with confidence interval of greater than 99.99%
Square of adjusted age and product sales growth in percentage are significant with 95% confidence interval.
Coefficient of Adjusted age is negative where as coefficient of square of adjusted age is positive which indicates at early stage of the company, age has very negligible impact on Maintenance sales and its impact is greater as the company gets older.
Variable - Total sales adjusted with inflation - is not significant.

Regression 4:

Dependent variable is percentage of maintenance sales out of total sales minus other sales.

Independent variables are:
- Total sales minus other sales in Million adjusted to inflation
- Adjusted age
- Product sales growth percentage with respect to that of last year

Fit Statistics			
SSE	0.8331	DFE	154
MSE	0.0054	Root MSE	0.0736
R-Square	0.7120		

F Test for No Fixed Effects			
Num DF	Den DF	F Value	Pr > F
22	154	11.61	<.0001

Parameter Estimates						
Variable	DF	Estimate	Standard Error	t Value	Pr > |t|	Label
Intercept	1	0.064559	0.0346	1.87	0.0640	Intercept
totalSalesMReal	1	0.000039	0.000049	0.81	0.4187	
ageadj	1	0.023931	0.00250	9.57	<.0001	ageadj
productSalesGrowthP	1	-0.0047	0.00218	-2.16	0.0327	productSalesGrowthP

Result analysis:
F test rejects the null hypothesis with confidence interval of greater than 99.9%
Adjusted age and product sales growth in percentage are significant with 95% confidence interval. As the age of the company grows by 1 year, it contributes to 2.3% growth of maintenance revenue. As the product sales growth percentage increases by 1 percent, maintenance sales percentage reduces by 0.47%
Variable - Total sales adjusted with inflation - is not significant.

Regression 5:

Dependent variable is percentage of product sales of total sales minus other sales.
Independent variables are :
- Total sales minus other sales in Million adjusted to inflation
- Adjusted age
- Maintenance sales growth percentage with respect to that of last year

Fit Statistics			
SSE	0.9665	DFE	154
MSE	0.0063	Root MSE	0.0792
R-Square	0.8035		

F Test for No Fixed Effects			
Num DF	Den DF	F Value	Pr > F
22	154	20.27	<.0001

Parameter Estimates						
Variable	DF	Estimate	Standard Error	t Value	Pr > |t|	Label
Intercept	1	0.708926	0.0461	15.38	<.0001	Intercept
totalSalesMReal	1	-0.00002	0.000053	-0.36	0.7210	
ageadj	1	-0.02661	0.00277	-9.62	<.0001	ageadj
maintenanceSalesGrowthP	1	0.008865	0.00423	2.10	0.0377	maintenanceSalesGrowthP

Result analysis:
F test rejects the null hypothesis with confidence interval of greater than 99.9%
Adjusted age and maintenance sales growth percentage are significant with 95%
confidence interval. As the age of the company grows by 1 year, it decrease product sales
percentage growth by 2.6%. As the maintenance sales growth percentage increases by 1
percent, product sales percentage increase by 0.88%

Below is a sample of relation between productSalesP and age for company id 6.
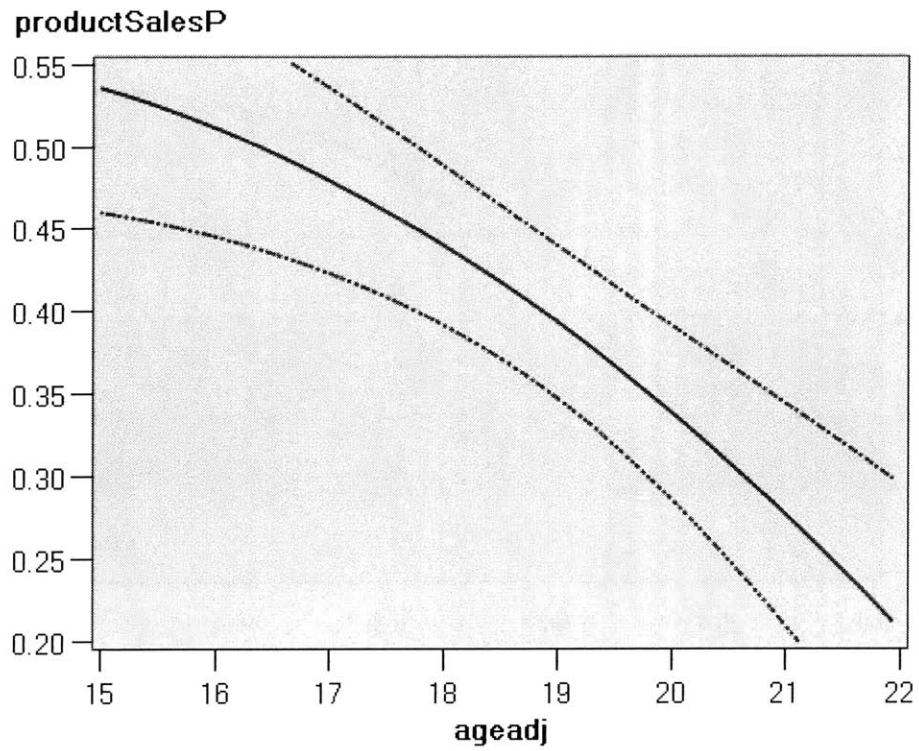
productSalesP

A sample plot between product sales percentage and maintenance sales growth percentage for company id 6
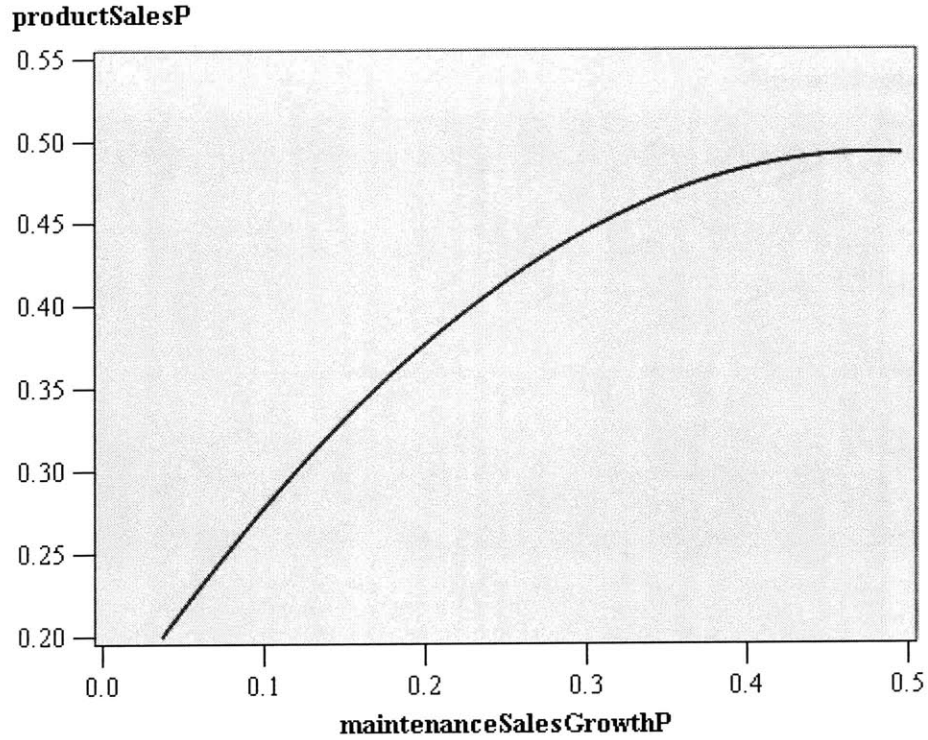
productSalesP

Regression 6:

Dependent variable is percentage of product sales of total sales minus other sales.
Independent variables are :
- Total sales minus other sales in Million adjusted to inflation
- Adjusted age
- Square of adjusted age
- Dummy variable Y2K which is 1 for year 1998 and 1999 otherwise 0.
- Dummy variable Recession which is 1 for year 2001 and 2003 otherwise 0.
- Maintenance sales growth percentage with respect to that of last year

Fit Statistics			
SSE	0.9404	DFE	151
MSE	0.0062	Root MSE	0.0789
R-Square	0.8088		

F Test for No Fixed Effects			
Num DF	Den DF	F Value	Pr > F
22	151	18.67	<.0001

Parameter Estimates						
Variable	DF	Estimate	Standard Error	t Value	Pr > |t|	Label
Intercept	1	152.443	84.4251	1.81	0.0730	Intercept
totalSalesMReal	1	-0.00002	0.000053	-0.33	0.7429	
ageadj	1	0.127088	0.0852	1.49	0.1380	ageadj
ageSquare	1	-0.00004	0.000021	-1.80	0.0743	
Y2K	1	0.000393	0.0169	0.02	0.9815	
recession	1	-0.01549	0.0146	-1.06	0.2892	
maintenanceSalesGrowthP	1	0.008651	0.00425	2.04	0.0433	maintenanceSalesGrowthP

Result Analysis:

F test rejects the null hypothesis with confidence interval of greater than 99.99%
Square of adjusted age and maintenance sales growth percentage are significant with 90% confidence interval.
Coefficient of Adjusted age is positive where as coefficient of square of adjusted age is negative which indicates at early stage of the company, age has very strong impact on product sales and its impact is negligible as the company gets older.
Total sales adjusted with inflation, dummy variable Y2K and dummy variable Recession are not significant.

Regression 7:
Dependent variable is gross margin (GAAP).
Independent variables are:
- Product sales percentage
- product sales growth percentage with respect to that of last year
- Adjusted age
- Maintenance sales percentage
- Maintenance sales growth percentage with respect to that of last year

Fit Statistics			
SSE	0.7775	DFE	151
MSE	0.0051	Root MSE	0.0718
R-Square	0.8415		

F Test for No Fixed Effects			
Num DF	Den DF	F Value	Pr > F
22	151	14.59	<.0001

Parameter Estimates						
Variable	DF	Estimate	Standard Error	t Value	Pr > |t|	Label
Intercept	1	0.509327	0.0816	6.24	<.0001	Intercept
productSalesGrowthP	1	0.008661	0.00325	2.67	0.0085	productSalesGrowthP
maintenancesalesP	1	0.094014	0.0956	0.98	0.3268	
productSalesP	1	0.371805	0.0919	4.05	<.0001	
maintenanceSalesGrowthP	1	-0.01538	0.00636	-2.42	0.0167	maintenanceSalesGrowthP
ageadj	1	0.001122	0.00333	0.34	0.7370	ageadj

Regression 8

Dependent variable is gross margin gaap.

