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Revenue Recognition in Software Industry: Apple Inc. Case Study
Master Thesis

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Declaration of Authorship

I hereby declare that I have written the following thesis on “Revenue Recognition in Software Industry: Apple Inc. Case Study” by myself and that all sources used in the process of writing are appropriately stated in the bibliography section.

In Prague on ______________                        Anna Farkašová
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Abstract: Rapid digitization of enterprise processes and software applications simplifying daily-life routines enhance the need for software arrangements. Based on this growing trend, the underlying thesis discusses revenue recognition for software arrangements under US GAAP, the lingua franca of financial reporting framework in software industry. The thesis examines the first industry-specific guidance - SOP 97-2, its successor ASC 605 and aims at capturing the main implications resulting from the new converged US GAAP/ IFRS revenue recognition standard ASC 606/ IFRS 15 on a case study. The five-step revenue recognition model introduced by ASC 606 is applied to the US-based technology and software seller Apple Inc. and its wide range of product portfolio including software.

Keywords: US GAAP, Revenue Recognition, Software, ASC 606, Apple Inc., Case Study
Table of Contents

INTRODUCTION .................................................................................................................. 8

1. SOFTWARE INDUSTRY .................................................................................................. 10
  1.1 TYPES OF PRODUCTS ............................................................................................. 11
  1.2 IMPACT ON ECONOMY AND SOCIETY ............................................................... 16
  1.3 SOFTWARE PRODUCT DISTRIBUTION AND SALES ........................................... 17
     1.3.1 Structure of Sales Contracts .......................................................................... 17
     1.3.2 Licensing Software ....................................................................................... 17
     1.3.3 Subscription-based Software ......................................................................... 18
     1.3.4 Channels of Distribution .............................................................................. 19
  1.4 LEGAL AND SECURITY ASPECTS ........................................................................ 20
  1.5 OTHER SOFTWARE-RELATED TOPICS IN ACCOUNTING .................................... 20

1. GUIDANCE FOR REVENUE RECOGNITION IN SOFTWARE INDUSTRY ............... 22
  2.1 REVENUE RECOGNITION UNDER US GAAP .................................................... 23
     2.1.1 Revenue Recognition under SOP 97-2 ................................................................ 25
     2.1.2 ASC 985-605 Software Revenue Recognition ............................................... 35
  2.2 US GAAP VS. IFRS APPROACH ............................................................................. 37
  2.3 NEW CONVERGED STANDARDS ASC 606/IFRS 15 ............................................. 39
     2.3.1 Identify The Contract with Customer .............................................................. 41
     2.3.2 Identify the Performance Obligations in the Contract ..................................... 42
     2.3.3 Determine the Transaction Price & Allocate the Transaction Price to the Performance Obligations ................................................................. 45
     2.3.4 Recognize Revenue when (or as) the Entity Satisfies Each Performance Obligation ........................................................................................................... 46
     2.3.5 Cloud and SaaS Services .............................................................................. 47
     2.3.6 Distribution Arrangements ............................................................................ 48
     2.3.7 Warranties .................................................................................................... 49
     2.3.8 Monitoring Changes in Accounting Practice ................................................ 49
  2.4 SPECIFIC MEASURES IN SOFTWARE INDUSTRY FINANCIAL REPORTING .......... 50
     2.4.1 Non – GAAP Financial Measures .................................................................. 51

3. APPLE INC. CASE STUDY ............................................................................................. 54
  3.1 COMPANY BACKGROUND AND CURRENT FINANCIAL RESULTS ..................... 55
  3.2 BUSINESS MODEL ................................................................................................ 56
  3.3 ACCOUNTING FOR SALES ....................................................................................... 58
     3.3.1 Revenue recognition under SOP 97-2 and ASC 605 ........................................ 59
     3.3.2 Revenue Recognition Changes for Apple Inc. under ASC 606 ......................... 60
     3.3.2.1 iMac for Education .................................................................................. 60
     3.3.2.2 iPhone Sales to Individual Customers .......................................................... 63
     3.3.2.3 iCloud arrangements ................................................................................. 67
     3.3.2.4 AppleCare ............................................................................................... 67
     3.3.2.5 Resellers ................................................................................................. 68
  3.5.1 SUMMARY OF THE IMPACT OF ASC 606 ON MAJOR APPLE INC. PRODUCT SALES ........................................................................................................... 69

CONCLUSION ..................................................................................................................... 73

BIBLIOGRAPHY .................................................................................................................. 76

BOOK SOURCES ............................................................................................................... 76
ACCOUNTING STANDARDS CODIFICATION ................................................................. 76
ONLINE.................................................................................................................. 76
APPLE ANNUAL REPORTS .................................................................................. 81
OTHER ONLINE SOURCES .................................................................................. 81
APPENDIX.............................................................................................................. 83
List of Acronyms

AsSEC Accounting Standards Executive Committee
AICPA American Institute of Certified Public Accountants
ASU FASB Accounting Standards Codification
EITF Emerging Issues Task Force
ESP Estimated Selling Price
FASB Financial Accounting Standards Board
FV Fair Value
GAAP Generally Accepted Accounting Principles
IASB International Accounting Standards Board
IFRS International Financial Reporting Standards
PCS Post-contract Customer Support
SAB Staff Accounting Bulletin
SEC Securities and Exchange Commission
SOP AICPA Statement of Position
TPA AICPA Technical Practice Aid
TPE Third-Party Evidence of Selling Price
VSOE Vendor Specific Objective Evidence

List of Graphs and Figures

Graph 1: Total Software Revenues of Top 100 Software Vendors in 2014, in millions USD
Graph 2: Annual Revenue of Top 10 Software vendors and Share of SaaS and PaaS Revenues in 2014, in millions USD
Graph 3 Apple Inc. Net Sales (in mil)
Graph 4. Annual Increase of Sale
Table 1: Step 1. Identify the contract with customer
Table 2: Step 2. Identify the performance obligations in the contract
Table 3: Step 3. Determine the transaction price
Table 4: Step 4. Allocate the transaction price to the performance obligations
Table 5: Step 5. Recognize Revenue
Introduction

Technology and software industry turned into one of the fastest growing industries of today, despite being almost non-existent a couple of decades ago, surrounding individuals and enterprises in daily life. In general, two main issues arise in software industry accounting – the question on how and to what extent to capitalize development costs incurred during software preparation and how to recognize revenue for sales. The underlying thesis examines the latter. Software industry is characteristic by its specific transactions, such as contracts including multiple bundled elements promised by the vendor or frequent reseller arrangements which make financial reporting for software sales a complex task. The questions that arise is how to allocate contract revenue to elements of an arrangement and to what accounting period should they belong. Hence, the thesis follows two objectives:

Objective 1: To discuss revenue recognition standards applicable to software industry accounting under US GAAP (SOP No. 97-2 and ASC 605) before and after the issuance of the new US GAAP/ IFRS converged revenue standard (ASC 605 versus ASC 606).

Objective 2: To discuss US GAAP revenue recognition principles used by Apple Inc. in different product categories and to apply findings in Objective 1 in the case study. To identify major implications for Apple Inc. resulting from ASC 606 adoption.

The underlying thesis is divided into three chapters. The first one provides an overview of current developments and trends in software industry. The following one is rather theoretical and provides guidance on financial reporting rules concerning revenue recognition in software industry under US GAAP. The main goal of chapter two is to sufficiently explain principles of revenue recognition under the very first software industry guidance - SOP 97-2, then its successor - ASC 985-605. Main differences between the rules-based ASC 605 and principles-based IAS18, guiding revenues under IFRS are discussed as well. The chapter then fluently proceeds with the converged standard ASC 606/IFRS 15 jointly issued by FASB and IASB and discusses the five-step revenue recognition model introduced by the latest standard that is applicable across all industries.
Theoretical knowledge gained in chapter two and comparison of SOP 97-2 principles, ASC 605 and ASC 606 is applied in the last chapter containing a case study on Apple Inc., the major US-based technology and software vendor of today.

As to methodology and fulfillment of objectives, discussion is conducted by following the four-step model under SOP 97-2 and five-step model of revenue recognition under ASC 606. In order to be able to estimate the implications of ASC 606 affecting Apple Inc., its product portfolio is divided into major product group sales. Hence, the effect of the new standard is then discussed while respecting each group’s sales specifics. Conclusion on the impact of ASC 606 for Apple Inc. is drawn for each revenue recognition model step and product group. The thesis also includes additional data in Appendix to provide a more complex view on the topic.

Concerning the sources used, primary sources such as accounting standards under US GAAP and IFRS have been mainly utilized in the second chapter on financial reporting rules in software industry. Secondary sources were used in all chapters in form of Software Industry Alliance’s official reports, released publications of major consulting companies and investor and annual reports. All sources and ideas are properly cited throughout the thesis. The full list of sources used is available at the end of the thesis, in the bibliography section.

As to limitations of this thesis and possibilities of further research, it would be interesting to examine the impact of the industry accounting changes from a statistical point of view and try to quantify the numerical impact of the US GAAP guidance change on major software vendors, e.g. on Apple’s financial results. However, the sources available at this state were not sufficient for such an analysis. This, however, would be possible once Apple releases its first annual report created under the guidance of ASC 606 revenue recognition model and one could obtain additional information disclosure on accounting principles used for each product group. Another area worth mentioning is the tax impact of revenue recognition changes and legal matters, such as intellectual property rights in the light of changing software industry.
1. Software Industry

Originally, it was the power of a computer that determined the function and the speed of actions that could be completed on given hardware.\(^1\) The computer hardware industry experienced fast growth starting in the post-World War II era. The 1960s brought the first packaged software program with IBM as a dominating manufacturer of “unbundled” computer software products, then bringing Microsoft Corporation in the spotlight in the 1990s.\(^2\) Over the millennium, computers turned rather into a commodity as a result of many computer manufacturers offering comparable, substituting range of products to its customers.\(^3\) This course of events resulted in software becoming more and more value-additive to given operational characteristics of a computer, enhancing overall functionality and creating new ways of computer usefulness.\(^4\) Computer hardware giants recognized the rising independence of software industry from hardware sales as well and began investing directly in software-creating bodies to be able to compete with independent software vendors, for example IBM acquisition of Lotus Corporation.\(^5\)

Despite the software industry itself being quite young, taking into account it has only started to develop in the 1950s with the very first operational systems for IBM computers, it has dramatically changed during the last two decades and is still to be found on its path of constantly accelerating evolution. Software has literally changed and to a significant extent simplified the way of human interaction, business conducting and accessing information both online and offline.\(^6\) It is becoming prevalent in other industries boosting effectivity and revenues, e.g. in the banking sector, manufacturing, healthcare or retail and it emerging in the form of artificial intelligence as well.\(^7\)

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\(^2\) Ibid, p. 1-3  
\(^3\) Ibid, p. 1-4  
\(^4\) Ibid, p. 1-4  
\(^5\) Ibid, p. 1-5  
\(^6\) Ibid, p. 1-5  
"In the future, there will be no hardware without software, and software will become artificial intelligence." Raman Chitkara, Global Technology Leader, PWC

Considering the number of economies currently in the transition process from traditional manufacturing to modern, service-based economies relying on information flows and automatization of processes, we can expect the importance of software to play an even more important role in the future.  

1.1 Types of Products

Software industry encompasses design, development, maintenance and sale of software products, may it be applications, shared platforms, operating system or others. According to Hoovers statistics, 45% of industry revenues consist of application software sold to customers, such as accounting systems and enterprise-specified applications or games. Another 20% include system software, such as operating systems for computers, phones or tablets and database management, the rest is made up from IT services and consulting.  

Software enables and simplifies actions that a couple of decades ago seemed hardly even possible. It is not only the applications that turn our mobile phones into “smart” phones, software helps people hear for the first time, it enables us to talk to our family and friends even while being on the other side of the planet, it improves and accelerates medical diagnoses, it helps create new ways of transportation, such as shared-economy services Uber, Liftago or Lyft, software creates smart homes while saving energies, helps us manage our banking accounts online and much more. It is also becoming harder to distinguish a proper software company, since software lies in the center of many business models nowadays. Many therefore opt for another wording, the so called “platform” business models rather than calling e.g. Uber or AirBnB, where software only facilities the business, software

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8 Ibid, p. 1-1  
companies.\textsuperscript{11}

Rapid business digitization, increased use of electronic devices both by firms and individual customers also leads to software users getting used to frequent software product development and upgrades to existing software, may it be operating systems, games or applications. Fast-paced development and changes are the reason, why software industry has been the 3\textsuperscript{rd} largest research and development investor in 2016, with investments exceeding € 79 mil., largest R&D investors in Software and Computer industry including Alphabet, Microsoft and Oracle, as seen in Appendix \textit{Figure 1- World Top R&D Investors – Filtered Software & Computer Industry Only}. Such significant R&D costs are typical for industries with short life cycles and innovative industries, such as technological companies (e.g. Microsoft, Apple, Nokia) and pharmaceuticals (e.g. Roche, GlaxoSmithKline, Bayer).\textsuperscript{12} According to \textit{EU Industrial R&D Investment Scoreboard 2016}, software industry places 3\textsuperscript{rd} after pharmaceutical industry and technology hardware both with almost double the amount of financial resources spent on R&D in 2015.\textsuperscript{13}

Academic research done on enterprises in the US and UK suggests the existence of a positive relationship between R&D investments, company’s growth and market value.\textsuperscript{14} This theory is supported by the fact, that the largest market share belonging to US based companies corresponds to the amount invested in R&D in this region, as seen in Appendix \textit{Figure 2: World Top Software & Computer Industry R&D investors by country} and its share constantly growing (Appendix \textit{Figure 3: Increase of Industry Share of Top 100 Software Companies, regionally divided}).

As to geographic location, North America has always been the leader in software development and innovation with consistent revenues growth – Apple, IBM, Microsoft or Oracle, the technology giants in today’s world are all based in the United States. This growth


serves as an evidence of R&D importance in software industry, since largest R&D investors such as Microsoft, IBM and Oracle (as seen on Figure 1) experienced highest growth rates. Germany (home to SAP software) places second, accounting for 25% of total European software market by value. The geographical share of North American software vendors revenue can be seen on Graph 1 below, showing a massive lead of the US in all revenues of top 100 software vendors in 2014.

**Graph 1: Total Software Revenues of Top 100 Software Vendors in 2014, in millions USD**

![Graph showing total software revenues of top 100 vendors in 2014](image)

*Source: PWC (2016): Software. Explore the data*

The whole industry is highly concentrated – 45% of all industry revenues are produced by 10 largest companies, as seen in Appendix Figure 4: Industry Concentration and the industry is on its way of unleashing its full potential, with minimum of 10% annual growth in revenues of top 100 software vendors (Appendix Figure 5: Software Industry Annual Revenues Growth)

Concerning changes in software product demand, enterprise software users started to turn to alternative software solutions, platforms such as clouds. While a couple of decades ago, business software stood in the frontline of software developing companies and was not that spread within individual customers, this change is extensive nowadays. Internet connection

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being available 24/7 and on almost every corner led to consumerism in the IT similar to other industries such as retail. The individual customer has been repositioned into the center and moved the dominance of enterprise software purchasing slightly aside.  

Enterprise software purchasing has undergone development in recent years as well and the common pattern can be summarized in the following – while internal-use software (not meant for resale) has in the past been used mainly for inventory management, companies now rather seek software as a service (SaaS), in form of cloud-based computing models, such as IAAS (Infrastructure As A Service) or PAAS (Platform As A Service). This type of software is expected to grow 30% per annum and currently encompasses more than 20 publicly traded companies in the US accounting for around 1 billion USD in revenues annually. Emergence of “anything-as-a-service” within could offerings also allows small and medium sized companies to access sophisticated capabilities that were once available just for corporate clientele.

To show how cloud services are entering even the largest software corporations, SaaS and PaaS revenues currently account for 5-15% of total software revenues in 10 major software companies, as can be deducted from Graph 2 below. The most popular SaaS at the moment include Dropbox, Microsoft Office 365, Slack or Salesforce.

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17 PWC (2017): *Global 100 Software Leaders. The Big Picture. Online at:*


19 Deloitte (2017): *Technology Industry Outlook, p.2*
SaaS platforms are easy to implement, there are no large upfront costs, require minimum maintenance costs and opinions have also shifted towards perception of increased security measures of SaaS solutions.\(^\text{20}\) This kind of product emerged a couple of years ago and is still gaining importance, providing companies with flexible storage, infrastructure or computing access. Even large software developers like Oracle and SAP, some of the major software companies recently acquired cloud-developers Reponsys and Concur Technologies, respectively.\(^\text{21}\)

Digitization introduces whole new ecosystems of cross-industry cooperation, let us consider e.g.. the General Motors partnering with Lyft, a “platform” software substitute present mainly in the US.\(^\text{22}\) Other examples of new cutting edge partnership include those of fin tech, autonomous driving or smart cities.\(^\text{23}\)


\(^{22}\) Ibid, Accessed on 30.4.2017

\(^{23}\) Deloitte (2017): *Technology Industry Outlook*, p.2
1.2. Impact on Economy and Society

Software industry is also beneficent to the economy as a whole, as suggested by Business Software Alliance, the leading advocate for global software industry in front of national governments and on international marketplace, consisting of numerous major software creators as members (such as Apple Inc., Salesforce, Siemens, Microsoft or Oracle).24

The impact of software development and innovations activity directly and indirectly contributes to national economies in form of GDP contribution, job creation or wage increase.25 While software industry in the US created 2.5 mil. jobs in 1996, the number rose over 3 mil. jobs in 2005 and reached almost 10 mil. indirect and 2.5 mil. direct job positions in 2014 - from app designers and web developers to accountants and project managers.26 Software industry directly increased US GDP by almost $500 in 2014. According to Business Software Alliance, average wage in software industry reaches as high as double the amount of wages in other industries.27

As a result of interconnected world economy and competition that became global in most industries (with the exception of geographically bound industries, such as e.g. mining), new technologies and software innovations spread much faster, since their adoption by others actually serves to ensure competitiveness.28 In the era of high-speed innovation that human kind currently experiences, where ideas spread and flourish quicker than before, smarter and better software helps achieve higher productivity across industries.29

25 Ibid; Accessed on 3.4.2017
26 Ibid; Accessed on 3.4.2017
29 Dicken (2011): Global Shift. Mapping the Changing Countours of World Economy, p.76
1.3. Software Product Distribution and Sales

1.3.1 Structure of Sales Contracts

Essentially, software is an intellectual property. Software developing companies market this intellectual property and derive revenues most frequently from license granting.\(^3^0\) Software industry sales transactions are based on a variety of sales contract – those may range from simple one-page single product agreements to complicated multi-element arrangements that require at least 40 contract pages for the conditions to be described properly.\(^3^1\) The structure of sales contracts also evolves following the desire of electronic contracts and subscriptions.\(^3^2\)

From accounting point of view, it is highly important to specify conditions of contract fulfillment, especially if goods delivered are bundled elements so that revenue may be recognized in the right moment and not prematurely.

Numerous ways of software and SW-related sales therefore include: licensing, selling software with connected intellectual property rights, providing post contract customer support or maintenance, providing software in projects that combine software with hardware, providing software development services - individual software, updates etc., providing accompanying services, providing services that use software - data processing, consulting services requiring specialized software.\(^3^3\)

1.3.2 Licensing Software

Software is mostly purchased through licensing, when licensor (software developer) grants a license, a right to use its intellectual property to licensee (customer). Purchasing individual software products such as Microsoft office package, falls into the category of licensing since the customer purchases the right to use the software, he/she will therefore not become an

actual owner of the software and neither of the intellectual property rights themselves. Licensing principle also usually applies to custom software creation when software developer prepares a custom‑designed software according to conditions set in the initial agreement but keeps the intellectual property rights to himself.

A license granting the right to use a software is usually also restricted in one of the following ways: period (months or years), number of uses, number of runs, number of downloads, specifics of a user, transferability or non‑transferability. While in the 1990s, perpetual (indefinite) software licensing was the most common, over the decades time‑based licenses became prevailing, which resulted in software revenue recognition rule, taking into account license term as well.

General software license agreement can turn into being very specific and includes software specific key terms, that are necessary to be specified: grant of license - specifies the licensee and licensor, delivery, license fees/payments - stating the amount and terms of license fee/royalty, title of materials, limitation on use, warranty, confidentiality, maintenance and updates, governing law. For examples of what such provisions may include and an illustrative software license agreement please refer to Appendix Figure 7&8.

1.3.3. Subscription‑based Software

Another form of software acquisition includes regular payments to software developer to obtain the software product all at once or to receive an updated product in regular intervals. This subscription based sales contract can be based on a written order but it is becoming common to require a subscription in electronic form.

For cloud products (IaaS, PaaS or SaaS), it is typical to pay monthly subscriptions to private or public cloud provider in comparison to most software products, where a customer usually

34 Ibid; , p.1-15
pays a one-off fee for a software license.\textsuperscript{37} An example of a software company turning from licensing sales model to subscription based would be Adobe Systems, that changed its strategy in 2013.\textsuperscript{38}

Concerning Could and Software as a Service (SaaS) contracts, these fall into the category of non-traditional, although broadly used arrangements. Both SaaS and cloud arrangements give customers the right to use a software but customers predominantly do not obtain the right of license possession and the basic functionality stays in control of the vendor.\textsuperscript{39} The question whether SaaS and clouds should be treated in accounting as software licensing or as service providing as well have implications for revenue recognition timing, as discussed in Chapter 2. Arrangements usually incorporate additional professional services in order to help the customer use the could to its fullest potential, such as implementation, data migration, business processing mapping or training.\textsuperscript{40}

1.3.4 Channels of Distribution

Customers can acquire a software license thought one of the distribution channels of software provider - most commonly through direct end-user license granting, retail sales for off-the shelf, shrink-wrapped software, value-added reseller or original equipment manufacturer (OEM) licensing, such as Microsoft.

In order to improve the mutually beneficial relationship between a software vendor and the reseller, vendors frequently provide resellers with additional explicit or implicit concessions, such as price protection or extended right of return.\textsuperscript{41} At the end, resellers command over greater rights than individual end-customers, since vendors need to boost future sales.\textsuperscript{42}

\textsuperscript{38} Ibid; Accessed on 30.4.2017
\textsuperscript{39} PWC (2010): \textit{A Shifting Software Revenue Recognition Landscape. Insights on Potential Impacts of the Proposed Revenue Model on Current US GAAP}; p.16
\textsuperscript{40} EY (2015): \textit{The New Revenue Recognition Standard. Software and Cloud Services}; p.16
\textsuperscript{41} Ibid,p.30-31
\textsuperscript{42} Ibid; p.30-31
1.4 Legal and Security Aspects

When software sales are conducted, it is most commonly (but not exclusively) the right to use a software license that the customer obtains and not the intellectual property rights themselves. An illegal misuse of software provided should be treated preventative in license agreement with the customer. Software vendors with free and open source software available for download on the internet may encounter infringement of their rights. Despite public pressure towards policymakers, software remains a difficult area to regulate, as it its “construction” is unlimited in flexibility and scope and it can be replicated relatively easily.43

As the amount of private data of both individuals and enterprises grows exponentially, so does the incentive for data privacy security. The current software-dependent society requires increased attention concerning software-design, development and employment in order to avoid potential misuse of information. The issue of unauthorized access to patient data has been medialized commonly in e.g. banking or healthcare industry.

1.5 Other Software-Related Topics in Accounting

Today’s economies are to a significant extent driven by technologies, knowledge and automatization relying on intangibles assets. Research and development, so essential to software industry happened to be in the center of accounting debates for a while and actually lead to issuance of the first US GAAP standard on industry software accounting.44

One of the toughest accounting challenges related to intangibles (especially R&D and internally generated software) is the valuation since future economic benefits are uncertain. It often is just a perspective of firm’s ability to turn its intangibles into profits.45 If an intangible is purchased, it is generally recognized straight-away in proper asset category on company’s balance sheet. The problematic part comes with internally generated intangibles

45 Nobes Ch, Parker R. (2016): Comparative International Accounting, p 230
Besides R&D, intangibles also include patents, franchises, licenses, trademarks, copyrights or brands and also the difference between the acquisition purchase price and its identified assets - commonly known as goodwill belongs to intangibles assets. When accounting for intangibles assets, one must keep in mind if the asset was acquired separately or as part of a business combination or internally generated.
– these may not sufficiently fulfill fixed asset recognition criteria of probable future economic inflow and reliable measurement. Therefore, it may be either capitalized or non-capitalized.46

US GAAP prohibits capitalization of R&D expenditures and requires all R&D costs to be expenses as incurred except of computer software. Under IFRS accounting framework, compared to a more conservative “rules-based” US GAAP requiring expensing of intangibles if generated internally, IAS38 allows capitalization on a straight line basis over assets useful economic live once project is complete, if certain conditions are met.

Another tricky topic in software industry is that of computer software - software purchased should be recognized by purchase price or other attributable cost related to asset preparation for its use. If software is intended for internal use only, it should be capitalized as an intangible asset if value is material – if not the case, software acquired should be expensed. This expense-as-incurred model used by US GAAP has been adopted over 40 years ago with changes adopted in the 90s. US GAAP prohibits capitalization of intangibles internally produced, with the exception of computer software. If technological feasibility has been established, US GAAP allows capitalization of expenses.47


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47 Nobes Ch., Parker R. (2016): Comparative International Accounting, p. 204
1. Guidance for Revenue Recognition in Software Industry

Largest capital markets have over time established own sets of accounting principles developed by private or public accounting standard-setting bodies.\(^{48}\) It was after World War II when economic integration took in, world economy became more interdependent and the need to command over a comparable accounting rules framework became more evident. Increase in international capital flows created demand for higher compatibility of financial information.\(^{49}\) The US began developing its own accounting principles, commonly referred to as US GAAP, while international standards IFRS now prevail in most other countries alongside with national legislations.\(^{50}\) Different accounting principles are also one of the reasons, excluding the US regulatory requirements, why some companies choose not to list their securities in the United States, according the Security and Exchange Commission (SEC), the capital market regulator in the US.\(^{51}\)

The following chapter provides a discussion of principles introduced in Statement of Position SOP 97-2, as this was the first industry-specific guidance concerning revenue recognition for software and software-related products.\(^{52}\) This part is therefore rather explanatory in order to obtain proper understanding of major topics relevant to software industry revenue recognition. Subsequent guidance built up on terms and principles set in this SOP. The second subchapter then continues by highlighting major changes (relevant to case study in this thesis) introduced by ASC 865-605 (Subtopic Software) and finishes with comparison of the converged standard ASC 606/IFRS 15 jointly issued by FASB and IASB superseding all previous software-related guidance.

This chapter aims at fulfilling the **Objective 1** of the thesis: *To discuss revenue recognition standards applicable to software industry accounting under US GAAP (SOP No. 97-2 and*

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\(^{48}\) Palepu, Healy (2013): *Business Analysis & Valuation, Ch 3 Overview of Accounting Analysis*, p. 3-4.

\(^{49}\) Ibid, p. 3-4

\(^{50}\) Krovigorsky, V. (2011): Law, Corporate Governance and Accounting. European Perspectives. In Appendix


\(^{52}\) Deloitte (2011): *Software Revenue Recognition. A Roadmap to Applying ASC 985-605*, p.3
ASC 605) before and after the issuance of the new US GAAP/ IFRS converged revenue standard (ASC 605 versus ASC 606).

If not explicitly stated, the guidance in ASC 605 did not bring any significant changes to topic area compared to SOP 97-2. All revenue recognition guidance except of SOP 97-2 is presented in a rather comparative way.

This chapter, however, does not provide full coverage of extensive revenue recognition principles of US GAAP precise guidance. It concentrates on the most important US GAAP regulation topics necessary to gain proper understanding of revenue recognition principles, in order to use those for the case study discussion in the last chapter. If interested, further analysis of uncovered topics (e.g. customer options or costs of obtaining a contract) can be found in the following – Deloitte (2011): *Software Revenue Recognition. A Roadmap to Applying ASC 985-605* or KPMG (2016): *Illustrative Disclosures – Revenue.US GAAP*.

### 2.1 Revenue Recognition under US GAAP

There are three main entities involved in the development process of the US accounting environment – the SEC, FASB and AICPA. It is the *U.S. Securities and Exchange Commission* (SEC), a federal agency, that has the authority to set accounting standards but mostly relies on private sector accounting bodies to fill this role. It therefore does not directly create conceptual accounting framework for US GAAP but has the authority to enforce standards compliance when monitoring companies for accounting rules violations. SEC is responsible for monitoring of 8 securities governing securities industry, Sarbanes-Oxley Act from year 2002 being the one most relevant for accounting purposes. The SEC began its involvement in the development of accounting principles for software industry in early 1980s – firstly with guidance on R&D costs and then the completion of SOP 97-2. The SEC remains active and monitors registrants reporting within its scope and occasionally challenges vendor’s M&D information.

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53 Palepu, Healy (2013): *Business Analysis & Valuation Ch 3 Overview of Accounting Analysis*, p. 3-4
55 Morris (2001): *Software Industry Accounting*, Ch.3, p.3-26; p.3-27
In 1939, American Institute of CPAs (AICPA)\textsuperscript{56} created Committee on Accounting as directed by SEC and was given the task of creating accounting standards under US GAAP. Later, in 1959, Accounting Principles Board (APB) was founded, in order to produce more structured accounting standards and since APB turned out to be unable to function fully independently of the U.S. government, it was replaced by independent, private-sector and non-profit organization Financial Accounting Standards Board (FASB) in 1973.\textsuperscript{57}

US GAAP, the lingua franca of global software industry, regulates software industry revenue recognition through American Institute of CPAs (AICPA) - issued Statement of position from 1997: SOP 97-2 “Software revenue recognition”\textsuperscript{58} and FASB issued standard ASC 985-605 “Revenue recognition”. Standards guiding financial reporting for two most complex topics in the software industry - revenue recognition and research and development costs, have developed as a result of software companies unbundling or charging separate prices for hardware and software, starting with IBM in 1969.\textsuperscript{59}

In 2009, FASB issued an accounting standards update ASU 2009-14 “Certain revenue arrangements that include software elements” resulting from a consensus of the FASB Emerging Issues Task force and EITF Issue No. 00-21 “Revenue arrangements with multiple deliverables.” This update supplemented Subtopic 985-605 to establish a clear understanding of a “multiple deliverable”, to clarify how to segregate an arrangement into separate units of accounting and how to account for given revenues.