Parameter Estimates						
Variable	DF	Estimate	Standard Error	t Value	Pr > |t|	Label
Intercept	1	0.72516	0.0380	19.09	<.0001	Intercept
maintenanceSalesGrowthP	1	-0.00973	0.00664	-1.47	0.1449	maintenanceSalesGrowthP
productSalesGrowthP	1	0.009895	0.00345	2.87	0.0047	productSalesGrowthP

Regression 9:

Dependent variable is gross margin (GAAP)

Fit Statistics			
SSE	0.8174	DFE	157
MSE	0.0052	Root MSE	0.0722
R-Square	0.8394		

F Test for No Fixed Effects			
Num DF	Den DF	F Value	Pr > F
22	157	14.22	<.0001

Parameter Estimates						
Variable	DF	Estimate	Standard Error	t Value	Pr > |t|	Label
Intercept	1	0.469972	0.0789	5.96	<.0001	Intercept
productSalesP	1	0.380986	0.0889	4.28	<.0001	
maintenancesalesP	1	0.092363	0.0954	0.97	0.3343	
ageadj	1	0.002284	0.00328	0.70	0.4871	ageadj

Regression 10:

Dependent variable is operation income – GAAP

Fit Statistics			
SSE	712.7404	DFE	152
MSE	4.6891	Root MSE	2.1654
R-Square	0.1878		

F Test for No Fixed Effects			
Num DF	Den DF	F Value	Pr > F
22	152	1.10	0.3574

Parameter Estimates						
Variable	DF	Estimate	Standard Error	t Value	Pr > |t|	Label
Intercept	1	-2.3817	2.4428	-0.97	0.3311	Intercept
maintenancesalesP	1	2.380312	2.8680	0.83	0.4079	
productSalesP	1	3.022358	2.7204	1.11	0.2683	
ageadj	1	0.007836	0.1005	0.08	0.9379	ageadj
productSalesGrowthP	1	0.119563	0.0905	1.32	0.1886	productSalesGrowthP
maintenanceSalesGrowthP	1	-0.32879	0.1598	-2.06	0.0413	maintenanceSalesGrowthP

Analysis: F –test does not reject null hypothesis with a confidence interval of 35%. So, the regression result is not significant.

Other observations:

Observation1:

As the firm gets older, its maintenance sales contribution to total sales increases and its product sales contribution to total sales decreases. From 23 observations, we have found 19 firms follow the above trend, 3 firms has some random effect and only one firm has just the opposite contribution. Below is the plot of a sample (firm id 6):
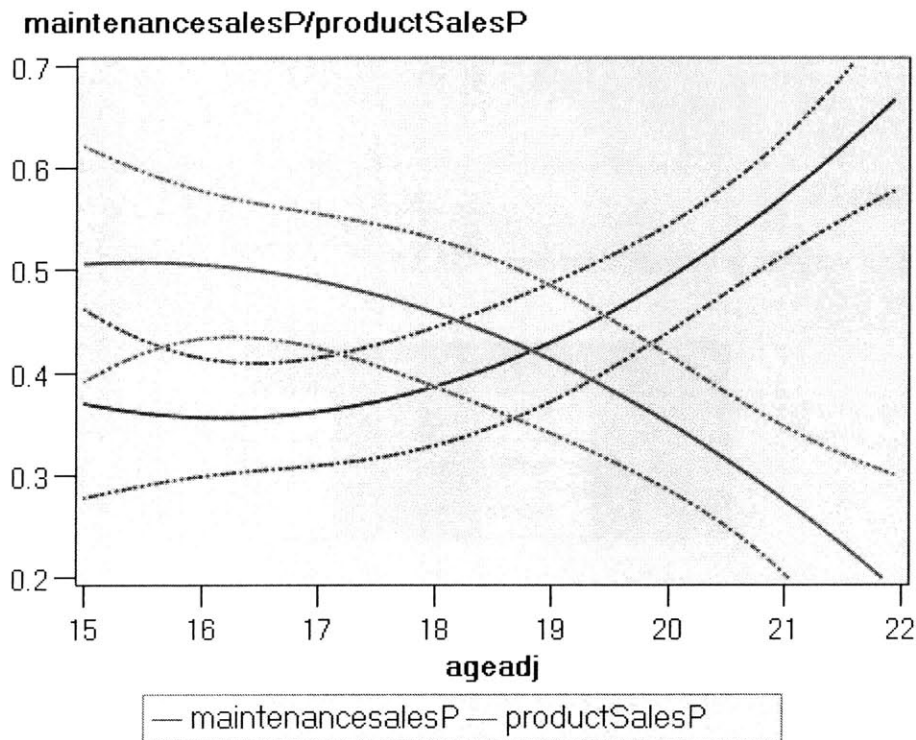
Observation 2

Out of 23 firms, the relationship between the rate of growth of maintenance and product sales with respect those of previous and the age has mixed result.
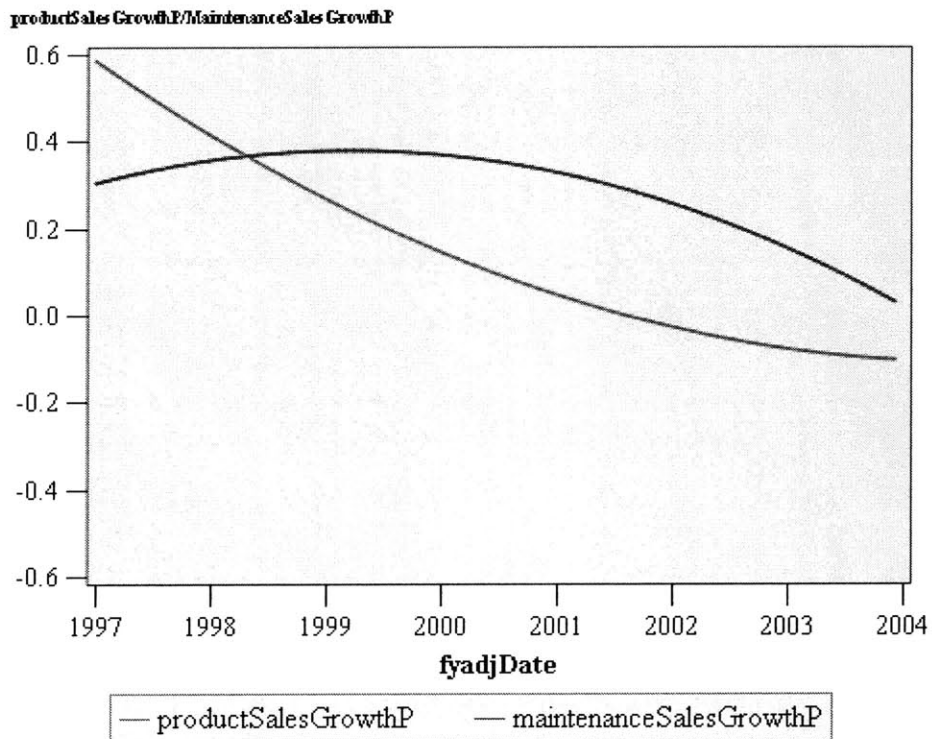Product sales growth percentage = P
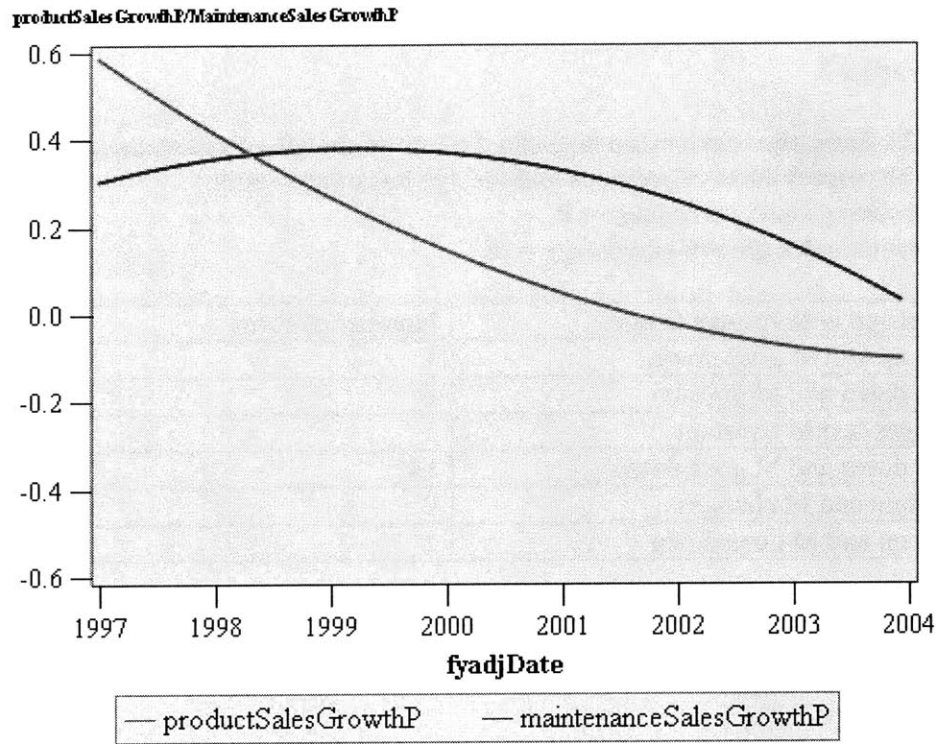Maintenance sales growth percentage = M

Relationship with respect to age	Number of firms
P goes up and M goes down	1
P goes down and M goes up	6
P changes and M constant	1
P goes down and M goes down	14
P constant and M changes	0
P goes up and M goes down	2

* Two firms has both "P goes down => M goes up" and "P goes up => M goes down" pattern.

Sample of "P goes down and M goes up" (company id 6)

Sample of "P goes down => M goes down" (company id 56)

productSalesGrowthP/MaintenanceSalesGrowthP

— productSalesGrowthP   — maintenanceSalesGrowthP

8.5 Appendix – E (Company Profiles)

8.5.1 Adobe Systems

COMPANY BACKGROUND	
Industry	• Computer Software
Products (Number and Type)	• Market: Business and personal users at content and document management. • Core Product: Acrobat family ($449 for Acrobat 7.0 Professional), GoLive ($399), Adobe Photo shop ($149) and eBook publishing software. • Number of Products: More than 50.

Key Financial Data	• 2004 Revenue: - $1.666B
	• Employee: - 3,142
	• 1 Year income growth: - 69.1%
	• 1 Year sales growth: - 28.7%
	• Annual sales in year
	   o 2001 - $1.229B
	   o 2002 - $1.164B
	   o 2003 - $1.294B
	   o 2004 - $1.666B
	• Revenue split: product 98%, services 2%
	• Revenue split by geography:
	   o US – 42%
	   o Other countries in Americas – 4%
	   o Europe, Middle East and Africa – 33%
	   o Japan – 16%
	   o Other Asian countries – 5%

Customers & Competitors	Primary customer segments: • Corporate • Government • Personal Major Competitors: • Macromedia • Microsoft • Quark
LICENSE MODEL (Adobe Systems, cont'd)	
License Duration	Primarily perpetual licenses. However, as per licensing peer from Adobe,

Standard License Options	Adobe provides Term License and Pay-Per-Use licenses (Create-Your-pdf through the web), and Flexible license per CPU or per Form for specific products. Adobe does not provide Enterprise-wide offerings and concurrent licenses offerings.
	
	1. Single User – Allows installation on one system.
	
	2. Group License: Two types of group licenses. However, it seems more like volume discount plan rather than license program.
	
	    o Contractual License program
	        ➤ Customer gets same as initial order discount level during the life of the CLP agreement.
	        ➤ No order commitment in next two years.
	        ➤ Must meet minimum qualification which is based on product type and number of license seats.
	        ➤ New software license, software upgrade and upgrade plan orders all contribute to the discount level.
	        ➤ Discount depends on Volume and type of product and discount amount is calculated based on Adobe open option 4.0 discount level calculator.
	
	    o Transactional License program
	        ➤ Discount is transaction-based.
	        ➤ Must meet minimum point/qualification levels.
	        ➤ No contractual agreement.
	        ➤ Discount depends on Volume and type of product and discount amount is calculated based on Adobe open option 4.0 discount level calculator.
	