Compared to IFRS, US GAAP commands over a greater set of rules related to software industry whereas IFRS sets out a basic set of principles and leaves more room for judgement. US GAAP commonly requires deferral of revenue in order to restrict company’s ability to

\textsuperscript{56} American Institute of CPAa – world’s largest member association representing the accounting profession accounting profession. The AICPA sets ethical standards for the profession and U.S. auditing standards for private companies, non profit organizations, federal, state and local governments. For more please visit http://www.aicpa.org/Pages/default.aspx

\textsuperscript{57} Financial Accounting Standards Board – establishes financial accounting and reporting standards for public and private companies and not-profit organization that follow GAAP. For more please visit http://www.fasb.org/home

\textsuperscript{58} Clarifying certain provisions of SOP 97-1 “Software Revenue Recognition”

\textsuperscript{59} Morris (2001): Software Industry Accounting, Ch.2, p. 2-1
recognize revenue prematurely. IFRS does not have any software industry specific guidance to this day. The newest standard having impact on revenue recognition in software industry is the shared project of FASB and IASB that joined forced in 2002 to deliver a single revenue standard resulting in *IFRS 15 Revenues from Contracts with Customers* and *ASC 606 Revenues from Contracts with Customers*. It is a broadly applicable standard influencing revenue across all industries, introducing numerous new concepts for both, IFRS and US GAAP.

2.1.1 Revenue Recognition under SOP 97-2

Before *Statement of Position (SOP) 91-1* issuance in 1991, software companies recognized revenue as they considered suitable for their business model, for example upon contract signing, delivery, installation, acceptance, payment or a combination of these.\(^{60}\) SOP 91-1 significantly narrowed those practices and its final issuance took 9 years since the first meeting of the AICPA Task Force.\(^{61}\) For that reason, SOP 91-1 did not provide guidance on changes that started occurring in software industry in the meantime, even prior to its publication.\(^{62}\) With software industry constantly evolving, so have its customer contracts.

The “shrink-wrap” software emergence and its rising popularity lead to questions, such as how should free telephone support or free upgrades be accounted for under SOP 91-1.\(^{63}\) Software developers also preferred having one single contract for more products or services, commonly delivered with a different timing, rather than numerous individual contracts with one specific customer.\(^{64}\) And over time, customers started asking for “portability” of software license, in order to be able to use software on more than one hardware/software platform.\(^{65}\) These situations stayed uncovered under SOP 91-1.

*Statement of Position (SOP) 97-2* was issued in 1998 after comments raised by AICPA’s Accounting Standards Executive Committee (AcSEC) have been clarified, superseding SOP 91-1.

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60 Ibid, p. 2-7
61 Ibid, p. 2-7
63 “Shrink-wrap” or “shrinkwrapped” software refers to “off-the-shelf” software sold separately as a stock item that customers can use with little or no customization, as defined by SOP 97-2, Glossary, p.20367
65 Ibid, p.2-14
91-1 from 1991 which provided first narrowed US GAAP revenue recognition guidance for software industry. However, literature does not really refer to SOP 91-1 as the first guidance since it did not solve important industry accounting questions. As to content covered and depth of detail, SOP 97-2 introduced numerous new terms essential to software revenue recognition under US GAAP, such as *post-contract customer support (PCS)*, *off-the-shelf software*, *when-and-if-available-basis*, *upgrade right*, *platform-transfer right* a others.67

**SOP 97-2** “*Software revenue recognition*” is applicable for both public and private companies earning revenue from computer software licensing, selling, leasing or marketing in another way. However, it is not applicable to revenues earned on products and services containing incidental software.68 If at least one of the following criterion is met, software is considered to be more than incidental to product sold, therefore within scope of SOP 97-2:69

- Software is a significant focus of marketing effort or is sold separately
- Vendor provides post contract customer support (further as PCS)
- Vendor incurs significant costs within the scope of FASB Statement No.86 *Accounting for the Costs of Computer Software to be Sold, Leased or Otherwise Marketed.*

As discussed in the first chapter, one must keep in mind that software industry arrangements can become quite complicated and can include much more than standardized software product sale (or licensing) and delivery. In case that software product included in an arrangement requires significant production, modification or customization, it is no longer within scope of SOP 97-2.70 Considering the fact, that Apple Inc. does not customize its software in most of its sales transaction, this topic will not be dealt with in further detail.

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66 SOP 97-2, §1
67 SOP 97-2, Glossary, p. 20367
68 SOP 97-2 §2
69 Morris (2001): *Software Industry Accounting*, Ch.4, p.4-4
70 According to SOP 97-2, §7, these arrangements should be accounted for in conformity with Accounting Research Bulletin ARB No.45 *Long-term construction-type contracts* and guidance in SOP 81-1 *Accounting for Performance of Construction-type and certain production-type contracts*. The latter should be applied if arrangement includes service that is essential to functionality of delivered software.
SOP 97-2 §8 introduces a four-step revenue recognition model, according to which, revenue may be recognized only if all four of the following criteria are met, each of them explained below in separate subchapter.  

1. Persuasive evidence of an arrangement exists - §15-17
2. Delivery has occurred - §18-19, §20-25
3. Vendor’s fee is fixed or determinable - §26-32
4. Collectability is probable - §8

2.1.1.1 Persuasive Evidence of an Agreement

SOP 97-2 does not allow revenue recognition unless persuasive evidence of an arrangement exists as this should avoid having revenue recognized too early and avoid cases of fictitious transactions by salesmen to increase sales. 

Vendor’s business practice determines whether evidence of an agreement must be in a written form or not. If vendor standardly sells its software based on a written contract, only a contract signed by both sides can serve as sufficient evidence. Not all software vendors enter into contractual relationship with their customers via written arrangement (common in shrink-wrapped software sold separately), therefore standard business procedures should be taken into account when evaluating whether evidence of an agreement is sufficient. If vendor does not normally obtain written contracts, purchase order from a third party or online authorization can serve as evidence as well.

2.1.1.2 Delivery

The second criterion covers the principle of no revenue booking until delivery has taken place, whether the customer is a user or a reseller. The delivery criterion is not met if

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71 SOP 97-2, §8
72 PWC (2008): A Shifting Software Revenue Recognition Landscape?
73 Morris, J. (2001): Software Industry Accounting, Ch.4, p.4-6
74 SOP 97-2, § 5-17
undelivered elements exist that are essential to functionality of the software as it is considered that customer has no full use of element until its delivered, therefore chance of refund or payment withdrawal exists (and collectability is not probable).

In software industry, SOP 97-2 §18 understands delivery as possession of the software via physical transfer on a medium, download, providing access code that allows customer to immediately access software or authorization for duplication of existing copies in customer’s possession.

SOP 97-2 also specifies revenue recognition process in specific cases – such as delivery other than to the customer, engaging delivery agents and revenue from transaction involving those, software demanding periodic delivery of specific authorization codes (referred to as keys) which may be found in further detail in Morris, J. (2001): *Software Industry Accounting, Chapter 4.3 Basic Principles.*

### 2.1.1.3 Fee is Fixed or Determinable and Collectability is Probable

The third criterion is based on the concept, that the vendor must know the amount of revenue he/she is eligible to on the shipment day based on software license agreement. According to SOP 97-2 §26, if the amount depends on the number of software units or distributed copies or the expected number of users, fee is neither fixed or determinable. The same principle applies to cases when vendor provides customer with rights of cancellation, until the cancellation privileges lapse as the fee is not considered to be fixed and collectability is not reliably probable.

Some software arrangements include extended payment terms that may last over a substantial period of the license. This brings out the risk of the software product being of a lower continuing value due to subsequent product releases by vendor or competitors. Software fee
is therefore not fixed nor determinable if any extended payment terms exist and revenue shall be recognized as payments become due.\textsuperscript{80}

The chances of revenue collectability in software industry are not based on customer creditworthiness but rather serve as a check against the remaining criteria for revenue recognition.\textsuperscript{81} It is highly improbable that customer would pay for:\textsuperscript{82}

a. an element that has not been ordered (persuasive evidence of agreement exists)
b. an element for which full use has not been realized (delivery)
c. an element for which price adjustments or other modifications are expected (fixed or determinable fee)

Under the collectability criterion, SOP 97-2 requires revenue deferral if elements of contract have been delivered but are subject to forfeiture, refund or other concession. It should also be considered, whether software license contract specifies customer acceptance requirements, default or damage provisions, due date for element delivery etc.\textsuperscript{83}

2.1.1.4 Multiple elements contract and Revenue Allocation

Software licenses, software itself and related services are rarely sold on a stand-alone basis.\textsuperscript{84} It is rather a software license (or subscription) bundled into an arrangement containing future deliverables than a straightforward purchase of current product version.\textsuperscript{85} Hence, software vendors still have ongoing obligations after software delivery.\textsuperscript{86} A multiple-element arrangement is therefore understood as any combination of additional software deliverables, services or post-contract customer support.\textsuperscript{87} Customer contracts may include e.g. additional software products, software modifications, custom development, upgrades and enhancements, PCS, training or maintenance services which SOP 97-2 §09 defines as

\begin{itemize}
\item[SOP 97-2, § 27-29]
\item[81] Morris, J. (2001): \textit{Software Industry Accounting}, Ch.4, p.4-11
\item[82] Ibid, p.4-11
\item[83] Ibid, p.4-11
\item[84] PWC (2008): \textit{A Shifting Software Revenue Recognition Landscape?}; p. 10
\item[85] Morris, J. (2001): \textit{Software Industry Accounting}, Ch.4, p.4-1
\item[86] Ibid, p. 4-1
\item[87] Ibid, p.4-26
\end{itemize}

SOP 97-2, §34
multiple software deliverables or *multiple elements* (and which by their definition have not been sold yet upon time of contract conclusion).\textsuperscript{88} Vendor may also provide customer with the right to exchange or return software and right of platform transfer.\textsuperscript{89} All the named deliverables are essential to the customer and the vendor must deliver those in order to be paid by his customer and fulfill contract obligations.\textsuperscript{90}

Considering upgrades and enhancements (both terms used interchangeably) as an improvement to an existing product intended to improve the functionality and performance of the original product, SOP 97-2 §36 differentiates between specified and unspecified upgrades/enhancements for revenue recognition purposes. If evidenced by a specific agreement, commitment or vendor’s established business practice, we talk about additional software deliverable element in form of a *specified upgrade/enhancement*.\textsuperscript{91} It generally allows customer to exercise his/hers right of an upgrade to a newer version of the software product for a lower fee than a brand new license for the new version or that vendor will deliver a product with specific features and functionality.\textsuperscript{92} As opposed, vendor may also provide *unspecified upgrade* rights to products introduced over time, not specifying functionality of features as they may not be known yet (such as the free iPhone or iMac software upgrade from Apple Inc.).\textsuperscript{93} Upgrade, provided on a *when-and-if-available basis*\textsuperscript{94} introduced by SOP 97-2 is generally treated as post contract customer service PCS (see below subtopic 2.1.1.5 PCS).

Two questions now arise for vendors after contract inception including bundled arrangement sales:

\begin{itemize}
  \item \textsuperscript{88} SOP 97-2, §09
  \item Morris, J. (2001): *Software Industry Accounting*, Ch.4, p.4-1
  \item PWC (2008): *A Shifting Software Revenue Recognition Landscape?*, p. 10
  \item \textsuperscript{89} SOP 97-2, § 35-37
  \item \textsuperscript{90} PWC (2010): *A Shifting Software Revenue Recognition Landscape. Insights on Potential Impacts of the Proposed Revenue Model on Current US GAAP*; p.4
  \item \textsuperscript{91} SOP 97-2, §36
  \item Morris, J. (2001): *Software Industry Accounting*, Ch.4, p.4-33; 4-37
  \item \textsuperscript{92} Ibid, p. 4-37
  \item \textsuperscript{93} According to SOP 97-2, Glossary: An arrangement whereby a vendor agrees to deliver software only when or if it becomes deliverable while the arrangement is in effect. *When-and-if-available* is an industry term that is commonly used to describe a broad range of contractual commitment. The use of the term *when-and-if-available* within an arrangement should not lead to a presumption that an obligation does not exist.
\end{itemize}
1. How to allocate contract revenue among all these elements?
2. How to allocate revenue among accounting periods, since elements are frequently not delivered all at the same time?

SOP 97-2 introduces the term vendor-specific-objective-evidence (VSOE) for the purpose of revenue allocation to each element. It is a revenue recognition method focusing on fair value (FV) of individual elements as if the element (upgrade, right to platform transfer etc.) have been sold separately. VSOE of fair value is a highly complex term for software sales and exists only if the element can be sold separately (therefore has a sales value) or if not yet sold separately, the price may be estimated by management having relevant authority.95

VSOE of fair value gives companies the possibility to proportionally allocate the arrangement revenue to each element according to its FV. Thus, vendors selling multi-item contracts have the possibility to recognize revenue at the moment of delivery of one specific part of the bundled elements contract if VSOE of FV is available, the remaining revenue deferred until elements are delivered. If item is not sold separately and therefore its VSOE of fair value can not be quantified, vendor shall not recognize any revenue (even for the items delivered) for as long as there are undelivered elements for which VSOE of fair value does not exist until all elements are delivered. According to SOP 97-2 §12, if separate VSOE of FV for undelivered elements is impossible to assess, all contract revenue should be deferred until:96

- Such VSOE exists or
- All elements have been delivered

It is also possible to use the residual method for revenue allocation, meaning that if FV of all undelivered elements are known, we can calculate the price of the delivered elements. For an example of hardware plus software transaction revenue allocation principle according to VSOE of fair value (or other method allowed under the upcoming ASC 606, please see Chapter 3 – 3.3.2.2 iPhone Individual Sales).

95 SOP 97-2, §09
96 SOP 97-2, §12
Multiple elements part of SOP 97-2 also discusses how to account for revenues if arrangement contains rights to exchange or return software. This “exchange accounting” guidance will, however, not be dealt with furthermore and may be found in §50-55 of SOP 97-2.

2.1.1.5. Post – contract customer support PCS

Most software vendors frequently offer post-contract customer support (PCS) in form of post-delivery telephone support, bugs correction or unspecified upgrades/enhancements developed over the period while PCS is in place, excluding “shrink-wrapped” products.97 Even if not separately stated in the arrangement but vendor has historical pattern of providing PCS, one must consider PCS as a separate element impacting revenue recognition.98 This becomes even more important when following the ASC 606 requirements.

For revenue recognition purposes, the vendor must “unbundle” the arrangement into separate elements and allocate the total contract fee according to VSOE of fair value to all elements, including PCS. Its fair value would be the price that a customer has to pay to acquire PCS separately, that is, the renewal rate, as stated by SOP 97-2 §57. Revenue allocated to PCS is then recognized ratably over the term of PCS (as it is expected that PCS services are provided ratably).99

PCS falls into the category of multiple elements arrangements where SOP 97-2 requires revenue deferral if VSOE of fair value of any undelivered elements is unavailable. There are, however two exception according to SOP 97-2, §12, which are:100

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97 Morris, J. (2001): Software Industry Accounting, Ch.4, p.4-41; p.4-42
98 SOP 97-2, §56
99 SOP 97-2, §57; Exceptions apply – Since “revenue should be recognized over the period of the PCS arrangement in proportion to the amounts expected to be charged to expense for the PCS services rendered during the period if” sufficient VSOE is provided that costs related to PCS provision occur on other than straight-line basis and the vendor believed costs related to PCS provision will follow this pattern.
100 SOP 97-2, §12
a. If PCS is the only undelivered item from a multi-element bundled contract, the entire fee should be recognized ratably – over the contractual PCS period or the period during which PCS is expected to be provided.\textsuperscript{101}

b. If the arrangement is in substance a subscription (please refer to subtopic 2.1.1.6 Subscription Accounting below), the entire fee should be recognized ratably.

Example: Let us consider a software product sold for 100\$ including a one year free PCS. The annual renewal rate for PCS is 20\$. Since it is possible to estimate the stand-alone selling price of PCS, using the residual method, 80\$ from all 100\$ will be recognized upon delivery of software and the 20\$ will be recognized over the one-year service period. If the renewal rate of PCS would not be available, all revenue would be recognized ratably over the period of one year. If it was another type of bundled component than PCS that remains undelivered and without VSOE, all contract revenue would be referred until all elements are delivered.

Numerous useful interpretations and examples may be found in Morris (2001): Software Industry Accounting, Chapter 4.5 Postcontract Customer Support.

2.1.1.6 Subscription accounting

Revenue recognition as an accounting process of acknowledging company’s revenues and expenses can be tricky especially in case of software industries due to economic and technical characteristics. Software, Software-as-a-Service (SaaS) and magazine publishing industries often use subscription type of sales contracts with their customers.\textsuperscript{102} The nature of subscription business model lies in the principle of customer paying a subscription fee usually at the beginning of the business contract in return of a series of product/service delivery each week/month. For example, a magazine publisher sells an annual magazine subscription consisting of 12 magazine issues to a customer for $12. Publisher usually does receive the payment at the beginning of the subscription period and reports cash received but does not recognize revenue straightaway.\textsuperscript{103} Publisher has sold a subscription to customer but will account for a proportional revenue part after each issue was delivered – after each month, $1

\textsuperscript{101}SOP 97-2, §58
\textsuperscript{102}Palepu, Healy (2013): Business Analysis & Valuation, Ch 3 Overview of Accounting Analysis; p. 4-50
\textsuperscript{103}Ibid; p. 4-51
will be transferred to revenues and $1 will be deducted from deferred revenue. The rest will be deferred to liability account “deferred” or “unearned” revenue.\textsuperscript{104} The reason for revenue deferral is the nature of widely used accrual accounting which considers the period when revenue has been earned, not only the payment received (as opposed to cash accounting methods).

Similar to the subscription business model accounting, there is a specific situation stated in SOP 97-2 that leads to subscription-based revenue recognition. If the only undelivered element is an upgrade promised on a when-and-if-available basis, the whole contract fee revenue is then recognized ratably over the estimated useful economic life of the product. This accounting policy is referred to as subscription accounting as well.

Subscription accounting may cause issues especially when sales rise too steep, as it happened in case of Apple’s iPhones sales in 2008. Many technology and software companies were having trouble with accounting for bundled components when they were essential to functionality of the product.\textsuperscript{105} Vendor then reports just a fraction of actual revenue earned in given period, as the rest needs to be deferred since sales arrangements include undelivered deliverables with missing VSOE of fair value.

Subscription model is gaining popularity across many different businesses - B2C and B2B, in order to extend customer relations by supplementary services, smooth revenue growth, enter the marking with innovative services or products. Following transactions could be characterized as a subscription model with usage of subscription accounting principles: a service contract purchased for an electronic device, a maintenance or support contract for a complex task, research database/software application utilization rights, committing to providing unspecified future products or upgrades, concession to the customer.\textsuperscript{106}

\textsuperscript{104} Ibid, p. 4-51
\textsuperscript{105} Ibid, p.4-50
\textsuperscript{106} Wood, D (2008): Is a Subscription Accounting Model Right for You?; p. 1
2.1.2 ASC 985-605 Software Revenue Recognition

Numerous amendments followed SOP 97-2 after its issuance in 1997 – first an Exposure Draft followed by SOP 98-4 and SOP 98-9 Modification of SOP 97-2, Software Revenue Recognition, with Respect to Certain Transactions.\(^\text{107}\) In 2009, SOP 97-2 with its amendments, and TPAs were codified in ASC 985-605 (Software) which provide revenue recognition guidance for US GAAP reporting entities until transition to ASC 606 after the financial year of 2016, or 2017 for private entities.\(^\text{108}\)

With software industry constantly evolving, the number of vendors falling into the scope of ASC 605 increased as well since ASC 605, similar to SOP 97-2, applies to vendors selling or otherwise marketing products, where software is more than incidental to given product or service. ASC 605 does not, however, apply to tangible products that contain software that functions together with non-software deliverables to provide tangible product’s essential functionality.\(^\text{109}\)

What new concepts did ASC 605 introduce to software industry revenue recognition? One of the leading differences that ASC 605 introduced relates to contracts with bundled elements, a common sight in the software industry. SOP 97-2 required that any missing VSOE of fair value for an undelivered element of a contract (e.g. unspecified upgrade) led to revenue deferral for all elements with ratable recognition. It was the major technological companies that lobbied at FASB to change the rules, as many bundled elements were never sold separately and therefore, VSOE of fair value was impossible to assign to these elements. Apple, Oracle, IBM, Hewlett-Packard and 27 other giants in technology industry sent in comments to FASB in order to explain the in-transparency that this rule is causing to investors, as significant part of revenues is deferred.\(^\text{110}\) FASB ruled in favor of industry practice and allowed other methods for bundled elements value estimation in ASC 605-20

\(^{107}\) Morris, J. (2001): Software Industry Accounting, Ch.2; p.2-32

\(^{108}\) Exposure Draft entitled Deferral of the Effective Date of Certain Provisions of SOP 97-2, Software Revenue Recognition for Certain Transactions


\(^{110}\) As amended by ASU 2009-14 §4

\(^{110}\) Foster School of Business (2010): Apple Inc. The iPhone’s Revenue Bomb; p.4
Multiple Elements Agreements, which allows most of the revenues to be recognized at the point of sale, as described below.\textsuperscript{111}

Since multiple elements arrangements, even though so frequent in software industry, have complicated revenue recognition accounting framework under US GAAP to follow (compared to no specific industry guidance under IFRS), the ASC 605-20 Multiple Elements Arrangements standard provides detailed guidance especially on stand-alone selling price estimation of separate elements. This standards does not provide guidance on revenue recognition per se but does provide guidance on determining the units of accounting and allocating the revenue to separate units of accounting (elements).

ASC 605-20 introduces a hierarchy to methods of stand-alone selling price calculation and revenue allocation. On the first level, it does require establishment of VSOE of each elements, as if the element was sold separately, or if not yet sold separately, the price estimated by management having the relevant authority. If VSOE is not directly deductible, vendor may consider prices charged for “largely interchangeable elements” sold by vendor or competition on the second level. If VSOE determination is still not possible, vendor may use his best estimate, taking into account market conditions and entity-specific factors. This change has basically eliminated the need of subscription accounting for technological companies if VSOE of fair value of some undelivered elements was indeterminable.

When it comes to arrangements with resellers, ASC 605 suggests consideration of different factors when deciding whether fee is fixed or determinable. A situation, where a fee would not be considered fixed or determinable is when the reseller is undercapitalized and new to the market and needs to wait for the customer’s cash collected in order to honor its commitment to software vendor, reseller’s business history indicates, that sales are largely dependent on reseller’s success in distribution of product units.\textsuperscript{112} If one of the above named factors applies to given reseller agreement, software vendor should recognize revenue more

\textsuperscript{111} Ibid, p.4
\textsuperscript{112}Ibid; p.12
precautious - on a sell-through basis, that means in the moment when sales are made by the reseller.\textsuperscript{113}

ASC 605 also identifies extended or advance payment terms as preclusion of revenue recognition, since this leads to presumption that the transaction fee is not fixed nor determinable as vendor may need to grant a price concession to customer over time or if significant portion of the fee is due in more than 12 months, the effect of time value of money comes in place.\textsuperscript{114} This approach is significantly amended by the new standard ASC 606.

In order to account for services such as installation and training, commonly used in corporate cloud offerings, those may be accounted for as separate units of accounting according to ASC 605 if VSOE of fair value exists, the services do not provide signification production, modification or customization of software, services are not essential to functionality of any other element of the contract and affect the total price of the contract. If these criteria are met, software vendor may attribute a relative portion of arrangement revenue to services and recognize this on a straight-line basis or according to a discernible pattern.\textsuperscript{115}

Sometimes vendors offer services that include significant production, modification or customization of the software, in order to adjust the software to customer’s needs. According to ASC 605, vendor should apply contract accounting revenue recognition following the \textit{ASC 605-35 Contract Accounting} guidance, which allows percentage-of-completion method using e.g. labor hours or units delivered or the completed-contract method for such arrangements.\textsuperscript{116}

\subsection{US GAAP vs. IFRS approach}

Under IFRS financial reporting framework, there is no specific guidance on revenue recognition of software arrangements so the overall standard \textit{IAS 18 Revenue} would apply to software industry as well. In general, US GAAP financial reporting framework is considered to be more “rules-based” than IFRS guidance and to a significant extent stricter

\begin{thebibliography}{10}
\bibitem{Ibid} Ibid; p.25-26
\end{thebibliography}
as well, as it in many cases requires revenue deferral. Companies reporting in IFRS may therefore seek guidance or inspiration in US GAAP regulation when determining appropriate accounting policies.\textsuperscript{117} Vendor’s compliance with US GAAP guidance, however, does not necessarily ensure compliance with IFRS as well.\textsuperscript{118}

When walking through each step of US GAAP 4-step model of revenue recognition criteria and subtopics related to software industry specifics, differences may be identified. Under IFRS, vendors have more room for judgement to assess probability of future economic benefits and its measurement. Concerning the revenue recognition process as a whole, IAS18 states that „Revenue is recognized when it is possible that future economic benefits will flow to the entity and those benefits can be measured reliably.“\textsuperscript{119}

One of the steps for revenue recognition under US GAAP is the fee being fixed. According to IFRS, entities that are not able to reliably measure the variable consideration of an arrangement mostly wait the revenue recognition until uncertainty is removed or payment received.\textsuperscript{120} Concerning collectability, vendors reporting under IFRS defer revenue until cash is collected, when in doubt if it is probable that economic benefits will flow to the entity.\textsuperscript{121}

As to multiple elements contracts, US GAAP provides detailed guidance on how to account for separate bundled arrangement elements such as unspecified or specified upgrades/enhancements or maintenance and issued besides ASC 605 a fully separate standard supplement \textit{ASC 605-25 Multiple-Element Arrangements}. Many IFRS reporting software vendors seek guidance in US GAAP requirements given the limited application guidance in IFRS.\textsuperscript{122} IFRS indicates in IAS 18 §13 that „in certain circumstances, it is necessary to apply the recognition criteria to the separately identifiable components of a single transaction in order to reflect the substance of the transaction.“, meaning that revenue

\textsuperscript{117} Deloitte (2011: \textit{Software Revenue Recognition. A Roadmap to Applying ASC 985-605}, p.3
\textsuperscript{118} PWC (2008): \textit{A Shifting Software Revenue Recognition Landscape?}, p.17
\textsuperscript{119} IAS 18 Revenues
\textsuperscript{120} PWC (2008): \textit{A Shifting Software Revenue Recognition Landscape?}, p.18
\textsuperscript{122} Ibid, p.11
may be accounted for separate elements but does not provide additional guidance on how to do so.\textsuperscript{123}

To conclude, IFRS applies a lower threshold for element evidence (IAS 18 Appendix §11 briefly mentions “identifiable amount of subsequent servicing”) compared to VSOE of fair value in US GAAP and allows entities to either combine PCS and software license into one element or account for them separately.\textsuperscript{124} IAS 18.IE19 also allows vendors to combine PCS and software into one single component and allows cost-based estimates of PCS elements, which is by nature quite difficult in software industry.

2.3 New Converged Standards ASC 606/IFRS 15

In May 2014, FASB (issuing US GAAP standards) and IASB (issuing IFRS standards) jointly issued a single, largely converged revenue recognition model superseding most current US GAAP and IFRS standards on revenues – IFRS 15 and ASC 606 called “Revenue from Contracts with Customers”.\textsuperscript{125} IASB and FASB set the effective date for nonpublic companies for annual periods beginning on or after the 1\textsuperscript{st} of January 2018 and December 2017, respectively. Early adoption is permitted for annual reporting periods beginning after December 15, 2016.

Both standards keep the same agreed revenue recognition model for entities entering into contracts with their customers to provide goods or services and differ only in minor subjects, none of these directly relevant for software industry nor case study in chapter 3.\textsuperscript{126} For updated discussion and information on ASC 606/ IFRS 15 differences, please see the KPMG’s IFRS Institute website.\textsuperscript{127}

\textsuperscript{123} IAS 18 §13
\textsuperscript{124} IAS 18 §11
\textsuperscript{125} Deloitte (2011): Software Revenue Recognition. A Roadmap to Applying ASC 985-605, p.4
\textsuperscript{126} The final standard followed a jointly issued revised exposure draft from November 2011 introducing a comprehensive 5-step model for revenue recognition.
\textsuperscript{127} KPMG Institutes; available on: http://www.kpmg-institutes.com
Companies currently falling within the scope of the largely prescriptive ASC 605 will need to adjust its revenue recognition to a model that aims at better portraying of the underlying nature of transactions and will be applicable across all industries. The new revenue recognition standard will significantly impact industries, where extensive industry-specific guidance is in place, such as software industry for instance. In general, ASC 606/IFRS 15 will definitely require more judgement exercised than ASC 605 as it is more principle-based (compared to generally rules-based US GAAPs). For this reason, the boards have created a Joint Transition Resource Group for Revenue Recognition (TRG) to discuss additional guidance or issues raised by stakeholders, it is highly recommended for software vendors to follow TRG discussions, despite its non-authoritative character.