	3. Term Licensing – Available to specific product lines. Details unknown.

MAINTENANCE/SUPPORT	
Standard Offering:	- Upgrade plan • Free update/upgrade, • Duration is 2 years. • Does not include live support • Price: - Not a fixed percentage, varies from product to product. Expert Support: - Available for certain products. • Live support included. • Product update and upgrade is included. • Price: Unknown. Software upgrades only option: Available.
PROMOTIONS AND DISCOUNTS (Adobe Systems cont'd)	
Volume Discounts:	New License – Discount is based on products and number of seats. Please see Contractual license and Transactional license option for detail. Four level

	of discounts based on total points earned. Each product has different point. Customer must meet minimum point to eligible for discounts. Available to all customers world wide. Maintenance/support – Discounts on upgrade plan is calculated in the same way as the new licenses. Upgrade plan on each product has different point values. Customer must meet minimum points to eligible for discounts.
OTHER DETAILS:	
International pricing:	As per the license peer at Adobe, "Our international pricing is a big mess, probably, it is cheaper to fly from London to New York and buy the Adobe Photo shop than buying Adobe Photo shop from London".
Sales Channel	Adobe sells its products to corporate customers only through retailers and resellers. We do not know the reason behind this.

8.5.2   Autodesk, Inc.

COMPANY BACKGROUND	

Industry	• Computer Software
	   o Engineering, Scientific & CAD/CAM Software (primary)
	   o Development Tools, Operating Systems & Utilities Software
	   o Multimedia, Graphics & Publishing Software
	   o Collaborative Software

Products (Number and Type)	• Market: Manufacturing (includes Auto and Aerospace) industry. • Geography: - Global presence with offices in US and 30 other countries. • Core Products: AutoCAD, Autodesk, AutoSketch, • Products are grouped into two families such as Design Solution segment and Discreet segment. • Total Number of Products: Approximately 50 products. • Sales Channel: Direct sales, authorized distributors and resellers. • Basis for pricing/licensing research: AutoCAD V5 ($3,750 for Named User license)

Key Financial Data	2004 Financial data
	• 2004 Revenue: - $1.233 B
	• Total Employees: 3,477.
	• 1 Year sales Revenue Growth: 29.7%
	• 1 Year Net Income Growth: 84.1%
	• Revenue split
	   o By geography:
	      o America 41%,
	      o EMEA: 36%,
	      o APLA: 23%.
	   o By revenue type:
	      o Licenses and other 86%
	      o Maintenance 14%
	          ■ Maintenance is relatively new, previously only offered upgrades. Maintenance has increased from 9% to 12% to 14% of total revenue over the past three years.

Competitors	Major Competitors in Design Solution segment: • Dassault Systems • SolidWorks Corporation (a subsidiary of Dassault Systems) • Parametric Technology Corporation • UGS Corp., • Bentley Systems Inc. • Environmental Systems Research Institute, Inc. (ESRI). Major competitors in Discreet segment: • Avid Technology, Alias Systems, Apple Computer.
LICENSE MODEL (Autodesk, cont'd)	

License Duration	Autodesk offers both annual term license and perpetual licenses.

Standard License Options	1. **Standalone (single user, node locked)**: allows installing in one computer only.
	  o Price: $3,750
	  o Does not include SMS
	  o Includes 60 days basic telephone installation support.
	  o Limited to one computer only.
	
	2. **Multi-standalone (Group license)**:
	  o Price: Unknown
	  o Allows installing application in 2 systems per user, however, can not run both installations simultaneously.
	  o One serial number.
	  o Does not include SMS
	  o Includes 60 days basic telephone installation support.
	  o Limited to one computer only.
	
	3. **Network licenses** (concurrent); limited to one local area network in one physical location.
	  o Price: Unknown
	  o Does not include SMS.
	
	4. **Subscription license** (Term):
	  o Price: - $420/year
	  o Term period: 1 year
	  o Certain products are exclusively available through subscription program.
	  o Includes update/upgrade, web support and e-Learning
	  o Can be migrated from one product to another by paying migration fee. Fee structure is unknown.
	  o New Licenses can be added to existing subscription prorated price.
	  o Entire Network need to be on subscription or not for network (concurrent) subscription license.
	  o Web based subscription center to manage subscription.

MAINTENANCE/SUPPORT (Autodesk, cont'd)

Standard Offering:
Content:
	Support is available to certain qualifying software programs. Minimum purchase is required to buy maintenance. There is a limit to number of callers for support based on maintenance and licenses program. Three types of support available.
	
	• Direct support (two types of direct support)
	   – Level 1 includes web support, periodic conference call and access to escalation management (a web based application).
	   – Level 2 includes all facilities of level 1 and working hour phone support.
	   o Price: Unknown.

Alternative Offerings	• Enterprise Support:
	   o Price: Unknown.
	   o 24/7 tech support over the phone.
	   o Update/upgrade is included.
	   o Includes e-learning and access to escalation management.
	
	• Safety net (Pay-per-incident)
	   o Price: $65 per incident for stand alone license and $125 per incident for network license.
	
	Services: - Provides consulting service.
	
	• Software upgrades only option: Available, Upgrade to current 2006 version from 2002 version is $1495, from 2004 version is $995 and from 2005 version is $495
	• Reinstatement fee: Unknown.

PROMOTIONS AND DISCOUNTS:	
Volume Discounts:	• Volume discounts: Autodesk Open License Program (AOLP) was providing discount based on product type and number of seats purchased. Six levels of discounts were available. However, this plan is discontinued since 2004. No new Volume discount plan is found through web research. • Bundle/Suite discounts: Unknown. • SMS discount: Unknown.

8.5.3   Cadence Design Systems Inc.

COMPANY BACKGROUND	
Industry	- Hardware, technical and scientific research services - Computer Software - Engineering, Scientific & CAD/CAM, Collaborative software
Products (Number and Type)	- Market: Electronic Design Automation - Geography: - Global - Core Products: Spectre, SpeedSim, Envisia, Encounter, NC-Simulator, NC-Verilog, NC-VHDL, Virtuoso, Affirma, CoBALT, Mercury, Allegro, SPW, PCB, PSpice. - Total Number of Products: 75 - Sales Channel: Direct sales channel in US and primarily through subsidiaries for international market. - Basis for pricing research: PSpice and PCB Ecpert ($6,000/seat and $25,000/seat respectively for one year subscription.)
Key Financial Data	2004 Revenue: - $1,197 M. - Total Employees: 4,900. 1 Year sales Revenue Growth: 7% - Revenue split by geography: - US 50%; - Rest of NA 2%; - Japan 16%; - Rest of Asia 10%; - UK 4%; - Germany 7%; - Rest of Europe 11% - Revenue by type: - Products (Both hardware and software) 61%; - Maintenance 28%; - Services 11%
Competitors	- Mentor Graphics - Synopsys - Ansoft - ANSYS - Intrinsix - Logicvision - PDF Solutions - Sagantec - SILVACO - Synplicity - Valor computerized Systems. - Zuken
LICENSE MODEL (Cadence, cont'd)	

License Duration	Cadence offers: • Perpetual Licenses; • Two or three-year Subscription Licenses; • Two or three-year Term Licenses

Standard License Options	1. Perpetual License: Licensed on a perpetual basis with no contractual right to return exchange or remix the licensed software. Group License option is available to Education/Academic Customers but it is not known whether group license is available to commercial customers.
	  o Price: Unknown
	  o SMS is not included
	
	2. Subscription licenses; License for a specified time period, generally two to three years with no contractual right to return and limited rights to remain within the licensed software and to unspecified future technology. Maintenance is included.
	  o Price: Unknown
	  o SMS is included
	
	3. Term Licenses; Licenses for a specified time period, generally two to three years, with no contractual rights to return and limited rights to remix the licensed software for unspecified future technology.
	  o Price: Unknown
	  o SMS is included
	
	Revenue is recognized differently for each of the two term license options: "For example, a $3.0 million, 3-year product subscription license would result in $1.0 million of revenue recognized per year, or $250,000 per quarter. However, a $3.0 million, 3-year product term license, assuming equal or near equal payments and no rights to new technology, would result in $3.0 million of revenue recognized upon delivery, which is generally in the first quarter of the arrangement, and no revenue recognized in succeeding quarters."

MAINTENANCE/SUPPORT	

Standard Offering:
Content:
	• Standard maintenance service includes
	  o Access to sourceLink, and access to support engineer through Telephone, email and web.
	  o Software update/upgrade.
	  o Price: Unknown
	
	• Other Support: - Available, detail is unknown
	
	Services: - Pay-as-you-go service to access the software tool through internet or remote connection is available for few products.
	
	• Software upgrades only option: Unknown
	• Reinstatement fee: Unknown

PROMOTIONS AND DISCOUNTS (Cadence, cont'd)	

Volume Discounts:	• Volume discounts: Do not have any volume discounts. • Bundle/Suite discounts: Unknown • SMS discount: Unknown
OTHER DETAILS:	
	Uplift on International pricing: Yes, uplift is for other than North America based on region/country. Interesting data point re: order size: "Our quarterly operating results are affected by the timing of significant orders for our software products because a significant number of licenses for our software products are in excess of $5.0 million. The failure to complete a license for one or more orders for our software products in a particular quarter could seriously harm our operating results for that quarter."

8.5.4 dSpace, GmbH

COMPANY BACKGROUND	

Industry	• Hardware
	   o Prototype development including Rapid Prototype, Calibration and Measurement, Test tools for Auto Industry.
	• Computer Software
	   o Development Tools for electronic control unit.

Products (Number and Type)	• Market: Worldwide auto industry • Core Product: TargetLink, ControlDesk, AutomationDesk, MTest, MotionDesk, RTI • Total Number of Products: 17 Software and 13 hardware products • Sales Channel: Direct sales channel • Research Done on Product: TargetLink (Around $15,000 for Node Locked License, exact amount is unknown)
Key Financial Data	• 2004 Revenue: - 20M Euro (source: D&B report) • Total Employees: 490 (source: D&B report) • 1 Year sales Revenue Growth: Unavailable • Revenue split by geography: Unavailable • Significant Revenue trend: Unavailable
Competitors	Major Competitors: • Mentor Graphics • MathWorks • SPSS • AutoDesk
LICENSE MODEL	

License Duration
 	
Standard License Options
	dSPACE offers Perpetual licenses only.
	
	Two License Options:
	
	1. Node locked license – Dongle required
	   o Price: "Around" $15,000 per dSPACE sales rep., vs. $35-45K in 2002 competitive research.
	   o Six months SMS is included.
	
	2. Concurrent License:
	   o Concurrent multiple: 2X
	   o Six months SMS is included.

MAINTENANCE/SUPPORT (dSpace, cont'd)	

Standard Offering: Content:	• Standard Support
	   o 15% of the then-current license fee. Declined from 20% of then-current license fee in 2002.
	   o Provides: Software updates and upgrade, phone/web tech support, phone support is limited to weekdays.

Alternative Offerings	• Other Support: - Life time support on product technical issue is free • Software upgrades-only option: Not available. • Reinstatement fee: 10%of then-current license fee per each lapsed year.