With the clock to standard adoption clicking, PWC conducted a survey across industries concerning readiness and expectations of what ASC606/IFRS 15 may bring to entities. It seems that software companies expect to be extensively impacted by the new standard concerning accounting changes - 94% of software entities responded they expect an extensive impact, compared to overall cross-industry survey result of 22% expecting some to intensive accounting policies changes. It also turns out, that software companies are expecting difficulties with timing of revenues and variable consideration in the implementation period, in a larger extent than in other industries (please refer to Figure 9 in Appendix)

The core of the ASC 606/IFRS 15 single-source for revenue requirements for all entities is that “an entity will recognize revenue at an amount that reflects the consideration to which the entity expects to be entitled in exchange for transferring promised goods or services to a customer.” The new standard introduces a five-step comprehensive model of revenue

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130 AICPA established an industry task force, in order to cooperate on Accounting Guide development.
recognition accounting treatment arising from contracts with customers, each of the steps explained below:\textsuperscript{132}

\begin{itemize}
\item[1.] Identify the contract(s) with customer
\item[2.] Identify the performance obligations in the contract
\item[3.] Determine the transaction price
\item[4.] Allocate the transaction price to the performance obligations
\item[5.] Recognize revenue when (or as) the entity satisfies each performance obligation
\end{itemize}

2.3.1 Identify The Contract with Customer

As to the contract with customers, under ASC 605, software vendor needed to prove that persuasive evidence of an arrangement exists according to company’s customary business practice (mostly via a written contract or electronic authorization). With the new standard, software vendors may account for the arrangement irrespective of the form (may it be written or oral) as soon as this “contract” is legally enforceable (which may differ across jurisdictions as well).\textsuperscript{133} A contract is considered legally enforceable, if the contract has a commercial substance and rights to goods/services and payment terms can be identified, the consideration the entity expects to be entitled to is probable of collection and the contract is approved, with both parties committed to their obligations.\textsuperscript{134}

Hence, vendors are expected to take into account the “substance over form” principle meaning that for some, enforceable rights and obligations may exist in the moment of performance beginning and for other, at the moment of contract signing by both parties.\textsuperscript{135} Identification of customer contract has become less prescriptive than under ASC 606 and

\textsuperscript{132} Ibid, p.5
\textsuperscript{133} Ibid, p.6
\textsuperscript{134} KPMG (2016): Revenue for Software and SaaS Industry. US GAAP. The New Standards Effective Date Is Coming; p.14
\textsuperscript{135} Ibid, p.6-7
hopes to eliminate cases where revenue is not recognized due to administrative delays, for example until the contract is delivered to the other party for signature.\textsuperscript{136}

Practices may differ among industries and individual software businesses but vendors must definitely have a complete understanding of implicit and explicit obligations resulting from an arrangement and clearly understand which contract evidence will be sufficient to cover those, in order to mitigate customer disputes over vendor’s obligations.\textsuperscript{137} On the other hand, ASC 606 allows vendors to be more flexible in their contracting forms.\textsuperscript{138}

Consequently, the new standard will also require more robust documentation to support the enforceability of a contract (in case it is not a proper contract signed by both sides) and most probably adjustments to vendor’s processes.\textsuperscript{139} In addition, it is likely that vendors will tend to more frequent contract combination or segmentation according to interdependency of individual obligation prices in order to properly reflect the nature of transaction.\textsuperscript{140} The new standards will require combination of contracts with the same customer entered into at around the same time and the contracts are negotiated as a package with one aim or if goods/services promised in the contracts form one single performance obligation.\textsuperscript{141}

2.3.2 Identify the Performance Obligations in the Contract

What drives revenue in software sales the most is the software license itself provided by a vendor, most commonly accompanied by additional side-products or services.\textsuperscript{142} US GAAP software revenue framework provided precise guidance on multiple elements arrangements. SOP 97-2 and ASC 605 discussed software customization, upgrades, PCS or installation

\begin{flushleft}
\textsuperscript{136} PWC (2010): A Shifting Software Revenue Recognition Landscape. Insights on Potential Impacts of the Proposed Revenue Model on Current US GAAP; p.3
\textsuperscript{137} Ibid; p.3
\textsuperscript{138} Ibid, p.3
\textsuperscript{140} Ibid, p. 3
\textsuperscript{141} Indicators of multiple contracts having interdependent pricing may be – a. contracts entered into around the same time; b. contracts negotiated as a package having one single commercial aim; c. contracts performed concurrently
\textsuperscript{142} KPMG (2016): Revenue for Software and SaaS Industry. US GAAP. The New Standards Effective Date Is Coming; p.9
\textsuperscript{143} PWC (2010): A Shifting Software Revenue Recognition Landscape. Insights on Potential Impacts of the Proposed Revenue Model on Current US GAAP; p 8
\end{flushleft}
services in depth. Most of these deliverables, or elements will under ASC 606 fall into the category of “performance obligations”. These are all revenue-driving elements of an arrangement, units of account for revenue recognition, promised (bundles) of goods or services in other words, as defined by practice developed over time. Revenue-producing activities are not specified neither in SOP 97-2 nor ASC 605 but turn into performance obligations in ASC 606.

To correctly recognize revenue, software vendor will now need to identify all performance obligations resulting from a customer contract (even those that under previous guidance were not considered as elements) and recognize revenue for each obligation separately. Performance obligations do not have to be legally enforceable, they exist if the customer has a valid expectation that specified goods/services will be delivered to him/her (e.g. if vendor provides its electric appliances with one software upgrade per year, it does not have to be explicitly stated in the contract for the customer to expect to receive this update once he purchases the appliance).

To be able to account for performance obligations separately, the goods/services must be separable from other arrangement obligations within the contract in accordance with IFRS 15 §27 (the distinction criterion – meaning that the customer is able to use the good/service on its own or with other readily available resource and obligation promises are separately identifiable from each other). An exception applies to a series of distinct performance obligations that are substantially the same with the same pattern of transfer to the customer – this is considered to be just one performance obligation.

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143 Ibid; p 5
146 Example of possible performance obligations previously not considered as deliverables – warranty, promise to defend patents, promise to provide an annual development plan.
Example 1: If a software license offers promised functionality (for a limited amount of time) to the customer without significant modification or future upgrades, this software package is distinct.

Example 2: Let us consider the above mentioned software license as essential and highly influential to functionality of a tangible good which leads to customer not being able to benefit from the software license on its own. The license, therefore, is not distinct from this tangible good and tangible product plus the license will be accounted for as one performance obligation.

Also, if a software license requires highly interconnected additional services and modifications, the license and the software form one single performance obligation.\textsuperscript{149} Antivirus software licenses are a perfect example for non-separable obligations, as they rarely function at its best without frequent updates from software developer. Hence, the license and subsequent services constitute one single performance obligation for the vendor.\textsuperscript{150}

Compared to SOP 97-2, ASC 606 does not directly state PCS as a separate obligation, an entity may, however, identify for example the promise of unspecified future upgrades and enhancements or telephone support as one, if sufficient evidence is provided that services are distinct from the software license. If PCS is defined as a separate obligation, this may in many cases accelerate revenue recognition for software licenses in opposition to ASC 605 since the old standard allows separation of PCS only when VSOE for PCS exists.\textsuperscript{151}

Quite an optimistic change compared to ASC 605 is introduced concerning specified upgrades, which, if agreed and proved distinct, can now be separate performance obligation and a relevant portion of revenue will be deferred until specified upgrade is provided, as opposed to frequently non-existent VSOE of FV for specified yet-non-delivered upgrade resulting in revenue deferral of full arrangement amount applicable under ASC 605.\textsuperscript{152}

\textsuperscript{150} Ibid, p.11
\textsuperscript{151} KPMG (2016): Revenue for Software and SaaS Industry. US GAAP. The New Standards Effective Date Is Coming; p.3
\textsuperscript{152} Ibid, p.13
2.3.3 Determine the Transaction Price & Allocate the Transaction Price to the Performance Obligations

Even when determining the transaction price, entities may need to exercise a significant portion of judgement, much more than under ASC 605. In order to properly present the amount the entity is entitled to under the ongoing contract (which may differ from contractual amount), the price of an arrangement should include measurements of any variable considerations (discounts, rebates, price concessions), effects of financing components (for example the time value of money), the fair-value of any non-cash consideration or any consideration paid or payable to customer. This should be done at contract inception. Especially estimating variable considerations and updating the result at each reporting date for any changes represents a significant change from current US GAAP practice. Having said that, it is important to keep in mind that the stand-alone selling price does not have equal the transaction price as well.

ASC 606 does not require all obligations to be explicitly stated in the contract, as vendors historical practice also plays an essential role in customer’s expectation. If customer has a credible expectation, the obligation is implied by vendor’s business practice. The question that emerges after identifying all performance obligations and determination of contract price, how should the vendor allocate the transaction price to these individual obligations?

Ideally, all revenue should be distributed proportionally according to stand-alone prices of separate obligations. ASC 606 allows vendors to estimate the selling price even if elements are not sold on a stand-alone basis. The pro-rata portion of revenue would be then recognized upon delivery of each performance obligation. ASC 606/IFRS 15 does not prescribe VSOE nor any other method, as long as the reasoning is well supported and vendor is consistent in similar situations (ASC 606 offers methods such as adjusted market

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155 Ibid, p.15
156 Ibid, p.10
assessment, expected cost plus a margin or residual method). This constitutes quite a change for US GAAP reporting entities, since ASC 605-25 Multiple-Elements Arrangements introduced a method hierarchy as follows, with highest priority for VSOE estimation:

| 1. VSOE of fair value | 2. Third party evidence | 3. Vendor's best estimate |

Additionally, vendors could also consider percentage increase of functionality after an update/upgrade compared to value of the initial license or frequency of updates/upgrades.\textsuperscript{159} Deferring all arrangement’s revenue without proper VSOE of FV of all undelivered elements and its following ratable amortization, as currently applicable under ASC 605, will therefore no longer be applicable.

It is expected, as suggested by PWC, that the new revenue recognition guidance will lead to changes in contracting practice, such as vendors grouping their obligations into categories – e.g. true performance obligations, passive obligations, administrative obligations, legal obligations etc., in order to ease the following tracking of each obligation group.\textsuperscript{160} In case that a non-key or administrative obligation turns into a revenue-driver, vendor should consider if it is worth keeping the obligation in the future contracts compared to the effort needed for individual selling price estimation.\textsuperscript{161}

2.3.4 Recognize Revenue when (or as) the Entity Satisfies Each Performance Obligation

According to ASC 606/IFRS 15, the vendor may recognize revenue after transfer of control of the contracted good/service to the customer, the control being the possibility of direct use of software license. Control also refers to “the ability to prevent others from directing the use of, and receiving the benefit from purchased good or service”.\textsuperscript{162}

Compared to ASC 605, the new standard introduces the terms revenue recognition over time (deferred recognition with regular amortization) and recognition at a point in time. For revenue recognition purposes over time or at a point in time, ASC 606 distinguishes between

\textsuperscript{159} Ibid; p.5
\textsuperscript{160} Ibid; p.5
\textsuperscript{161} Ibid; p.5
\textsuperscript{162} Ibid; p.26
the right to access and the right to use a software license. The determinant for performance obligation satisfaction as a right to access resulting in performance obligation satisfied over time, one of the following criteria must be met:\textsuperscript{163}

- The customer subsequently receives and consumes the benefits as the entity performs
- The entity’s performance creates or enhances an asset that the customer controls
- The entity’s performance does not create an asset with an alternative use to the entity, and the entity has an enforceable right to payment for performance completed to date.

If any of the above mentioned criteria are met, obligation is satisfied over time meaning that vendor will recognize revenue over time using a selected measurement method.\textsuperscript{164}

Control transfer of promised good/service at a point in time is indicated by one of the following factors – the customer has a present obligation to pay, customer physically possesses the software or has a legal title, customer obtained risks and rewards of ownership and accepted the asset.\textsuperscript{165} If any of these indicators are fulfilled, vendor may consider the control of promised good/service to be transferred to customer and shall recognize arrangement revenue at the point in time.

\textbf{2.3.5 Cloud and SaaS Services}

Cloud arrangements do not have a specific accounting guidance and vendors follow the standards applicable to other software product sales. In cloud arrangements, customers obtain the right to use the software but do not possess the server itself and functionality amendment rights stay with the developer or owner of intellectual property rights. The customer most frequently receives additional services as well, such as implementation, data migration, business processing mapping, training etc. which creates a hybrid SaaS/Cloud arrangement.\textsuperscript{166}

\textsuperscript{164} Ibid; p.16
\textsuperscript{165} Ibid; p.16
The most difficult part of cloud arrangement accounting treatment under ASC 606 will be the performance obligation identification. For this purpose, the vendor must make sure he distinguishes properly whether he is providing a software license as a separate performance obligation from the hosting service or rather a service as a whole, meaning that license and hosting services together form just one single inseparable performance obligation.\(^{167}\) If the customer is not able to benefit from the license on its own without additional services provided, ASC 606/ IFRS 15 §27 identifies both the license and services to be one performance obligation and not distinct.\(^{168}\)

If the cloud contract is identified as a service transaction towards the customer, ASC 605 currently requires to recognize the transaction price ratably over the term of the agreement. The difference that the new standard may bring to cloud software providers is the necessity of uncertainty consideration when measuring the total arrangement consideration.\(^{169}\) As a result, it will be easier to account for cloud services with a fixed-fee contracted price than a usage-based fee which will require an estimation of usage at the contract prices.\(^{170}\)

2.3.6 Distribution Arrangements

ASC 606/IFRS 15 could also change the practice for entities that sell their products through distributors or resellers (collectively referred to in this section as resellers). It is common in the software industry for entities to provide resellers with greater rights than end-customers in order to maintain a mutually beneficial relationship and maximize future sales through the reseller. For example, an entity may provide a reseller with price protection (that is granting a price concession) and extended rights of return in case the distributor or reseller is unable of selling those.\(^{171}\)

Under current ASC 605, most vendors recognize revenue upon sell-through of their software to end-customer since the granting of price concessions or accepting product returns opposes

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\(^{168}\) IFRS 15 §27


\(^{170}\) Ibid, p.17

the revenue recognition criterion of fixed and determinable software sale fees.\textsuperscript{172}

Under the new standard, the distributor’s or reseller’s arrangement would be accounted for including a variable consideration upon contract conclusion. This means, the software vendor will need to estimate the number of units which may be returned from the distributor or reseller and the price concession for these units so that the total amount of consideration vendor is entitled to can be determined.\textsuperscript{173} This amount will be recognized after control of the good/service transfers to the reseller.\textsuperscript{174} Hence, new standard will not impact the timing of the revenue but rather the amount and it will no longer be possible for software vendors to default to a sell-through method.\textsuperscript{175}

\textbf{2.3.7 Warranties}

When purchasing a product, a hardware with bundled software or software by itself, customer may have the option to purchase additional warranty, for example for bug fixes on a product for an extended period of time.\textsuperscript{176} This type of warranty providing customer with additional services other than the specified ones in the contract is referred to as a service-type warranty and will be accounted for under ASC 606 as separate performance obligation. As the nature of a warranty suggests, revenue for service-type warranties shall be recognized over the period additional warranty is agreed to.\textsuperscript{177} If the warranty is explicitly stated in the contract, this assurance-type warranty does not constitute a separate performance obligation under ASC 606.\textsuperscript{178}

\textbf{2.3.8 Monitoring Changes in Accounting Practice}

The implementation of ASC 606/IFRS 15 will not just impact the amount and timing of the

\textsuperscript{173} The determined amount needs to be updated each reporting period until uncertainty for concessions or returns is resolved.
\textsuperscript{175} Ibid, p.12
\textsuperscript{177} Ibid, p.33
revenues but requires significant adjustments in company accounting policies and processes as well. Since the fundamental idea of the standard is to a significant extent based on judgement, more than the revenue model applied under ASC 605, increased amount of time should be allocated to processes of judgements and estimations. In order to properly conduct estimates, software vendor’s employees will need to be trained properly concerning accounting and sales-related issues. Internal resources planning should therefore be done accordingly.\textsuperscript{179}

Changes in revenue recognition model will also need to be taken into account on a technological level and will result in electronic system environments and ERP amendments. Revenue recognition formulas will impact general ledgers, sub-ledgers and reporting packages.\textsuperscript{180}

Last but not least, if the ASC 606/IFRS 15 introduces significant changes in vendor’s accounting practices, which to a large extent will be relevant for software and SaaS companies, the vendor must consider the form of communicating these changes to investors and stakeholders on financial markets, as required by ASC 250-10 or IAS 8 \textit{Accounting Policies, Changes in Accounting Estimates and Errors} for IFRS.\textsuperscript{181} Besides communication with financial markets, changes in revenue amount will need to be communicated considering covenants compliance as well.\textsuperscript{182}

In conclusion, ASC 606/IFRS 15 does not just mean time-consuming organizational and process changes but could also turn into new opportunities if vendor identifies the benefits the new standard could bring for software sales.

\textbf{2.4. Specific Measures in Software Industry Financial Reporting}

Numerous companies in software industry, such as Apple, Oracle or Nokia deferred a significant part of their revenue under SOP 97-2 due to free updates that they offered since it was impossible to estimate the VSOE of FV for these. To offer comparable results and to
conclude on company’s performance, all of mentioned companies reported not only US GAAP results but also non-GAAP revenues in that time. Latest joiner in non-GAAP reporting is Microsoft as a result of its Windows 10 revenue deferral.  

2.4.1 Non – GAAP Financial Measures

It has been becoming increasingly common that company’s reported earnings under selected accounting framework, such as US GAAP or IFRS are insufficient as to providing information on company’s financial position and development or may be influenced by infrequent large transactions during given reporting period. In this case, a company can choose to voluntarily disclose so called non-GAAP financial measures – in Management’s Discussion and Analysis (MD&A) or earnings analysis - in order to more accurately reflect results of operation, its financial health or liquidity.  

Non-GAAP financial measure’s calculation is based on other methodology than the one in accordance with generally accepted accounting principle, therefore the name „non-GAAP“ – may it be US GAAP or IFRS. It is a numerical measure that includes or excludes amounts from the most comparable GAAP measure – such as earnings before interest, taxes, depreciation and amortization EBITDA, free cash flow, disputable cash, fund from operation FFO, adjusted earnings per share, net debt etc. This adjusted measure then offers supplementary information for users (issuers, investors, analysts) concerning past performance or possible future development and additional insight into the „core“ business by eliminating effects of unusual transactions. It may also build a bridge between generally accepted accounting principles (US GAAP or IFRS) and industry specific operations. This is highly relevant for specifics of software contracts.

When interpreting non-GAAP financial measures, it is necessary to keep in mind that these numbers are subjective. Meaning that despite being regulated, company and its management

is given a “free hand” as to calculation steps. Therefore, one should be careful when comparing those to similarly titled non-GAAP measures issued by other companies, even within the same industry.\textsuperscript{188}

Unfortunately, research suggests that what was originally meant to increase insight into company’s core business is often used for manipulative purposes, such as meeting earnings benchmarks or management tendency to highlight better results (may it be included in GAAP or non-GAAP financial measures) – for more details please refer to Bhattacharya R., M. (2004) or Doyle et al. (2003). According to W. B. Elliot (2006), non GAAP results tend to be more value-relevant and fulfill a valuation role.\textsuperscript{189}

It is often the case that especially missing information on how measures were determined and lacking consistency decrease the total value of disclosed non-GAAP financial measures. Issuers may enhance value added of issued non-GAAP financial measures for users by adopting the following principles, as suggested by PWC.\textsuperscript{190} \textit{Benchmarking} measures to those used by others within industry and understanding which measures will be relevant for users (investors, analysts). Issuers should remain \textit{transparent} and provide sufficient details on how non-GAAP measure was calculated, in order to raise its usefulness for users and also consider naming the measures reflective of its nature (stating the fact that the most comparable GAAP measure was adjusted directly in the name – e.g. free cash flow vs. adjusted free cash flow). Another way of improving usefulness for users is having proper internal policies on non-GAAP measures and staying \textit{consistent} with calculations and presentations of measures from period to period thanks to internal policies regulating. It is also advised to stay \textit{consistent} across reporting mediums and if it makes sense to use calculated measures in the unamended form in MD&A, press releases or investor presentations.\textsuperscript{191}

\textsuperscript{188} Ibid, p.2
\textsuperscript{189} Elliott, W. B. (2006): \textit{Are Investors Influenced by Pro Forma Emphasis and Reconciliations in Earnings Announcements?} p.2
There is numerous empirical research evidence available on what factors impact points of view on additional voluntary disclosed information of investors and analysts (for example investor’s level of sophistication or level of non-GAAP transparency and its linkage to analyst’s perception of information reliability.
\textsuperscript{190} PWC Point of View (2014): \textit{Non-GAAP Financial Measures. Enhancing Their Usefulness}; p.3s
\textsuperscript{191} Ibid; p. 3
Non-GAAP financial measures have over time become an often used alternative source of information. Hence, according to SEC, firms have in the course of time taken the flexibility offered by non-GAAP measures beyond original SEC intentions.\textsuperscript{192} For this reason, Sarbanes-Oxley Act of 2002 directed adoption of new rules and regulation by SEC for non-GAAP measures issuance. A new disclosure regulation was adopted by the SEC containing major rule changing documents: \textit{Regulation G, Item 10 of Regulation S-K and Item 10 of Regulation S-B} and \textit{Form 8-K}.

In case of unclarity, SEC provides a list of questions and answers of general applicability on their website, clarifying usage of non–GAAP financial measures in specific cases such as business transactions or foreign private issuers.\textsuperscript{193}

Concerning the ASC 606 impact on non-GAAP financial measures using by software vendors, it is probable that not many will continue using those. This is because ASC 606 allows more judgement in the whole revenue recognition model, companies will therefore not be limited by strict rules of ASC 605. All calculations and essential judgements will be explained alongside with financial statements. For this reason, no additional calculations conducted according to vendor’s own methodology related to revenue recognition will be needed.

\textsuperscript{192} Ibid; p.3

Castillo, R (2016): \textit{Practice Pointers on Non-GAAP Financial Measures}
Security and Exchange Commission (2016), Speech - Keynote Address, \textit{International Corporate Governance Network Annual Conference. 27th of June 2016}
Mary Jo White, the Chair of SEC since 2013, publicly expressed her concerns concerning, among other issues, the fact that non-GAAP measures have become key message to investors instead of being supplementary information source. As a result, SEC staff updated its Compliance and Disclosure Interpretations (C&Dis) on the use of non-GAAP financial measures in May 2016 dealing mainly with following issues - Lack of equal or greater prominence for GAAP measures, exclusion of normal, recurring cash operating expenses, Individually tailored non-GAAP revenues, Lack of consistency, sherry picking, use of cash per share data.
3. Apple Inc. Case Study

The last chapter of this thesis discusses revenue recognition for one specific technology and software vendor – Apple Inc., a California based NASDAQ registrant. As financial reporting guidance for US GAAP reporting companies has been discussed in depth in chapter 2, the knowledge gained shall be applied to the following case study in order to implement the theoretical framework on a real business case.

Apple Inc. has been selected as a case model for two reasons – it is one of the most successful software and hardware developers offering a wide range of products, from smartphones and personal computers, through music players to TV gadgets and cloud solutions. Thus, it is highly interesting to take a look at its individual portfolio products and evaluate impact of ASC 606 adoption on revenue recognition process. Despite Apple being mostly a technology vendor (98% of 2014 revenues were accounted for hardware sales), the total software revenue of $2110 million USD in 2014 landed Apple on the 22nd place in top software vendors worldwide.194 Apple’s software and services sales also usually have higher gross margins than other sales.195

The second reason for choosing Apple Inc. as a case study is the fact that Apple’s accounting has been to a significant extent influenced by the change in financial reporting rules from SOP 97-2 to ASC 605, mainly its accounting practices for iPhones. Therefore, we will be looking at possible implications for Apple Inc. financial reporting resulting from the new standard ASC 606/ IFRS 15. Apple’s product portfolio is divided into more product categories for analysis purposes - iMac computers for educational purposes, iPhone sales to individual customers, iCloud arrangements, AppleCare extended warranty program and reseller cooperation. Considering the length limitation of this thesis, it is not possible to cover the whole portfolio (for example Apple TV, third products merchandise and others).

The chapter begins with company background, business development and introduction to the company’s business model. It then examines Apple’s current accounting policies under US GAAP and will investigate possible implications of the new standard ASC 606/ IFRS 15 financial reporting principles for Apple Inc. It aims at fulfilling **Objective 2** of the thesis: *To discuss US GAAP revenue recognition principles used by Apple Inc. in different product categories and to apply findings in Objective 1 in the case study. To identify major implications for Apple Inc. resulting from ASC 606 adoption.*

### 3.1 Company Background and Current Financial Results

California registered electronic hardware and software seller Apple Inc. designs, manufactures and sells mobile and media devices, personal computers and table computers, music players and related software in form of operating systems or applications, then accessories and third party digital content.\(^{196}\) Apple Inc. offers its customers unique timeless design, easy-to-use devices and premium functionality.\(^ {197}\)

Apple’s CEOs always paid close attention to details and ensured that Apple products continuously offered high-end premium quality, functionality and services. Despite economic downturns in various regions and global financial crisis in 2008, Apple Inc. successfully managed to keep its annual sales increase trend and managed to grow from approximately $13 billion USD in 2005 to $233 billion USD in 2015 in net sales (as seen on below).

**Graph 3 Apple Inc. Net Sales (in mil)**

![Graph 3 Apple Inc. Net Sales (in mil)](image)


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\(^{197}\) Ibid, p.5
Its annual net sales increased stunningly by more than 50% in post-financial crisis period of 2000-2011, as shows *Graph 4: Annual Increase of Sales*. According to most recent, yet unaudited financial results for financial year of 2016, net sales faced a decline of 8 per cent.\(^{198}\)

**Graph 4. Annual Increase of Sales**

![Graph](image)


### 3.2 Business Model

Apple Inc. offers a wide range of hardware and software products. The largest part of sales, approximately 66% consists of iPhone sales, Apple’s flagship smartphone running on Apple’s iOS operating system.\(^{199}\) Another electronic hardware sector where Apple leads the market are portable tablets with iPad and its mini or large variations, also using iOS operating system. In desktop or portable computers category, Apple produces desktop computers line of iMac and portable laptops MacBook – Pro, Air or Retina, all providing users with excellent hardware functionally and exceptional screen characteristics. All computers run on OS X operating system created by Apple.\(^{200}\) Other electronic products combine leisure activities and functional gadgets – Apple Watch, Apple TV or iPod used as a music player. Apple also provides its products with own application software such as iLife, iWork and others.\(^{201}\) Similar to other technology and software companies, Apple entered the emerging market of

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\(^{198}\) Apple Inc. Unaudited Condensed Consolidated Statements of Operations. FY 2016


\(^{201}\) Ibid, p.3
cloud solutions with its iCloud offering music, photos, contacts, documents storage and keeping all files up-to-date on all iOS devices.\textsuperscript{202}

Apple markets its products in official retail Apple stores through knowledgeable sales assistants in high-traffic areas and shopping malls, which is according to Apple’s sales strategy directed at enhancing customer’s buying experience. Design retail stores are also aimed at attracting new customers, since it is possible to directly try out all Apple products and present product advantages directly to potential customers. Majority of Apple product sales are conducted through indirect sales channels through resellers but Apple has recently launched its own online stores and the company plans on improving its distribution capacities by expanding Apple stores worldwide.\textsuperscript{203}

Despite having own high-quality stores, direct sales contribute only to a quarter of total Apple sales. More than 70 per cent of sales is made through indirect distribution channels - third party cellular network vendors, whole-sellers, retailers or value-added resellers.\textsuperscript{204} Apple Inc. also sells its products to individuals, small and mid-sized businesses, enterprises, governments and educational facilities directly or through online stores.\textsuperscript{205} According to Apple’s annual reports, no customer accounted for more than 10\% of all sales in the last years.\textsuperscript{206}

In 2007, Apple Inc. entered the highly competitive market of smartphones and launched its first iPhone model running on iOS. As iPhone was Apple’s first smartphone, developers expected possible bug fixes of operating system and numerous enhancements to iOS to be able to deliver high-quality customer experience. Since Apple expected that a certain period of time would be needed until the market customers accepted iPhone as a smartphone leader, creators decided to offer operating system upgrades free of charge for existing iPhone holders

\begin{flushright}
\textsuperscript{202} Ibid, p.3
\textsuperscript{203} Ibid, p.4
\textsuperscript{204} Ibid, p.4
\textsuperscript{205} Ibid, p.5
\end{flushright}
in order to differentiate the product from other smartphone competitors already present at the market.  

Apple’s strategy to use its satisfied iPhone user to be its best advocate worked out well and iPhone’s sales soon skyrocketed. What contributed to iPhone’s phenomenal success surely includes the compatibility of iPhone with Apple and Windows computers or Apple’s iCloud which offers instant synchronization of devices. Photos or data from iPhone are therefore directly also saved on a computer or cloud account.

3.3. Accounting for Sales

Apple Inc. creates all its entities’ individual financial statements in local GAAPs at first (IFRS or other national GAAP) and then prepares consolidated financial statements for all its entities in conformity with US GAAP.  

Under the current sales model, Apple recognizes revenue according to industry specific guidance for three types of sales transaction – stand-alone sales of software products, sales of software upgrades and sales of software bundled with hardware not essential to the functionality of the hardware. According to its 2015 annual report, Apple uses general revenue recognition guidance on sale of hardware products, software bundled with hardware that is essential to the functionality of the hardware and third party digital contents sold via iTunes.

For proper analysis of the impact of the new standard on Apple’s revenue recognition, the following part of the last chapter is divided into more categories of products sales, which generate majority of sales revenue for Apple Inc. – personal computers iMac for educational purposes, iPhone sales to individuals, iCloud arrangements, warranty program AppleCare and reseller arrangements. All categories will be discussed under current US GAAP revenue recognition guidance and analyzed for impact of the new standard ASC 606/IFRS 15. For each category, the impact of the new standard will be linked to those steps of the five-step

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207 Palepu, Healy (2013): Business Analysis & Valuation, Ch 3 Overview of Accounting Analysis, p. 4-48
208 Apple (2017): Open Letter to IFRS, p.1
210 Ibid, p.44
revenue recognition model under ASC 606 that are considered to be most influenced by the new standard.

3.3.1 Revenue recognition under SOP 97-2 and ASC 605

According to Apple Inc. 2008 annual report, the company recognized revenue for software products (operating systems and applications software) and any product that is considered software-related following the guidance with the Emerging Issues Task Force (“EITF”) No. 03-5, *Applicability of AICPA Statement of Position 97-2 to Non-software Deliverables in an Arrangement Containing More-Than-Incidental Software.*211 Mac computers, portable digital music players iPods and iPhone as software-enabled hardware device products therefore fell within the scope of SOP 97-2, the first industry specific revenue recognition guidance until financial year of 2009.212

In 2009, Apple Inc. began reporting under principles of ASC 605, following the principle that all revenue is recognized if persuasive evidence of an arrangement exists, delivery has occurred, the transaction price is fixed or determinable and collection is probable.213 The title, the risk of loss and rewards of ownership are considered transferred once the product has been shipped with exception to online sales, where professional skepticism is applied due to risk of transfer loss and Apple recognizes revenue once product has been received by the customer.214

Since 2014, when FASB issued *ASU No. 2014-09 Revenue from Contracts with Customers*, Apple Inc. began preparing for the transition to amended revenue recognition guidance, significantly affecting some of its operational segments to a larger extent and some less. As this standard is based on the principle of recognition at such amount of revenue that the entity expects to be entitled to when products are transferred to customers, we will have a look at the impact of the revenue recognition model on major sales segments of Apple Inc.