PROMOTIONS AND DISCOUNTS:	

Volume Discounts:	• Volume discounts: Available for all products. Discount is based on annual volume. Discount rate is
	   o Upto 10K – 0%
	   o 10K to 25K - 5%,
	   o Other discount layers exist, but specifics are unavailable.
	• Bundle/Suite discounts: dSPACE does offer suite discounts but pricing is unavailable.
	• dSPACE does not discount SMS.

8.5.5 Insightful (Splus)

COMPANY BACKGROUND	

Industry	• Computer Software
	   o Business Intelligence Software
	• Services
	   o Consulting services.

Products (Number and Type)	• Market: market research and other statistical analysis. • Geography: - Global presence with offices in France, Switzerland, the UK, and the US • Core Product: S-PLUS, Insightful Miner, Insightful Array Analyzer, InFact • Total Number of Products: Less than 10 • Sales Channel: Direct sales through telesales and field sales force resellers, or VARs, distributors, original equipment manufacturer, or OEM, partners, system integrators. • Research Done on Product: S-PLUS 7.0 Professional Developer ($3,300 for single user license)

Key Financial Data	• 2004 Revenue: - $18.9 M.
	• Total Employees: 108.
	• 1 Year sales Revenue Growth: 9.9%
	• Annual income (loss):
	• 2001: $2.4 M,
	• 2002: ($3.1M)
	• 2003: ($1.5 M)
	• 2004: $2.1 M
	• Revenue split
	   o By geography:
	      o US 66%,
	      o International: 34%
	   o By category:
	      o License 46%,
	      o Maintenance 35%
	      o Professional services and other 19%.

Competitors	Major Competitors: • SAS • SPSS • Visual Numerics
LICENSE MODEL (Insightful, cont'd)	

License Duration	Insightful offers Annual Term licenses and Perpetual licenses.
Standard License Options	Insightful provides 6 types of commercial license options.

1   **Single User License (Named User):** A license to install, and for one Authorized User at a time to use, the Software on one Desktop for the exclusive use of one Authorized User at any one time. Remote access, including but not limited to access via Terminal Services, is not permitted.
   o   Price: $3,300
   o   Includes 1 year of SMS
   o   Can be installed in more than one computer.

2   **Concurrent User License:** A license to install and for Authorized Users (Concurrent Users) to simultaneously run the Software on the number of Desktops specified in the Packing List, such installation and use to be limited to the geographic area contained within one Time Zone in one country as specified in the Packing List. Remote access, including but not limited to access via Terminal Services, is not permitted.
   o   Price: 1.35X
   o   Includes 1 year of SMS

3   **Concurrent Session License (SESS) or Production Session License (PSESS):** A license to install the Software on a Server and for any number of Authorized Users to access the Software via a Client, limited to the number of Sessions on the Server specified in the Packing List
   o   Price: Unknown
   o   Includes 1 year of SMS

4   **Client/Server License (CS):** A license to install the Software on one or more computer(s) ("Server") containing the number of CPUs specified in the Packing List (or fewer) and for the number of Named Users specified in the Packing List to access and use the Software via Network connections.
   o   Price: Unknown
   o   Includes 1 year of SMS

5   **Production Server License (PS):** A license to install the Software on one or more Server(s), limited to the aggregate number of CPUs specified in the Packing List, and for an unlimited number of Clients to access and use the Software via Network connections.
   o   Price: Unknown
   o   Includes 1 year of SMS

6   **Subscription License (-S):** A license of one or more of the licensed

Standard License Options cont'd	types described in this section, that further limits the installation and use of the Software to the time period ("Subscription Period") commencing on the date specified in the Packing List for the Software, and that allows for optional annual renewals for new Subscription Periods by payment of Insightful's then-current renewal fee prior to the anniversary date of the commencement of the prior Subscription Period.
	
	  o Price: Unknown
	
	  o Includes 1 year of SMS
	
	  o 12 month term

MAINTENANCE/SUPPORT (Insightful, cont'd)

Standard Offering: Content:	• Standard maintenance service is known as "Maintenance and Product Support (MPS)" and is priced at 20% of the then-current license fee.
	  o Support is available only for the current release of the software and all other releases whose version number begins with either the same number, or the previous number
	  o Access to user forum, and access to support website.
	  o M-F, 9 am to 8 pm tech support over the phone
	  o Software updates/upgrades includes.
	
	• Reinstatement fee: lapsed maintenance fee + 10% of lapsed maintenance fee as late fee. If maintenance contract lapsed longer than 6 months, new license must be purchased.

PROMOTIONS AND DISCOUNTS:

Volume Discounts:	• Volume discounts: Available, for example:
	  o 5 licenses – 5-6%,
	  o 6 – 10 licenses – 12.5% etc.
	• Bundle/Suite discounts: Unknown
	• SMS discount: Unknown.

OTHER DETAILS:

	➢ Product Activation: Unknown, Uses FlexLM as License manager.

8.5.6   MathSoft, Inc.

COMPANY BACKGROUND	

Industry	• Computer Software
	   – Engineering, Scientific & CAD/CAM software,
	   – Development tools, Operating Systems and Utility software,
	   – Education and training software.

Products (Number and Type)	• Market: Technical Computing and math software for middle and secondary schools. • Core Product: MathCad • Number of Products: Core products – Mathcad and Study Works with three libraries and 5 extension packs.
Key Financial Data	• 2004 Revenue: - $8.1M • Total Employees: 75
Competitors	• The MathWorks Inc. • Wolfram Research. • National Instruments. • Texas Instruments • McGraw-Hill • Harcourt Education.
LICENSE MODEL	
License Duration	Perpetual licenses only. No term licenses offered. New license purchase does not include Maintenance.

Standard License Options	Three License Options:
	1. Single User License - Allows installation on one work and one home system.
	
	2. Node locked license – Install a copy of the software on a network server and allows number of individuals equal to total number of locked seats licensed to use the software from client machines.
	   o Node-locked multiple = 1; customer is not allowed to share with unlimited number of users a la concurrent.
	   o Customer can also install an equal number of node locked license seats for home use if Customer is on Software Assurance (Maintenance) program
	
	3. Concurrent License:
	   o Concurrent multiple: 3X. Multiple has been raised from 2.4X in 2002;
	   o Customer can also install twice the number concurrent license seats for home use if the Customer is on Software Assurance (Maintenance) program

MAINTENANCE/SUPPORT (Mathsoft, cont'd)	

Standard Offering: Content:	Software Assurance Program
	• Price: 20% of the then-current license fee;
	• Includes: Software updates and upgrade, phone/email tech support.
	• Discount pricing: 16% of then-current license fee after volume discount for 100 users.
	• Mathsoft has increased its SMS fee by approximately 10% per year in recent years. Decision to make annual increase is dependent on competitive environment.
:	Basic Tech support
	• Free for each licensed product
	• Includes Web tech support and product update (patch)
	Software upgrade options: Available to those who are not in SMS scheme.
	• Price: 25% of the then-current license fee, does not include SMS;
	- Allows customer to upgrade Version 8 or newer to current version (12)
	• 33% of the then-current license fee, does not include SMS.
	- Allows customer to upgrade "older than Version 8" to Version 12

PROMOTIONS AND DISCOUNTS:

Volume Discounts:	• Volume discounts are available and are based on the number of Mathcad seats licensed.
	- 5 to 24 - 36.36%
	- 25 to 99 - 38.67%
	- 100 to 250 - 42.36%
	- 250 to 400 - 44%
	• Cumulative discounting applies to follow-on purchases (e.g., if customer has 99 seat license, and purchases 20 additional seats, customer will receive 100-250 price for add-on purchase).
	• Suite discounts are available in the form of product bundles, including Mathcad plus a library product(s) or Mathcad plus Extension Pack(s). Amounts of suite discounts are unknown.

OTHER DETAILS:

	➢ International price uplift – Unknown
	➢ Multinational License option – Not offered
	➢ History of price increases: Mathsoft has raised the price of MathCad over the past three versions:
	o Version 10 to Version 11 – increased from $799 to $999;
	o Version 11 to Version 12 increased from $999 to $1,199

8.5.7   Mentor Graphics Corporation

COMPANY BACKGROUND	

Industry	• Computer Hardware – Specialized Computer Systems
	• Computer Software
	    o Engineering, Scientific & CAD/CAM Software
	    o Collaborative Software
	    o Development Tools, Operating Systems & Utility Software

Products (Number and Type)	• Market: Worldwide Military/Aerospace, Communications, Computer, Consumer Electronics, Semiconductor, Networking, Multimedia and Transportation Industries. • Core Product Group: Embedded Systems, C-Based Design, IC Nanometer Design, Scalable Verification, PCB Systems, Board Station, Expedition Series, PADS, FPGA/PLD, Design-for-Test, System Modeling, Cabling and Harness • Total Number of Products: Around 170 including toolsets. • Sales Channel: Direct sales force, distributors and sales representatives. • Basis for Product Research: DX Designer ($1,700 for Node Locked License and $2,299 for Concurrent license)

Key Financial Data	• 2004 Revenue: - $711M
	• Total Employees: 3,856
	• 1 Year sales Growth: 5.2% with 7% increase in system/software revenue
	• Revenue split by license model:
	    o "Contractual" Term (revenue recognized up-front): 52%;
	    o Perpetual: 33%;
	    o "Pay as you go" Term (revenue recognized ratably): 15%
	• In 2004, Term revenue increased by 16% while Perpetual license revenue decreased by 13% vs. 2003.
	• Revenue split by geography:
	    o Americas 43%;
	    o Europe 28%;
	    o Japan 18%;
	    o Pacific Rim 11%
	• Revenue trend by geography (2004 vs. 2003):
	    o 7% decline in Americas,
	    o 30% increase in Japan;
	    o 34% increase in Pacific Rim.

Competitors	"The Company's principal competitors are Cadence Design Systems and Synopsis, Inc."
LICENSE MODEL (Mentor Graphics, cont'd)	

10K Commentary	The year ended December 31, 2004 marked the fourth consecutive year in which, as a percentage of product revenue, term revenue increased while perpetual revenue decreased. This trend was primarily the result of two factors. • First, the Company's customers are moving toward the term license model, which provides the customer with greater flexibility for product usage, including the option to share the products between multiple locations and reconfigure consumption at regular intervals from a fixed product list. As such, some of the Company's customers have converted their existing installed base from perpetual to term licenses. • Second, the weakness in the United States high-technology economy has disproportionately impacted the Company's smaller customers. Historically these customers have purchased under the perpetual license model. As customers move away from perpetual licenses and into term licenses, the renewability and repeatability of the Company's business is increased. This provides opportunity for increased distribution of young products earlier in their lifecycles. While this shift in license models may continue, the rate of movement from perpetual licenses to term licenses is expected to decrease.
License Duration	Mentor sells contractual three-year Term licenses, pay as you go Term licenses and Perpetual licenses.

Standard License Options	License Options:
	
	1. Node locked license – Not allowed to install on home system.
	   o Price: $1,700
	   o SMS is not included in initial license fee and buying SMS is not mandatory.
	
	2. Concurrent License: Available for all products.
	   o Concurrent multiple: 1.3X
	
	3. "Contractual" Term License – Contractual three-year term with annual payments, revenue is recognized when received. Does not provide the right to use after the term expiration unless renewed.
	   o Price: Unknown.
	   o Includes SMS
	4. "Pay as you go" Term License: Customer rents software with no long-term contractual commitment, revenue is recognized as earned (likely monthly).
	   o Price: Unknown
	   o Includes SMS

MAINTENANCE/SUPPORT (Mentor Graphics, cont'd)

Standard Offering:
Content:
Alternative Offerings
	Various support and maintenance options are available based on support level, product line, hours of support level availability and the number of eligible contracts.
	