211 The other non-software related products such as digital content sold on the iTunes Store and certain Mac, iPod and iPhone supplies and accessories is accounted for in accordance with the Securities and Exchange Commission (“SEC”) Staff Accounting Bulletin (“SAB”) No. 104, *Revenue Recognition.*
214 Ibid, p.44
3.3.2. Revenue Recognition Changes for Apple Inc. under ASC 606

The new revenue recognition standard introduces five steps of revenue recognition across all industries. Let us now consider the impact for each product sale category following these steps:

1. Identify the contract(s) with customer
2. Identify the performance obligations in the contract
3. Determine the transaction price
4. Allocate the transaction price to the performance obligations
5. Recognize revenue when (or as) the entity satisfies each performance obligation

3.3.2.1 iMac for Education

Apple supports education and knowledge. This is also the reason why the company customized a unique product package for educational purposes, offering iPads and iMacs for schools, colleges, universities or governmental bodies with a pre-set up programming for easy pairing up of devices to local internal account management system and data protection.\(^{215}\) Before cooperating with any institution, Apple needs to enter into a mutual agreement with the customer, commonly based on a specially agreed financing program that offers enhanced-rate-full payout financing or deferred payments plans in order to ease the cash flow needs of customers.\(^{216}\)

Concerning the first criterion of revenue recognition, identify the contract with customer, the new guidance is less strict on identifying the contract and Apple may identify a contract earlier than under current US GAAP guidance which currently allows it to recognize the contract according to entity’s customary business practice of written contracts. Despite this fact, let us take into account the size and quality reputation of Apple. We can expect it to enter into co-operational relationships only through written contracts. Hence, Apple will doubtfully consider oral agreements with future customers as binding, especially since

Accessed on 30.4.2017

\(^{216}\) Ibid, Accessed on 30.4.2017
educational iMac deliveries in large amounts have to be contractually secured. This step will have no impact on current Apple procedures.

A significant portion of judgement will need to be exercised concerning performance obligations as Apple needs to consider the explicit and implicit obligations customer would expect from Apple to be delivered – e.g. installation services, telephone support, maintenance services, regular updates of operational systems, discounted renewal dates for specific applications. If the customer has been Apple’s educational customer before, he would know what service to expect other than products delivery and implicit obligations stated in the contract. Thus, Apple should carefully consider for what obligations may the customer have valid expectations. Most probable, the new standard will mean that Apple will identify more distinct performance obligations for revenue allocation than under current ASC 605.

As to the determination of transaction price (third step), ASC 606/IFRS 15 is based on the recognition principle of such amount, which the entity expects to be entitled to when products/services are transferred to customers. For this purpose, the new standard introduces variable consideration which should properly reflect amendment to transaction price expected by the vendor at upon contract closing.

As iMacs for educational purposes mostly represent a significant financial burden for purchasing institutions (schools, colleges, governments etc.), many may choose deferred instalments as a payment option. For this reason, Apple will need to consider the effect of significant financing component and calculate with the time value of money adjustments or price concession to agreed contractual price with customer. The presence of a financing component will become significant in high-units contracts where payments are largely extended (beyond one year after transfer of goods/services took place) so the offsetting amount of interest income becomes significant compared to total contract price.217 Since ASC 606/IFRS 15 does not provide quantitative threshold for significance of financing component, Apple may choose to estimate the threshold by setting for example a percentage

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share of financing component to total arrangement value. Apple may also alleviate the burden of performing the significance assessment by using a practical guide provided by FASB.218

When closing contracts with new customers, Apple may in some cases already be aware of the fact, that the customer will not be fully able to pay the stated contract price. Apple will therefore need to estimate any variable consideration at contract inception and face the possibility of future price concession which will result in transaction price being variable and should be accounted for according to ASC 606 as variable consideration constraint. Apple will need to evaluate all available data and circumstances in order to estimate the impact of subsequent events on collectability of contract price.219 ASC 606 also means much more documentation for supporting Apple’s judgement. The transaction value of software revenue recognition will most probably decrease.

Adjustments to transaction price are not possible for Apple under the current US GAAP guidance, as presumption exists that the fee is then not considered fixed and determinable. One of the four criteria of the current revenue recognition under ASC 605 is therefore not met and revenue would generally not be recognized until this presumption is overcome and payments are due and payable. At the moment, Apple does not recognize revenue for extended payment terms unless it has sufficient evidence of historical successful collection of payments from client without concessions.220 Under the new standards, extended payment terms do not preclude revenue recognition for Apple if collectability is probable. Thus, the new standards will allow Apple to exercise less stricter policies for revenue recognition on iMac (and even other product) sales for education. Revenue will then be recognized earlier.

As to allocation of transaction price, ASC 606 does not mean significant changes for Apple as it is generally consistent with ASC 605-25 Multiple Elements Arrangements which sets out the hierarchy for estimation of stand-alone-selling price if elements (worded as performance obligations under ASC 606) if element is not sold separately. ASC 606 does not require a hierarchy in the order of VSOE of FV, 3rd party evidence (TPE) and vendor’s best

219 Ibid, p.19
estimate. Apple uses TPE as an estimated selling price for unspecified upgrades it provides to iOS system on iMacs since VSOE of FV does not exist for upgrades and does not need to change this accounting policy.\footnote{Apple Inc. (2017): Apple Annual Report 10-K 2016, p.33}

As to the fifth step of revenue recognition process, Apple will continue recognizing revenue for hardware at a point in time. Since most other performance obligations – such as unspecified upgrades or PCS will continue enhancing the product itself even after computer sale was conducted, Apple will recognize allocated revenue over time. To conclude, the major change that the new standard ASC 606 will represent for iMac educational sales revenue recognition lies in the second and third step of the new revenue recognition model – identify performance obligations and determine the transaction price.

Besides institutional customers, iMac is commonly sold to individuals via direct Apple stores or resellers. Similar to iPhones and Apple TV, iMac users are offered free iOS operating systems upgrades, even though this has not always been the case. Therefore, iMacs for individual customers are treated similarly to iPhones concerning revenue recognition, as described below.

3.3.2.2 iPhone Sales to Individual Customers

iPhone is the leading product of Apple Inc. and one of the reasons why it became so popular was that Apple provided its purchasers with free upgrades of iOS operational software. This first of its kind strategy at Apple, turned out to be extremely successful and Apple now indicates upon sales contract that it may from time to time provide future unspecified software upgrades to essential software and non-software services to iPads, iPod Touch, iMac, Apple Watch and Apple TV free of charge as well.\footnote{Apple Inc. (2016): Apple Annual Report 10-K 2015, p.44}

Apple belonged to the group of technology companies that lobbied FASB in favor of SOP 97-02 amendment in order to ease the situation of bundled elements revenue recognition in case of inexistent VSOE of fair value. Before ASC 605 came in place, companies had to defer all arrangement revenue if it was impossible to calculate the VSOE of fair value of any
undelivered elements. Under SOP 97-2, iPhone (and Apple TV) sales had to be accounted for using the so-called subscription accounting and Apple recognized the whole arrangement revenue and cost of goods sold amount ratably on a straight-line basis over the estimated useful economic life of 24 months. As a result, many vendors including Apple, Oracle or IBM chose to voluntarily disclose non-GAAP financial results that in their opinion properly reflected the underlying business development. Thanks to non-GAAP disclosure, iPhone sales expanded from $0.8 billions USD to $4.6 billions USD, an increase by 475%.

The new revenue recognition guidance will impact two steps out of the recognition model concerning iPhone sales – identify performance obligations and allocation of transaction price to performance obligations. However, we should take a look at all five steps of revenue recognition model of ASC 606.

The first step of the model, identify the contract with customer will not be affecting individual sales of iPhones as it usually is a one-off transaction with an individual buying a new phone in Apple store or at a reseller. The same argument applying to step number three – determine the transaction price. The situation would be different though, if applied to group sales for corporate customers – these are conducted based on a written contract specifying condition of sales and may imply variable considerations or significant financing component. In this case, impact of ASC 606 would be similar as in educational sales of iMac in previous subchapter.

As to identification of performance obligations, the new standard counts with both explicit and implicit performance obligations. Therefore, if Apple used to provide customers with one free iOS upgrade per year, the customer would expect the same to continue even though the timing must not be explicitly stated in the contract. Apple should consider if it is still providing stand-ready obligation satisfaction or if rather the customer has a valid expectation to receive a certain number of upgrades over given time frame.

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At the moment, Apple recognizes up to three deliverables it promises to iPhone customers upon contract conclusion:  

a. hardware and software essential to the functionality of the hardware device delivered at the time of sale  
b. embedded right for unspecified future upgrades on a when-and-if available basis  
c. non-software services  

As specified in ASC 605-25 on multiple elements contract, Apple should first try to establish a VSOE of each element in order to allocate contract revenue among all elements and recognize it in a timely correct manner. Since Apple does not provide any of the above mentioned promised deliverables separately, it is impossible to obtain a VSOE. For this reason, Apple could use a third-party evidence of selling price TPE – again, not applicable, since Apple’s largest competitors provide operating system upgrades free of charge. Apple therefore estimates the selling price (ESP) of each element and allocates a relative portion of contract revenue to separate deliverables or obligations, the new standards ASC 606 identifies deliverables. When determining the ESP, Apple takes into account the market trends in prices for similar items, price charged by Apple to similar products related to other devices or time frame between each version of a device becomes available. In FY 2015, Apple estimated the ESP for iPhone iOS upgrade at $5 USD and $10 USD for iMac. This is the amount Apple believes it would be entitled to when charging for iOS upgrades separately.  

Example: Let us consider an example of a new iPhone SE model sold to a customer for $500 USD and hardware bundled with software essential to functionality has an ESP of $200 USD, the iOS upgrade $5 USD and non-software $45 USD. The total fair value of price evidence for all deliverables is exactly $350 USD. Given the relative proportion of each deliverable in contract price, we are able to allocate the total contract revenue with customer of $500 USD

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227 Ibid, p.45  
228 Ibid, p.45
to each deliverable. This means, we allocate $400 USD to hardware and software essential to functionality, $10 USD to unspecified upgrade and $90 USD to non-software deliverables.

Now as we have allocated the arrangement revenue to each element, Apple would recognize the revenue of $400 USD for hardware and essential software at the moment of sale, supposing that other revenue recognition criteria have been met. The revenue for unspecified future upgrades and non-software services of $100 USD would be deferred and recognized ratably on a straight-line basis (usually 24 months for smartphones) over the estimated period of software upgrade rights and non-software services are expected to be provided. This is the situation, where Apple earned the right to recognize a significantly higher portion of revenue at an earlier point of time – under SOP 97-02, it was impossible to allocate a portion of revenues to undelivered elements without VSOE and according to ASC 605, Apple can estimate the stand-alone price based on TPE or ESP.

Apple may change its stand-alone selling price method determination for performance obligations not sold separately. Besides the three methods offered in ASC 605-25, Apple can consider the following - an adjusted market assessment approach, an expected cost plus a margin approach or a residual approach, as long as the vendor stays consistent with its calculations.\(^{229}\) A major change awaits Apple in the context of elimination of the current VSOE requirement for undelivered elements of bundled contracts. Thus, Apple will not have to defer all revenue until unspecified upgrades or additional software products are transferred to the customer.\(^{230}\)

The timing of unspecified upgrades/enhancements performance obligation satisfaction is unlikely to change, it is rather the wording and clarifying of performance obligations that may intensify for iPhone sales. Unspecified upgrades enhance the products and telephone support benefits the customer, therefore two criteria of performance obligation satisfaction over time are met. It is only the transfer of control of the hardware with software essential to iPhone’s functionality that will be recognized at a point in time right after sale conduct.


3.3.2.3 iCloud arrangements

What makes having more Apple products unique is the possibility to sync them all together and store data and information at one place. This is what the iCloud is used for. Initially, all Apple appliances come with a certain amount of storage in iCloud account. However, it is possible to increase the storage size up to a certain amount on a subscription-based contract inception. Extended iCloud services are a perfect example of how software industry changes, an increased storage space is just a click away (which will serve as sufficient contract evidence under ASC 606). There is no need for any other authorization and the customer receives a monthly invoice for its “subscription” to increased storage space.

Apple’s iCloud software is straightforward when it comes to accounting treatment, compared to other products from its portfolio. Essentially, it is a subscription paid monthly by the customer, there is no need for identifying additional performance obligations or variable consideration impacting the transaction price. Even though cloud arrangement can expect minor changes coming with ASC 606 adoption, the new standard will not impact Apple as its iCloud service is a rather simple model of a cloud product.

3.3.2.4 AppleCare

When purchasing a hardware product, Apple offers customers the possibility to acquire additional support program AppleCare - that extends the service coverage of phone support, hardware repairs, related web-based support resources for Mac, Apple TV and display products and diagnostic tools. \(^{231}\) This means that if anything goes wrong with the device, customer that purchased AppleCare is entitled to extended hardware and software help beyond initial limited warranty.

Apple distinguishes between two levels of support options of AppleCare and both are fee-based. The fee is paid upon product purchase and is valid usually for two years. \(^{232}\) According to ASC 605, Apple currently defers the revenue from AppleCare service and support and recognizes it ratably over the AppleCare program term. \(^{233}\) There will be no change to this

\(^{231}\) Apple Inc. (2017): Apple Annual Report 10-K 2016, p.3; p.45
\(^{232}\) Ibid, p.3
\(^{233}\) Ibid, p.45
accounting practice for Apple, since ASC 606 defines AppleCare as a service-type based warranty type which is considered a separate performance obligation and shall be recognized over time. Deferral of revenue will be recognized as the service are provided during AppleCare period.\(^{234}\)

There is no reason for expecting ASC 606 to impact the identification of a contract, as all AppleCare inceptions are conducted while buying a hardware product. The same applies for determining the transaction price. All arrangement fee is collected at the beginning at hardware sale.

3.3.2.5 Resellers

Apple is largely dependent on the performance of its resellers. Many have previously narrowed their operating margins and have been impacted by weak economic conditions.\(^{235}\) The company is also exposed to credit risks and collectability risk from all its distribution channels.\(^{236}\) Since Apple is expanding its direct stores at the moment, many distributors, carriers or reseller could consider this strategy as conflicting which could demotivate the performance of employees. Thus, Apple has decided to invest into strategies to increase reseller sales and will be staffing selected reseller stores with its own employees.\(^{237}\) Nevertheless, Apple must consider the possibility of lower sales due to decreased reseller performance in the process of revenue recognition.

The first step of revenue recognition model will not have an impact on Apple’s distributor arrangement as the same argument applies as in case of iMacs. Apple is too large of a company to account for revenues when distribution contract is not signed yet.

In some cases, Apple grants resellers price concessions through price protection or accept returns if the distributor is not able to sell the products.\(^{238}\) ASC 606 will impact Apple’s

accounting for reseller arrangements (making approximately 70% or total sales) in a way that a variable consideration needs to be quantified, which will result in lower final transaction price. Apple should also estimate the impact of compensation of specified amount of shortfalls in the sales price or reimburse its customer for marketing activities, according to ASC 606.\textsuperscript{239}

Adding the variable consideration to Apple’s estimation processes upon contract conclusion will not impact the timing of the revenue from the arrangement but rather just the amount. Apple will then recognize the final amount in the moment when its product is transferred to the distributor or reseller.