	• Pricing
	    o 15-18% of the then-current license fee based on product line, average is around 17%.
	    o Includes software updates and upgrades, phone/web tech support.
	
	• "Upgrade-only" option: Not available

PROMOTIONS AND DISCOUNTS:	
Volume Discounts:	• Volume discounts: Available, actual percentage is unknown. • Bundle/Suite discounts: Available for bundled product of basic and add-ons. Actual discount percentage is unknown • No discount on SMS.

OTHER DETAILS:	
	➢ No uplift on International pricing. ➢ No multinational licensing. Must buy from local retailer. ➢ Product Activation: Individual Node locked – receives the license file from the net and receives the concurrent license file by email upon sending the hardware detail. ➢ License options, maintenance fees and conditions are negotiable for large accounts. ➢ Mentor Graphics is a global company with global operations.

8.5.8   Microsoft Corporation

COMPANY BACKGROUND	

Industry	• Computer Software
	   o Development Tools, Operating Systems & Utilities Software
	   o ERP and collaboration suite.
	   o Game software

Products (Number and Type)	• Market: Consumer software and corporate packaged software product • Geography: - US, China, Ireland, Denmark, India, Israel, England, Singapore etc. • Core Product: windows OS, Office suite, SQL server, Internet Application server etc. • Total Number of Products: Around 200 products. • Sales Channel: OEM; distributors and resellers; and online services
Key Financial Data	• 2005 Revenue: - $39.788B • Total Employees: 57,000. • I Year sales Revenue Growth: 8% • 1 Year net income growth: 50% • Revenue split o By geography: US 68%, Rest 32%
Competitors	Major Competitors: • IBM • Oracle • Sun Microsystems Other Competitors: • Adobe • Apple Computer • EarthLink • EMC • Google • Hewlett-Packard • IBM • Nokia • Novell • Oracle • Red Hat • SAP • Siebel Systems • Sun Microsystems • Time Warner • Yahoo!
LICENSE MODEL (Microsoft, cont'd)	

License Duration	Term Licenses (generally 3 year terms) and Perpetual licenses. Microsoft provides different license and pricing options to these market/product segments. - Full packaged product (Consumer product) - OEM. - Volume license option (Corporate customer)

Standard License Options (Volume License Options)	Four types of volume licenses options are available.
	
	1. **Open License**: more than 5 and less than 250 computers. Three different types of open licenses are available.
	  o Open License Value; must buy license and Software Assurance (SMS) together;
	  o Open License Volume; Not required to buy license and SMS together.
	    – Price based on number of license seats on product pools.
	  o Open License Business; Not required to buy license and SMS together.
	    – Price based on retail price of all Microsoft products purchased.
	
	2. **Select License**;
	  o More than 250 computers.
	  o Volume price for each pool of software selected based on a three year software forecast; continue to use the product if properly licensed and paid for.
	  o Can renew SMS after 3 years
	  o Eligible for spread payment.
	  o Need to buy SMA separately.
	
	3. **Enterprise Agreement License**;
	  o Based on 3 year agreement; customer can use the product if properly licensed and paid for.
	  o More than 250 computers.
	  o Standardized Microsoft product through out the organization;
	  o Can renew SMS after 3 years
	  o Eligible for spread payment.
	  o Need to buy SMA separately.
	  o Annualized payment.
	
	4. **Enterprise Subscription License**;
	  o Based on 3 year term agreement; end of third year, right to use software ends and customer must renew or uninstall the software.
	  o More than 250 computers.
	  o Standardized Microsoft product through out the organization;
	  o Eligible for spread payment.
	  o SMA is included.
	  o Annualized payment.
	
	• Price levels for 250 to 2399, 2400 to 5,999, 6,000 to 14,999 and 15,000+ seats are not known.

MAINTENANCE/SUPPORT (Microsoft, cont'd)	
	Three types of maintenance services are available.

Standard Offerings: Content:	• Software assurance (Standard maintenance service) includes
	  o Price: 20% of then-current price
	  o Spread payment (spread payments are paid annually at the begin of the year)
	  o Home use program: Can be used in home PC (Not available for server products)
	  o Employee purchase program: employee gets same discount as the corporate gets.
	  o Tech net support and problem resolution support
	  o Extended lifecycle hot fix support
	  o Software update/upgrade.
	  o eLearning and Training vouchers.
	
	• Premier support: -
	  o SA and 24/7 support
	  o Limited number of callers, extra callers can be purchased separately.
	
	• Pay-per-incident support:
	  o Price: unknown.
	
	• Software upgrades only option: Available to full packaged product (consumer product)
	• Reinstatement fee: Unknown

PROMOTIONS AND DISCOUNTS:

Volume Discounts:	• Volume discounts: available, exact percentage is unknown. Provides web access to see the usage; not all products are eligible for discount. User can install at home. • Bundle/Suite discounts: Available. • SMS discount: Software Assurance Membership (SAM) allows getting extra discount and benefits for the company wide installation of one or more product pool.

OTHER DETAILS:

	➤ Uplift on International pricing: Yes, uplift is for other than North America based on region/country, exact percentage is unknown. ➤ Multinational licensing Options: Unknown. ➤ Product Activation: required, can be done over the phone or web. ➤ 97% customer retention of premier support program in the year 1999.

8.5.9 MSC Software Corporation

COMPANY BACKGROUND	

Industry	• Computer Software
	  o Engineering, Scientific & CAD/CAM and Collaborative software
	
	• Services
	  o Application service.
	  o Computer products distribution and support.

Products (Number and Type)	• Market: Manufacturing (includes auto and Aero space) industry.
	• Geography: - Global presence with offices in US, Europe and Asia Pacific.
	• Core Product: MSC.Nastran, MSC.Patran, MSC.Adams, MSC.Marc, MSC.Dytran, MSC.Enterprise Mvision, MSC.Dynamic Designer.
	• Products are grouped into four families: Enterprise, Professional, Desktop and Third party software products.
	• Total Number of Products: ~300 consisting of:
	  o 120+ standard solutions,
	  o 85 premium solutions, and
	  o Remainder core products.
	• Sales Channel: Direct sales force in US, and major Asian and European markets; remainder through resellers.
	• Research Done on Product: SIM Designer for CATIA V5 ($6,000 for node locked license)

Key Financial Data	2003 Financial data, MSC has not filed its 2004 10K/Q yet.
	• 2003 Revenue: - $253 M.
	• Total Employees: 1400.
	• 1 Year Revenue Growth: -26.4%
	• 45% revenue growth in 2002
	• Revenue split
	  o By geography:
	    o US 52%,
	    o Asia Pacific 25%,
	    o Europe 23%

Competitors	Major Competitors: • Altair Engineering • ANSYS • Hibbitt, Karlsson and Sorenson, Inc. • Dassault • UGS Corporation.

LICENSE MODEL (MSC Software, cont'd)

License Duration	Generally, MSC offers perpetual licenses and term licenses of the following durations:
Standard License Options	• weekly,
	• monthly and
	• annual.
	MSC offers various license options:
	Node Locked:
	• **Node-locked (Perpetual)**: allows installing in one computer only.
	o Price: $5,000
	o Must buy one year of SMS which is $1000
	• **On Demand (Term)**; offers weekly, monthly and yearly terms.
	o Price: Weekly and Monthly terms are priced at 250% and 200% premium of reciprocate yearly license fee.
	o Does not include 24/7 support. 24/7 is limited to node locked licenses.
	o SMS is included.
	Concurrent:
	• **Local Network** (concurrent); limited to one local area network in one physical location.
	o Price: 1.5 X
	o No minimum license required.
	o Must buy one year of SMS.
	• **Country Network** (concurrent); limited to local area network within one country.
	o Price: - Unknown.
	o Must buy one year of SMS.
	• **Region Network** (concurrent); Limited to one region such as Asia pacific, NA etc.
	Token:
	• **MSC.Master Key** (Token based); two types of token based licenses;
	– **Standard**; All 120+ standard solutions are available in as many seats as needed as long as there are enough tokens available for use.
	– **Premium**; Premium solutions are available at a 50% enabling fee per seat for the 85 available premium options.

MAINTENANCE/SUPPORT (MSC Software, cont'd)	

Standard Offering:
Content:
Alternative Offerings
	• Standard maintenance service: 20% of then-current license fee
	   o Access to user forum, and access to support website.
	   o 24/7 tech support over the phone
	   o Software updates/upgrades.
	
	• Services: Provides consulting service in EDA and supply chain domain.
	
	• Reinstatement fee: Full back SMS payment is required, no reinstatement penalty.

PROMOTIONS AND DISCOUNTS:	
Volume Discounts:	• Volume discounts: No volume discount to corporate customer, Discounts are available to Academia and government licenses. • Bundle/Suite discounts: Unknown • SMS discount: Unknown
OTHER DETAILS:	
	➤ Uplift on International pricing: Yes, uplift is for other than North America based on region/country. ➤ Multinational licensing options: available. Uplift is unknown. ➤ Product Activation: Unknown, Uses FlexLM as License manager.

8.5.10   National Instruments

COMPANY BACKGROUND	
Industry	• Electronics - Electronic Test & Measurement Instruments • Computer Software - Engineering, Scientific & CAD/CAM, Manufacturing, Warehousing & Industrial Software.
Products (Number and Type)	• Market: Measurement and Automation Software and Hardware • Core Product: LabVIEW ($4,095 for Windows, 10% Premium for Unix) • Number of Products: Around 20 Software products and numerous add-on tools. • Global operations. • Sales Channel: Primarily through direct sales channel. Also sales through independent distributors, OEMs, VARs, System integrators and consultants

Key Financial Data	• 2004 Revenue/Employee: - $514.1M
	• 2004 Revenue Growth vs. PY: 20.7%
	• 2004 Net Income: $16.5M
	• Total Employees: 3,485
	• Total Engineers : 1,591
	• Revenue split by geography:
	    o Americas: 47%
	    o Europe: 32%
	    o Asia: 21% Asia
	        ▪ Asia has highest revenue growth rate - ~20%

Customers & Competitors	Primary customer segments: • OEM's; • Defense and Defense Contractors; • Academia Major Competitors: • Agilent Technologies; • Keithley Instruments; • Teradyne; • Advantest; • Fluke, LeCroy, Rohde & Schwarz; • Tektronix; • Thermo Electron; • The MathWorks
LICENSE MODEL (National Instruments, cont'd)	

License Duration	Primarily perpetual licenses. If term licenses are sold they would only be for enterprise-wide agreements.

Standard License Options	Five License Options:
	
	1. Node locked license – Allows installation on one work and one home system.
	
	2. Group License: Minimum quantity: 5 licenses of the same application software package. Features:
	   o Minimum quantity: 5 licenses of the same application software package.
	   o Central management to simplify software distribution, and license allocation.
	   o 10% discount on training and course material.
	
	3. Multiple Group License: Provides same benefits as group license, however, it allows a volume license to be divided between groups of the same organization. Single PO and minimum 10 licenses per application are required.
	
	4. Concurrent License: Available on labVIEW-Windows, lab-Windows, Test Stand, DIAdem products only.
	   o Includes "pay-as-you-go" and "true-up" features.
	   o Concurrent multiple: Not available
	   o Allows installing same number of concurrent seats for home use.
	
	5. Enterprise Licenses – Provides licenses for the entire company for complete standardization.

MAINTENANCE/SUPPORT

Standard Offering: Content:	Basic Service Program • Price: Free with any license purchase. • Features: Access to online Developer Exchange, knowledge base, example Code, solutions and white papers are included. Upgrade is not included.
Alternative Offerings	Standard Service Program (SSP) • Price: 17% of the then-current license fee; • Features: Software updates and upgrade, phone/email tech support and 10% discount coupon on NI training course and material are included. Premier Service Program • 28.5% of the then-current license fee; • Features: All Standard Service Program benefits, plus technical support from senior application engineers and priority escalation process to minimize total resolution time. Software upgrade option: Available to those who are not in SMS scheme. • Can purchase upgrade only for 23% of the then-current license fee. • Can purchase upgrade and one year of SMS (SSP) for 29% of the then-current license fee.

PROMOTIONS AND DISCOUNTS (National Instruments, cont'd)

Volume Discounts:	• Volume discounts are available for Group licenses, Multiple Group licenses and Enterprise licenses. Discounts are based on size of transaction (not based on annual volume). • Suite discount is available for the "NI Developer Suite"– a bundled product that includes LabVIEW, LabWindows/CVI nd Measurment Studio o Suite discount is approximately 30% off aggregated individual product prices.
OTHER DETAILS	
	➢ Activation: Product activation requires computer key and uses FlexLM as License manager

8.5.11   Oracle Corporation

COMPANY BACKGROUND	
Industry	• Computer Software – Database, ERP, CRM, Business Intelligence, Content and Document Management and collaborative software • Services – Training and Consulting services and
Products (Number and Type)	• Market: World wide Corporate, Government and Educational customers. • Product : Oracle Relational Database, Oracle 11i business suite, Oracle Collaboration suite, Oracle Application Server, Oracle Discoverer, Oracle JDeveloper etc. • Total Number of Products: Around 50. • Sales Channel: Direct sales force. • Product category: Technology product (Database, Application Server, Development tools such as Oracle report, Oracle forms, jDeveloper etc) and Application Products (eBusiness Suites, CRM, Financial applications etc) • Basis for Product Research: Enterprise database ($40,000 per CPU) and eBusiness Suite ($89 per month per employee for less than 50 Employees Company). Oracle products for personal use (not for business) are free of cost.

Key Financial Data	• 2005 Revenue: - $11.799B
	• Total Employees: 41,658
	• 2005 Net Income: $2.866B with profitability of 24.3% and operating margin of 37.1%
	• 1 Year sales Growth: 2004 revenue growth is 7% and 2005 revenue growth is 16%.
	• Revenue split:
	   o New License, and Maintenance: 80%;
	   o Services: 20%;
	• Revenue split by geography:
	   o US 42%;
	   o UK 8%
	   o Japan 7%
	   o Germany 5%
	   o France 4%
	   o Other countries 34%

Competitors	• IBM • Microsoft • SAP • Siebel • Sybase • MySQL • i2 technologies • Business Objects • BMC Software
LICENSE MODEL (Oracle, cont'd)	

10K Commentary	In fiscal 2005, 2004 and 2003, $455.6 million, $356.6 million and $364.1 million or approximately 11%, 10% and 11% of our new software license revenues were financed through our financing division.
License Duration	Oracle Technology products are mainly perpetual in nature and Oracle Application products are mainly term in nature with duration of around 3 years.
Standard License Options	Oracle provides various license options based on product line. Database (Tech Pro) and Application (App Pro) licensing details are described below. Each product has Oracle minimum license option and customer must pay for the greater of Oracle minimum and other license options chosen. **App Pro License model: -** • By number of processor of the m/c in which database is installed. This option is very expensive. • By Named User Plus; Oracle minimum is defined as 25 users per processor. Customer must choose the greater of actual user or Oracle minimum. For example, a 4 processor m/c is used by 300 sales rep and 10 developers. Then total number of named user plus is 300 + 10 and Oracle minimum is 25*4. So customer must pay by named user plus of 310 users. **App Pro license options:** - All the application license fees are annual term. No perpetual license available. • User-based matrix; Greater of total number of actual application users (includes application user, read only user, subscribers i.e. communication or utility applications interfaced with the application) or the Oracle minimum for that application. • Usage-based matrix; Greater of the usage calculated (For supply chain or warehouse product, it is percentage of total COGS, for Sales on line, it is total number of orders processed in online, for expanse management application, it is total number of expense report generated etc) or Oracle minimum (For eBusiness Suite, it is 10% of total employee population). • Licenses for Small business solution; Total number of employees must be less than 50, 34 months minimum term, paid quarterly or annually and standard service included, right to use expires after the term period and upgrade is not included.
MAINTENANCE/SUPPORT (Oracle, cont'd)	

Standard Offering: Content: Alternative Offerings	Various support and maintenance options are available based on support level, product line, hours of support level availability and maximum resolution time. Standard Support: • Pricing o 22% of the then-current license fee. o Includes software updates and upgrades, phone/web (Metalink) tech support. Gold Support includes guaranteed resolution within 2 days of bug report. • Price: unknown Platinum Support: includes 24/7 onsite tech support. Maximum resolution time is 2 hours. • Price: unknown, but very expensive. • "Upgrade-only" and "support only" option : Available Other Services: "Advanced product services are comprised of Oracle On Demand and advanced product support services. Oracle On Demand provides multi-featured software and hardware management and maintenance services for our database, middleware and applications software. Advanced product support services are earned by providing customers configuration and performance analysis, personalized support and annual on-site technical services. Advanced product services revenues are recognized over the term of the service contract, which is generally one year."

PROMOTIONS AND DISCOUNTS:

Volume Discounts:	• Volume discounts: Based on total sales revenue. o Sales revenue up to $50K – 5% o < $100K – 10% o < $250K – 15% o < $1M – 20% o $1M or above – 25% • Besides volume discounts, there are customer retention discount, competitor replacement discounts. • Bundle/Suite discounts: Available, product bundle varies from time to time. • Same volume discount is applicable to SMS discount.

OTHER DETAILS:

	➤ License options, maintenance fees and conditions are negotiable for large accounts.

8.5.12   Parametric Technology Corporation (PTC)

COMPANY BACKGROUND	

Industry	- Computer Software
	  o Engineering, Scientific & CAD/CAM and Collaborative software
	
	- Services
	  o Application service.
	  o Computer products distribution and support.

Products (Number and Type)	- Market: Manufacturing (includes auto, electronic and aerospace industries).
	- Geography: - Global presence with offices in US, Europe and Asia Pacific.
	- Two types of product lines:
	  o Shrink-wrapped MCAD software: Pro/Engineer
	  o Product lifecycle management (PLM): Wind Chill.
	- Total Number of Products: ~10.
	- Sales Channels: Direct sales channel, and indirect distributor.
	- Research Done on Product: Pro/E* ($5,000 per seat for concurrent license)

Key Financial Data	- 2004 Revenue: - $660 M.
	- Total Employees: 3,042.
	- 1 Year Revenue Growth: -1.8%
	- 2004 Revenue split
	  o By geography: NA 35%, Asia Pacific 28%, Europe 37%
	  o By type:
	    o License revenue: 30%
	    o SMS revenue: 49%
	    o Other professional services revenue: 21%
	- Operating income (loss):
	  o 2004: 34.5M
	  o 2003: (98.3M)
	  o 2002: (93.6M)
	  o 2001: (8.2 M)
	- License revenue split: 95% perpetual license and 5% Term licenses.

Competitors	SAP Autodesk, Inc. Solidworks Dassault Systems
LICENSE MODEL (PTC, cont'd)	

License Duration
 	
Standard License Options
	PTC no longer provides node-locked or named user licenses. All MCAD licenses are concurrent.
	
	1. **Single-country concurrent license**;
	   o Price: $5,000 per key
	   o 1 year of SMS is included.
	   o Limited to one country
	   o Buy-add-ons separately (free float)
	
	2. **Single-country concurrent "suite" license (our term, not PTC's)**
	   o Add-ons are locked to floating license in "like" quantities.
	
	3. **Global license**; Two types:
	   o Restricted global: One "high-cost" country and one "low-cost" country.
	       o Price: 1.5X (50% premium over standard concurrent)
	   o Unlimited global: worldwide access;
	       o Price: 2.25X (125% premium for global access)
	   o Pricing is based on country of purchase. For example, if global license is purchased/installed in NA, customer pays 2.25X of NA. If customer purchases in Japan, they would pay 2.25 times the uplifted concurrent price.
	   o 1 year of SMS is included.
	
	4. **Term license**; offers quarterly, semiannual, and annual terms.
	   o Price: Annual term license is 25% of perpetual license
	   o SMS is not included.
	   o Annual term plus SMS ~40% of perpetual

MAINTENANCE/SUPPORT	

Standard Offering:
Content:
	• Standard maintenance service
	  Per PTC pricing/licensing contact:
	   o List Price: 20%
	   o Discounted up to 30-35%, bringing effective selling price down to ~13%
	   o Target: Would like to eliminate SMS discounts and get to 20% for Pro/E
	  Per sale rep
	   o List Price: 30%, only discount is volume-based.
	
	• Includes:
	   o Access to user forum, and access to support website.
	   o Tech support over the phone
	   o Software updates/upgrades.
	
	• Software upgrades-only option: Available.
	• Reinstatement fee: Up to 9 months of SMS fee

PROMOTIONS AND DISCOUNTS (PTC, cont'd)	

Volume Discounts:	- Volume discounts: Based on annual volume: - Less than 10K: 5% > 4.5M: 55% - Bundle/Suite discounts: yes, provides bundled add-ons, price is unavailable. - SMS discount: - Yes, based on volume - Discount percentage is same as volume discount.
OTHER DETAILS:	
	- Uplift on International pricing: Yes, 1.25X - Multinational licensing Options: Yes, 2.5X. - Product Activation: No, traditional license management using FlexLM as License manager.

8.5.13   Research Systems, Inc.

COMPANY BACKGROUND	

Industry	Primarily
	• Industrial manufacturing
	   o Fluid Control Equipment, Pump, Seal & Valve , Wire & Cable Manufacturing
	Other:
	• Aerospace and Defense
	   o Weaponry & Related Products, Manufacturing, Electronics
	
	• Computer Software
	   o Data visualization and analysis product

Products (Number and Type)	• Market: Manufacturing (includes auto and Aero space) industry. • Geography: - Global presence. • Core Product: Pump and Fluid control equipment manufacturing. • Sales Channel: Direct sales force in US, and in major market of Asia and Europe and rest through resellers. • Research Done on Product: ENVI + IDL ($6,200 for node locked license)
Key Financial Data	ITT acquired Eastman Kodak's RSI and RSS division in 2004 for $725M. • ITT 2003 Revenue: - $6.764 B. • Total Employees: 44,000. • 1 Year sales Revenue Growth: 20.2%
Competitors	Major Competitors: • Ebara • Molex • Raytheon
LICENSE MODEL (RSI, cont'd)	

License Duration	RSI only offers Perpetual licenses

Standard License Options	1. **Node-locked ("X")**: Allows installation on a single computer.
	  o Price: $6,200 for Windows version
	      • $8,500 or Unix version (37% premium).
	  o Product activation required to use software.
	  o One year of SMS is included.
	
	2. **Personal (Named-User)**: User can install on up to four machines for their personal use.
	  o Price: 1.25X for IDL
	  o Does not require product activation
	  o One year of SMS is included.
	
	3. **Concurrent**:
	  o Price: 1.3X for IDL+ENVI and 1.625X for IDL
	  o One year of SMS is included.
	
	Other customized license options are available by quote for large customers.
	
	All pricing information is are available at www.rsinc.com

MAINTENANCE/SUPPORT	

Standard Offering:
Content:
Alternative Offerings
	• Price: 12.8%
	• Includes:
	  o Access to user forum, and access to support website.
	  o Tech support over the phone
	  o Software updates/upgrades.
	
	• Other Support: - Not available.
	  - Software upgrades-only option: Not available.
	• Reinstatement fee: Full back SMS payment required, no additional reinstatement penalty.

PROMOTIONS AND DISCOUNTS:	
Volume Discounts:	• Volume discounts: Average volume discount is 15%, however discounts of up to 35% are offered for large accounts. Discount is based on annual revenue volume. • Bundle/Suite discounts: Unknown • SMS discounts: None • SMS fee increases annually by 10% to adjust with inflation.

8.5.14   SPSS

COMPANY BACKGROUND	

Industry	• Computer Software
	  o Business Intelligence Software
	  o Content & Document Management Software
	• Services
	  o Consulting services.

Products (Number and Type)	• Market: market research, performance measurement, fraud detection and other statistical analysis. • Geography: - Development and head quarter in US and 14 sales operation offices in Europe and Asia Pacific. • SPSS has a worldwide customer service and technical support infrastructure • Core Product: SPSS, AnswerTree, Clementine, CustomerCentric, Dimensions, LexiQuest, OLAP Hub, Predictive web analytics. • Primary targeted vertical industries include financial services, telecommunications, market research, government, and education. • Total Number of Products: Around 35 • Sales Channel: Direct sales through telesales, field sales force and resellers. • Research Done on Product: SPSS Base 13.0 ($1,499 for individual named user license)

Key Financial Data	• 2004 Revenue: - $ 224.1 M.
	• Total Employees: 1,165.
	• 1 Year sales Revenue Growth: 7.5%
	• Annual sales revenue in year 2001, 2002, 2003 and 2004 are respectively $176.6 M, $209.3M, $208.4 M and $224.1 M respectively.
	• Revenue split
	  o By geography: US 45%, UK 14%, Netherlands 10%, Japan 9%, Germany 6%, France 5%, Other countries 11%.
	  o By category: Maintenance 44% , License 43%, and professional services and others 13%.
	
	Net revenues: **2002** **2003** **2004**
	License.......................... $ 93,063 $ 91,473 $ 95,819
	Maintenance.................... 81,481 83,557 97,735
	Services.............................33,936 33,337 30,520
	Net revenues.......................208,480 208,367 224,074

Competitors	Major Competitors: • Insightful • Oracle • SAS
LICENSE MODEL (SPSS, cont'd)	

License Duration	SPSS primarily recognizes revenue from the following: - Product licenses. SPSS offers (a) annual licenses with maintenance renewable annually, (b) perpetual licenses with both annual and multi-year maintenance, and (c) multi-year licenses with multi-year maintenance;

Standard License Options	1. **Named user**: allows installing in up to two computers, work and home.
	  ○ Price: $1,499
	  ○ SMS is not included
	
	2. **Group/Site**; limited to one local area network in one physical location.
	  ○ Price: 1.06X to .16X for 1 user to 1000 users after discounts.
	  ○ SMS is not included.
	  ○ Quantity discount applies, see "Promotions and Discounts" for detail.
	
	3. **Floating Licenses** (concurrent);
	  ○ Price: - 1.85X
	  ○ Must buy one year of SMS.
	  ○ Quantity discount applies, see discount for detail.
	
	4. **CPU based licenses**;
	  1. Price: NT server 1 CPU – $ 11,335, 2 CPU - $22,670
	  2. License fee per server varies from machine to machine such as UNIX, Main frame, NT Server etc.
	
	• Price list is available on the web.

MAINTENANCE/SUPPORT	

Standard Offering:
Content:
	• Standard maintenance service includes
	  ○ Price: 17.5%
	  ○ Access to user forum, and access to support website.
	  ○ Normal business hour tech support over the phone
	  ○ Software update/upgrade.

Alternative Offerings	• Software upgrades only option: Available, Single user license upgrades from version 12 is priced at $450, from 11.5 is priced at $600 and from 10.0 or earlier is priced at $750 • Reinstatement fee: Unknown.
PROMOTIONS AND DISCOUNTS (SPSS, cont'd)	

Volume Discounts:	• Volume discounts: Yes, Volume discount is available on group (Site) and Concurrent (Network) licenses depends on the number of users and calculated on cumulative basis, for example:
	o 2-5 users: 8%,
	o 6-9 users: 21%,
	o 10-18 users: 43%,
	o 19-24 users: 60%,
	o 25-49 users: 64%,
	o 50-99 users: 66%,
	o 100- 249 users: 69%,
	o 250-499 users: 76%,
	o 500 + : ~84% (based on 1000 users).
	Cumulative pricing of 11 license cost would be (1 @ price of quantity 1 + 4@price of 2-5 quantity + 4@price of 6-9 quantity + 2@ price of 10-18 quantity)
	• Bundle/Suite discounts: Yes, available on predefined bundles and discount is approximately 22.5%.
	• SMS discount: Unknown.

OTHER DETAILS:

	➢ Uplift on International pricing: Yes, uplift is for other than North America based on region/country. 1.16X on UK price (Only International Price available over the net)
	➢ SPSS new customers spend in consulting and training around 7% and 60% of the initial Licenses fee respectively (based on Nucleus Research).

8.5.15   Symantec Corporation

COMPANY BACKGROUND	

Industry	• Computer Software
	  o Security software
	  o Network and connectivity software

Products (Number and Type)	• Market: Consumer and enterprise security software. • Geography: - Global presence with offices in US, Europe and Asia Pacific. • Core Product: Norton Antivirus, Norton System Works, Norton Utilities, Symantec Antivirus, Symantec Ghost, pcANYWHERE. • Products are grouped into two families such as Enterprise Edition (Bundle/Suite) and Corporate Edition(Desk top products) • Total Number of Products: Around 50 Software products. • Sales Channel: Direct sales force, distributors, resellers, OEM, and systems integrators • Research Done on Product: Symantec Antivirus Enterprise Edition ($99 for node locked license)

Key Financial Data	2005 Financial data,.
	• 2005 Revenue: - $2.582 B.
	• Total Employees: 5,300.
	• 1 Year sales Revenue Growth: 38.1% mainly due to strong acquisitions.
	• Annual net income for the year 2005, 2004, 2003, 2002 are $536, $370, $248, negative $28.2M respectively.
	• Revenue split
	  o By geography: Americas 53%, Asia Pacific 14%, Europe Middle East and Africa 33%.
	  o By product: Consumer products 51%, Enterprise Security 36%, Enterprise administration 11%, Services 2%.

Competitors	Major Competitors: • Computer Associates • McAfee • VeriSign
LICENSE MODEL	
License Duration	Only Perpetual, node-locked license option.

Standard License Options	**Node lock**: allows installing in one computer only.
	  o Price: $99 for Norton Antivirus
	  o 1 Year of maintenance is included.

MAINTENANCE/SUPPORT (Symantec, cont'd)	

Standard Offering: Content:	Two types of maintenance services.
	• Gold (Standard maintenance) service
	o Price: 45% of than-current license fee.
	o Access to user forum, and access to support website.
	o Week days working hour tech support over the phone
	o Software update/upgrade.
	o Can be purchased for 1, 2 and 3 years in advance.
Alternative Offerings	• Platinum maintenance service
	o Price: 45% of than-current license fee + contact point fee
	o Access to user forum, and access to support website.
	o 24/7 tech support over the phone
	o Software update/upgrade.
	o 2 direct contact point at $10K/year
	• Software upgrades only option: Available to limited products.
	• Reinstatement fee: Must pay full license fee or upgrade fee if upgrade is available for that product.
	• License fee increases by 20% from year to year basis; however, there is no rise in license fee in last year.

PROMOTIONS AND DISCOUNTS:	
Volume Discounts:	• Two types of Volume License program (Group License)
	o Volume program - ideal for small to mid size companies, volume incentives for as few as 1 server or 10 desktop licenses; get License certificate from Symantec; combine multiple products for discount.
	o Elite program - ideal for large organization; Purchase centrally for entire organization or on a decentralized basis and still receive the same pricing and support benefit worldwide;
	• Volume discount varies from product to product and discount is based on number of seats purchased.
	- 1 to 10 and 11 to 24 discount % is not known.
	- 25 to 99 – 20 to 25% discount
	- 100 to 249 – 25 to 30% discount
	- 250 to 499, 500 to 1999 and 2000+: discounts % are not known.
	• Bundle/Suite discounts: 30 to 60% discount on predefined bundles.
	• SMS discount: Negotiable for large account only.
	• Competitor replacement program: No license fee, only maintenance fee (45% of license fee) from day one.

OTHER DETAILS:	
	➢ Uplift on International pricing: No uplift.
	➢ Multinational licensing Options: available. Minimum of $70K purchase is required to qualify; Asian countries are not eligible for this license options.
	➢ Increase in License fee: License fee increases by 20% from year to year basis; however, there is no rise in license fee in last year.

8.5.16   Synopsis, Inc.

COMPANY BACKGROUND	

Industry	• Electronic
	  o Semiconductors design, foundry and packaging services.
	
	• Computer Software
	  o Engineering, Scientific & CAD/CAM software

Products (Number and Type)	• Market: Electronic Design Automation • Geography: - Global presence with offices in Canada, China, Denmark, Finland, France, Germany, India, Ireland, Israel, Italy, Japan, the Netherlands, Singapore, South Korea, Sweden, Taiwan, the UK, and the US. • Core Product: Astro, Chip Architect, coreBuilder, CoCentric System Studio, Design Compiler, Design Vision, DesignWare, Hercules, Module Compiler, NanoSim, PathMill, Physical Compiler, PowerMill, Scirocco, VCS • Total Number of Products: ~100. • Intel is the single largest customer, accounting for 10% of total revenue. • Sales Channel: Direct sales in the countries with direct offices; otherwise, distributors. • Research Done on Product: COSSAP (Around $3,000/seat for concurrent license, exact figure is unknown)

Key Financial Data	• 2004 Revenue: - $1,092 M.
	• Total Employees: 4378.
	• 1 Year sales Revenue Growth: negative 7%
	• Revenue split
	  o By geography:
	    o US 55%,
	    o Japan 16%,
	    o Europe 16%
	    o Other 13%
	  o By License type:
	    o Time-based (two types of term licenses): 61%
	    o Upfront (perpetual): 20%
	    o Service (maintenance): 19%.

Competitors	Major Competitors: • Cadence Design Systems, Inc. • Mentor Graphics Corporation • Companies that offer products focused on one or more discrete phases of the IC design process, such as Magma Design Automation, Inc.
LICENSE MODEL (Synopsis, cont'd)	

License Duration Standard License Options	License Order Mix (10K commentary): "Beginning in August 2000, when we adopted TSL's (technology subscription licenses), we maintained a target license mix of approximately 75% TSL's and 25% upfront licenses, based on our expectations of total orders and our assessment of the demand for upfront licenses, which have more front-loaded payment terms than TSLs. From August 2000 through the fourth quarter of fiscal 2004, our average license mix has been 76% time-based licenses and 24% upfront licenses, although the license mix has varied considerably from quarter to quarter. Our license order mix for the last nine fiscal quarters is set forth below:

	Upfront licenses	Time-based license
Q4, 2004	7%	93%
Q3 2004	20%	80%
Q2 2004	42%	58%
Q1 2004	57%	43%
Q4 2003	33%	67%
Q3 2003	21%	79%
Q2 2003	26%	74%
Q1 2003	15%	85%
Q4 2002	27%	73%

Following the third quarter of fiscal 2004, we re-evaluated customer demand for upfront licenses, which require customers to pay at least 75% of the license fee in the first year. Our customers' increased preference for conserving cash by paying for licenses over time has made upfront payment terms a significantly more difficult negotiating issue. Accordingly, effective in the fourth quarter of fiscal 2004, we shifted our target license mix to consist almost entirely of time-based licenses. The figures above for the fourth quarter of fiscal 2004 reflect this shift in our target license mix.

We believe making this transition meets our customers' needs while enabling us to better preserve the value of our technology and enhance the predictability of our business.

Majority of the licenses are concurrent licenses. Only Concurrent licenses, no named user licenses offered.

Three different types of license options:

1. **Technology Subscription Licenses** (TSLs) are for a finite term, on average approximately three years, and generally provide the customer limited rights to receive, or to exchange certain quantities of licensed software for, unspecified future technology (remix capability).
   o   SMS is included

2. **Term Licenses** are also for a finite term, usually three years, but do not provide the customer any rights to receive, or to exchange licensed software for, unspecified future technology (no remix capability).
   o   Customer must purchase SMS separately for the first year and may renew maintenance annually thereafter.

Standard License Options cont'd	3. **Perpetual Licenses**: Availability for as long as the customer renews maintenance, plus an additional 20 years. Perpetual licenses do not provide the customer any rights to receive, or to exchange licensed software for, unspecified future technology. Synopsys does offer remix capability for perpetual licenses. o Customer must purchase SMS separately for the first year and may renew annually there after. **Conversion to Perpetual:** Customers occasionally convert their existing TSLs to perpetual licenses, paying an incremental fee which we recognize upon contract signing.

MAINTENANCE/SUPPORT (Synopsis, cont'd)

Standard Offering:
 Content:
 Alternative Offerings
	• Standard maintenance service includes
	   o Access to user forum, and access to support website.
	   o 24/7 tech support over the phone
	   o Software updates/upgrades.
	   o Price: 15%

PROMOTIONS AND DISCOUNTS:

Volume Discounts:	• Volume discounts: Offered, but specifics are unavailable. • Bundle/Suite discounts: Unknown • SMS discount: The annual maintenance fee for purchases under $2 million is typically calculated as a percentage of the list price of the licensed software. For purchases over $2 million, the annual maintenance fee is typically calculated as a percentage of the net license fee. Therefore there are significant discounts on maintenance for perpetual license transactions above $2 million: "Substantially lower than the rates on standard perpetual licenses".

OTHER DETAILS:

	➢ Uplift on International pricing: Yes, uplift is for other than North America based on region/country. ➢ Multinational licensing Options: available. Uplift is unknown. ➢ Product Activation: Unknown, Uses FlexLM as License manager.

8.5.17 Wind River Systems, Inc.

COMPANY BACKGROUND	
Industry	• Computer Software o Development Tools, Operating Systems & Utilities Software.
Products (Number and Type)	• Market: World wide Auto, Military/Aerospace, Communications, Computer, Consumer Electronics, Semiconductor, Networking and Transportation Industries. • Core Products: Diab, VxSim, Wind Web Server, Tornado • Total Number of Products: 97 • Sales Channel: Direct sales force consisting of Sales Reps, Application Engineers and support staff.

Key Financial Data	• FY 2005 Revenue: - $235M
	• Total Employees: 1,112
	• 1 Year sales Revenue Growth: 15.3%;
	• First profitable year in five years
	• Employee growth: 3.2%
	• Direct sales channels in 8 countries.
	• Revenue breakdown by type:
	  o Perpetual license: 52%;
	  o Subscription (Term) license: 21%;
	  o Maintenance: 27%.
	• Revenue split by geography:
	  o North America: 55%;
	  o EMEA: 23%;
	  o Japan: 14%;
	  o Asia Pacific: 8%
	• Significant Revenue trend: Perpetual license revenue has declined steadily since 2001:

Competitors	• Mentor Graphics • Rational Software/IBM • Red Hat • Sun Microsystems • SuSE • Symbian • TimeSys • VaST Systems

	Years Ended January 31,			Percentage of Total Revenues, net		
	2005	2004	2003	2005	2004	2003
	(In thousands, except percentages)					
Product revenues	$123,298	$116,784	$161,297	52%	57%	65%
Subscription revenues	48,960	19,125	2,602	21	10	1
Service revenues	63,142	68,210	85,222	27	33	34

LICENSE MODEL (Wind River, cont'd)	
License Duration	"We license our software using two primary licensing models, subscription-based enterprise licensing and project-based perpetual licensing. Our Wind River Platforms and Workbench Integrated Development Suite are primarily licensed under enterprise licensing."

Standard License Options	1. Subscription-based Enterprise Licenses:
	• First introduced in November 2002.
	• Most enterprise licenses
	    o have an initial duration of one year, with annual renewals,
	    o include payment terms for the full cost of the annual subscription within 30-60 days after entering into the enterprise license agreement,
	    o Certain customers have entered into multi-year strategic agreements. These agreements have generally included payment terms for the *full cost* of the multi-year subscription within 30-90 days after entering into the enterprise licensing agreement.
	    o Pricing: Unavailable
	
	2. Project-based (node-locked) perpetual licenses: Under our perpetual license model, we sell our products at the specific project level and are dealing primarily with the engineers leading and making decisions for individual projects.
	• Customers pay an up-front, development license fee
	• An annual maintenance fee is based on a fixed percentage of the total licensing fees.
	    o Price: 14.5% of then-current license fee.
	• For device software products, the customer typically also pays a per-unit, per-project production-license fee based on the number of copies of our operating system software that is included in each final manufactured device. The terms of the perpetual license for our software restrict the customer's use to a specific project, such as a line of printers or digital camera and, as a result, any software licenses or prepaid production license fees can generally only be used on that specific project.
	• Under our perpetual license model, we sell our products at the specific project level and are dealing primarily with the engineers leading and making decisions for individual projects.
	
	Example: Wind River Compiler "Diab":
	
	Node locked license ("X") – Unclear whether home use is allowed.
	    o Price: $2,808
	    o SMS is not included in initial license fee and purchasing SMS is not mandatory.
	Concurrent License:
	    o Concurrent multiple: 2X
	
	From 2005 Annual Report: "FY2005 saw Wind River make big improvements in how we sell and market our products and services. Our subscription licensing model continued to gain traction and encouraged broader adoption within our customer base.......At the same time, our sales force raised its sights, learning to pursue the enterprise-wide sale to companies instead of the single product sale to project teams."
	
	We anticipate that we will continue using both our enterprise licensing and perpetual licensing models. However, the proportion of our business sold

	under the enterprise license model which is subscription-based is increasing and we expect that this trend will continue. We believe that the enterprise licensing model allows us to: • Deliver key technology integrated into market specific platforms with less restrictive terms that more closely match our customers' needs; • Expand opportunities with our strategic customers by offering a simpler and more cost-effective method of accessing our technology and services; and • Better manage our business model within our strategic customer base and have increased visibility into our earnings stream.
MAINTENANCE/SUPPORT (Wind River, cont'd)	

Standard Offering:
Content:
Alternative Offerings
	• Standard Support
	   o 14.5% of the then-current license fee
	   o Software updates and upgrade, phone/web tech support.
	
	• Other Support: - unknown
	
	• No "upgrade-only" option available:
	
	• Reinstatement fee: Unknown.

PROMOTIONS AND DISCOUNTS:	

Volume Discounts:	• Volume discounts: Available for certain products. Discount is per-transaction, based on number of license seats purchased. Discount rate is
	   o 2 units - 5%,
	   o 3 -5 units 10%,
	   o 6-10 unit 15%,
	   o 11-15 unit 20%,
	   o 16+ unit 25%.
	• Bundle/Suite discounts: Available for bundled product of basic and add-ons with Term option. Actual discount percentage is unknown
	• No discounts on SMS.

OTHER DETAILS:	
	➤ Wind River is a global company with operations in eight countries. Sales through direct sales channels. ➤ Uplift on International pricing: Unknown. From 10-K "Our international sales are generally denominated in United States Dollars, Euro, United Kingdom Sterling or Japanese Yen."

8.5.18   Wolfram Research

COMPANY BACKGROUND	
Industry	• Computer Software - Engineering, Scientific & CAD/CAM Software.
Products (Number and Type)	• Market: Technical Computing and or Mathematical Software. • Core Product: Mathematica ($1,880 for Windows, 66.7% Premium for Unix) • Number of Products: Four Core products and 20 add-on tools.
Key Financial Data	• 2004 Revenue/Employee: - $.072M • Total Employees: 275

Customers & Competitors	Primary customer segments:
	   • Corporate
	   • Government
	   • Academia
	
	Major Competitors:
	   • The MathWorks Inc.
	   • Mathsoft.
	   • National Instruments.

LICENSE MODEL	

License Duration
 	
Standard License Options
	Primarily perpetual licenses. However, Wolfram provides Term License (Comprehensive Program) with a three year contract
	
	Various License Options:
	
	1. Single User – Allows installation on one work and one home system.
	2. Concurrent License: Free home use is allowed if Customer is subscribing Premier Service (SMS).
	    ■ Concurrent multiple: 1.3X
	
	3. Comprehensive Program (Term Licensing) – Term Licensing with three years of agreement includes
	    o Premier Service (SMS)
	    o Volume Purchase Program discount.
	    o Bundle Discount
	    o Rollover Option – Changing from one license option to another without loosing any prior investment.
	
	Multinational Licensing Option: Provides license option that enables multinational organization to cover users around the world under centrally administered license. Exact fee is unknown.

MAINTENANCE/SUPPORT (Wolfram, cont'd)	

Standard Offering:	- Premier Service Program (SMS) includes • Free update/upgrade, • Free home use, • Tech support by phone, web. Support through phone is limited to week days and working hours. • 15% discount on add-on application, 15% discount on education group class and discounts on conference and journals. • Complementary OS transfer to same or laser priced product class. • 20% of then-current license fee. Software upgrade option: Available to those who are not in SMS scheme.

PROMOTIONS AND DISCOUNTS:

Volume Discounts:	New License - Volume Purchase Program is restricted to selected products and based on number of copies and products licensed. One time discount on a single purchase and available to all customers world wide. Maintenance/support - Customer can get a minimum of 15% discount on renewal of Premier service if purchased before time. Customer can discontinue Premier Service program and can continue again if customer is in then-current version.

OTHER DETAILS:

Customized Licenses option:	Flexible tailor made licensing options are available for large accounts upon negotiations.
Historical Price Increase:	Price increased in 2003 on Mathematica v5 release from $1,495 to $1,880.

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