3.5.1 Summary of the Impact of ASC 606 on Major Apple Inc. Product Sales

Based on the discussion of separate Apple products sales in this chapter, the following figures summarize key process changes introduced by ASC 606 which were identified in this thesis. They are interpreted in the context of individual revenue recognition steps for software industry and conclude on the final impact in each product category.

The first step of contract identification will not impact any of Apple’s product direct (excluding resellers) sales as long term contracts (e.g. on iMac for educational sales) are done on a written basis, considering Apple’s business size. Individual smaller sales (iPhone individual sale) are conducted on a personal basis when customer buys a product online or at store, there is no change expected for AppleCare and iCloud arrangements neither.

Table 1: Step 1. Identify the contract with customer

<table>
<thead>
<tr>
<th>Identify the contract(s) with customer</th>
<th>Process change under ASC 606</th>
<th>Final Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Contract may be identified earlier</td>
<td>iMac educational sales</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Not going to impact Apple, iMac educational sales conducted based on written contracts due to nature of product sale</td>
</tr>
<tr>
<td></td>
<td></td>
<td>iPhone individual sales</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- No impact on individual sales process</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AppleCare, iCloud, Reseller</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- No impact</td>
</tr>
</tbody>
</table>

Considering the second step of identification of performance obligations, Apple will likely identify more performance obligations than under ASC 605 since the new standard emphasizes the importance of implicit obligations and customer’s expectations as this could result in customer dissatisfaction and contract abandoning. Again, proper obligations clarification is especially significant at large-scale sales as in case of iMac for education.

Apple may consider the number of updates it provides to its customers and if there is a pattern of 1 upgrade per year (which is the case in the past years), Apple should consider this number to be a performance obligation and allocate the whole revenue after one upgrade is delivered.

Table 2: Step 2. Identify the performance obligations in the contract

<table>
<thead>
<tr>
<th>Identify the performance obligations in the contract</th>
<th>Process change under ASC 606</th>
<th>Final Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>iMac educational sales</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- If customer has a valid expectation, revenue should be allocated to implicit obligation as well → more performance obligations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Clarification of obligations with customer</td>
<td></td>
</tr>
<tr>
<td></td>
<td>iPhone individual sales</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Apple should consider if customer expects unspecified upgrades on a when-and-if-available basis or a certain number of upgrades per period</td>
<td></td>
</tr>
<tr>
<td></td>
<td>iCloud</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- No change, iCloud is considered a sale of service</td>
<td></td>
</tr>
</tbody>
</table>

Determination of transaction price as the third step of the new revenue recognition model highlights the option to include variable consideration upon contract agreement. Similar to previous steps, it will mostly influence large-scale sales of iMac as some customers may use extended payments terms or financing components. Thus, the contract price may be lower than originally negotiated with the customer of Apple iMac sales.

This step also brings attention to Apple’s common sales through reseller, the company should evaluate new reseller partner in order to access the likelihood and number of product pieces.
that will remain unsold. Therefore, a variable consideration should be applied to reseller arrangement as well. Hence, revenues might be lower than originally expected.

Table 3: Step 3. Determine the transaction price

<table>
<thead>
<tr>
<th>Determine the transaction price</th>
<th>Process change under ASC 606</th>
<th>Final Impact</th>
</tr>
</thead>
</table>
|                                | - Quantify the variable consideration – take into account likelihood and magnitude of revenue reversal | iMac educational sales  
  - Transaction price will most likely be lower than contractual price  
  - Revenue recognized earlier as frequent extended payment terms do not preclude revenue recognition  
  - Apple will need to exercise more judgement  
  - Sufficient documentation supporting implied price concessions |
|                                | - Take into account significant financing component | iPhone individual sales  
  - No impact, usually a one-off kind of transaction |
|                                |                                          | Resellers  
  - Consider new resellers for possible variable consideration – undercapitalized, insufficient sales knowledge |
|                                |                                          | AppleCare, iCloud  
  - No impact |

ASC 606 means a significant change for revenue allocation to separate elements of a product sale or a contract. Apple uses third party estimate method to allocate a selling price to iMac and iPhone undelivered unspecified elements. With ASC 606, Apple is flexible to use a method suitable to its business model as long as it stays consistent and method is sufficiently supported by proper documentation. This step is not changing the process of revenue recognition for AppleCare and iCloud as both are accounted for as subscriptions and revenue is allocated ratably, which corresponds to the nature of the transaction.

Table 4: Step 4. Allocate the transaction price to the performance obligations

<table>
<thead>
<tr>
<th>Allocate the transaction price to the performance obligations</th>
<th>Process change under ASC 606</th>
<th>Final Impact</th>
</tr>
</thead>
</table>
|                                                               | - Possibility of more estimation methods of stand-alone selling price if not sold separately | iMac educational sales  
  - No major change for revenue recognition for iMac sales, ASC 606 generally consistent with ASC 605-25 methods but does not set a hierarchy |
iPhone individual sales
- Apple may choose a different approach to stand-alone-selling price of performance obligations, f.e. for unspecified future upgrades

As to revenue recognition at a point in time and over time, Apple will keep its processes of revenue timing. An area worth looking into is the empirical data on how many upgrades does Apple provide to its customers per one financial year. If there is just one, the revenue allocation for iMac or iPhone update must not be recognized ratably but at a point in time instead – when exactly one upgrade is delivered or available for download for customers. This would lead to earlier revenue recognition. Recognition over time for AppleCare and iCloud will not experience any impact with ASC 606 adoption.

Table 5: Step 5. Recognize Revenue

<table>
<thead>
<tr>
<th>Process change under ASC 606</th>
<th>Final Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recognize revenue when (or as) the entity satisfies each performance obligation</td>
<td>iMac educational sales</td>
</tr>
<tr>
<td>- Conclude if criteria for performance obligation satisfaction over time are met, if not – recognize revenue at a point in time</td>
<td>- No major change in timing of revenue – upgrades and PCS recognized over time</td>
</tr>
<tr>
<td></td>
<td>- Consider data on number of upgrades per year</td>
</tr>
<tr>
<td></td>
<td>iPhone individual sales</td>
</tr>
<tr>
<td></td>
<td>- Same as iMac educational sales</td>
</tr>
<tr>
<td></td>
<td>- Data on number of upgrades per year</td>
</tr>
<tr>
<td></td>
<td>AppleCare</td>
</tr>
<tr>
<td></td>
<td>- No change to revenue recognition – recognized over time</td>
</tr>
</tbody>
</table>
Conclusion

Software industry is one of the fastest growing industries of today and finds itself on the path of gaining even more importance each decade. What we often do not realize is that software surrounds us basically everywhere, simplifying our private lives by speeding up our communication, moving around and turning our phones into smartphones. Software is also changing enterprise habits that start turning from paper documentation to electronic cloud and SaaS arrangements. Starting in annual periods after December 2016, companies will be reporting their revenues under the new standard ASC 606/IFRS 15 jointly issued by FASB and IASB, superseding all previous revenue recognition guidance across industries. Thesis followed two objectives, the first one to - to discuss revenue recognition standards applicable on accounting in software industry under US GAAP (SOP No. 97-2 and ASC 605) before and after new US GAAP and IFRS converged standards issuance (ASC 605 versus ASC 606).

Objective 1 of the thesis was fulfilled with the following results: ASC 606 means much more judgement for software vendors that were used to a rather precise financial reporting framework under US GAAP, specifically developed for the software industry. Another implication that goes hand in hand with more judgement is the need for sufficient documentation of all measures and estimates conducted by software providers. For this reason, it is improbable that software vendors will be needing additional non-GAAP financial measures disclosure as ASC 606 allows a high portion of judgement in its revenue recognition methodology.

The new standard will frequently impact the amount and timing of the revenue which may be recognized earlier. The threshold for contract identification will be lower as long as the “contract evidence” is legally enforceable, the delivery criterion will not be influenced much and the fixed fee and collectability criterion will be less strict than under ASC 605. Extended payment terms will no longer be restraining revenue recognition. Thus, revenues will be recognized earlier than under ASC 605 for most entities.

ACS 606 also introduces a new concept of performance obligations identification, which may lead to more frequent arrangement revenue segregation. Companies may also need to establish its own proper stand-alone selling price calculation method for each contract
element that suits the business model the best and prepare sufficient supporting documentation to defend its practices. Whereas the contracts including multiple separate performance obligations with missing VSOE of fair value currently leads to all revenue deferral until all of the software elements are delivered commonly under ASC 605, this may not be the case under ASC 606. When obligations are categorized as distinct and separate, a pro-rata portion of transaction price will be recognized upon delivery of each license or obligation. ASC 606 introduces flexibility in valuating the fair value of elements, as long as the method chosen is sufficiently supported by documentation and is consistently applied.

Warranty and cloud arrangements will not change much with ASC 606 although it will impact reseller arrangements and may lead to different revenue amount as ASC 606 introduces the principle of variable consideration upon contract beginning. This is a significant change for software vendors. As a result of new standard implementation, it will not be just the amount and timing of the revenue that is going to change. Entities will need to adjust to new processes required by the five-step revenue recognition model but may identify positive outcomes from ASC 606 methodology.

Concerning Objective 2 which was to discuss US GAAP revenue recognition standards used by Apple Inc. on different product categories and to apply findings in Objective 1 for accounting under the new standard ASC 606 in a case study. To identify major implications for Apple Inc. resulting from ASC 606 adoption, this has been done in chapter three of the thesis.

Apple Inc. product portfolio was separated into major groups and by applying the five-step revenue recognition model introduced by ASC 606/IFRS 15, the following conclusion on new standard’s impact on Apple Inc. revenue recognition may be drawn: three processes were identified to impact Apple’s accounting policies the most – determine the transaction price, allocate the transaction price to the performance obligations and recognize revenue when (or as) the entity satisfied performance obligations. The new standard brings more flexibility but may result in lower revenues for Apple.

Even though it is possible to identify a customer contract earlier than under ASC 605, this will not have any impact on Apple Inc., since most of its contracts in a larger scale are
conducted in a written form. Apple may identify additional performance obligations under ASC 606, even those that are not explicitly stated in the contract and divide all contract revenue into more elements. When purchasing iMac and iPhone, the customer is automatically entitled to free unspecified upgrades/enhancement on a when-and-if-available basis. Thus, the company should also consider if the customer has a valid expectation to receive a certain number of upgrades per year or there is no valid expectation like this, when looking into Apple’s business practice. This would impact the timing of revenue for PCS coming with iMac and iPhone arrangements.

A significant change awaits Apple in terms of determining the transaction price. The estimation of variable consideration upon contract inception will mainly impact the sales of iMac for educational purposes, as these are mostly done in a larger amount of units to a certain institution. Not only there is a chance of implied price concession but Apple will need to adjust the transaction price according to the presence of a significant financing component. This is also relevant for reseller arrangements. Thus, revenue may be lower.

As to allocation of transaction price to performance obligations, ASC 606 leaves floor for Apple’s flexibility to estimate its unspecified upgrades/enhancement’s stand-alone selling price for iMacs and iPhones by using a method reflecting its business reality. Apple may choose a different method than valuation based on third party evidence.

ASC 606 is not expected to bring any changes to revenue recognition for AppleCare and this revenue will continue to be recognized over time. iCloud arrangements will not be influenced either. Last but not least, Apple will also need to consider how the changes will be communicated to stakeholders. Besides the above mentioned, ASC 606 means much more judgement for Apple Inc. and robust documentation as supporting material for estimates concluded on performance obligations, transaction price and allocation of revenue to performance obligations.
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ASC 606: Revenue From Contracts with Customers; FASB (2014)

IFRS 15: Revenue From Contracts with Customers; IASB (2014)

SOP 97-2: Software Revenue Recognition; FASB (1997)

Update Nr. 2009-13: Revenue Recognition ASU 2009-13 (Topic 605); FASB (2009)

Online


PWC (2014): PWC Point of View *Non-GAAP Financial Measures. Enhancing Their Usefulness*


Retrieved from:
http://www.revenuerecognition.com/pdf/subscriptionaccountingmodelrightforyou

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Other Online Sources

Durden, T (2016): Microsoft Hits all time high after beating estimates thanks to Windows 10 revenue deferral.

FASB (2017): Summary of Statement No.86. Online

Retrieved from https://www.forbes.com/sites/louiscolumbus/2016/07/30/pwc-global-100-software-leaders-2016-subscription-cloud-apps-revolutionizing-enterprise-software/#42d06abe4466

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All electronic sources verified on the 7th of May 2017
Appendix

List of Figures

Figure 1: World Top R&D Investors – Filtered Software & Computer Industry only
Figure 2: World Top Software & Computer Industry R&D investors by country
Figure 3: Increase of Industry Share of Top 100 Software Companies, regionally divided
Figure 4: Software Industry Concentration
Figure 5: Software Industry Annual Revenues Growth
Figure 6: Top 25 Software Vendors
Figure 7: General Provisions in a Software Licence Agreement
Figure 8: Software License Agreement - an example
Figure 9: 2016 Revenue Survey – Software Industry Expected Challenges
**Figure 1: World Top R&D Investors – Filtered Software & Computer Industry only**

<table>
<thead>
<tr>
<th>World Rank</th>
<th>Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>ALPHABET</td>
<td>11,054</td>
</tr>
<tr>
<td>5</td>
<td>MICROSOFT</td>
<td>11,011</td>
</tr>
<tr>
<td>19</td>
<td>ORACLE</td>
<td>5,316</td>
</tr>
<tr>
<td>27</td>
<td>IBM</td>
<td>4,515</td>
</tr>
<tr>
<td>29</td>
<td>FACEBOOK</td>
<td>4,424</td>
</tr>
<tr>
<td>49</td>
<td>SAP</td>
<td>2,689</td>
</tr>
<tr>
<td>93</td>
<td>Baidu</td>
<td>1,444</td>
</tr>
<tr>
<td>100</td>
<td>Fujitsu</td>
<td>1,371</td>
</tr>
<tr>
<td>117</td>
<td>Tencent</td>
<td>1,177</td>
</tr>
<tr>
<td>125</td>
<td>Yahoo</td>
<td>1,110</td>
</tr>
<tr>
<td>132</td>
<td>Electronic Arts</td>
<td>1,019</td>
</tr>
<tr>
<td>144</td>
<td>NEC</td>
<td>945</td>
</tr>
<tr>
<td>152</td>
<td>Salesforce.com</td>
<td>875</td>
</tr>
<tr>
<td>153</td>
<td>CERNER</td>
<td>870</td>
</tr>
<tr>
<td>159</td>
<td>Twitter</td>
<td>826</td>
</tr>
<tr>
<td>164</td>
<td>LinkedIn</td>
<td>802</td>
</tr>
<tr>
<td>167</td>
<td>Adobe Systems</td>
<td>792</td>
</tr>
<tr>
<td>179</td>
<td>Intuit</td>
<td>733</td>
</tr>
<tr>
<td>181</td>
<td>Autodesk</td>
<td>726</td>
</tr>
<tr>
<td>183</td>
<td>Synopsys</td>
<td>716</td>
</tr>
<tr>
<td>181</td>
<td>Symantec</td>
<td>687</td>
</tr>
<tr>
<td>193</td>
<td>Amadeus</td>
<td>661</td>
</tr>
<tr>
<td>210</td>
<td>Citrix Systems</td>
<td>604</td>
</tr>
<tr>
<td>214</td>
<td>Activision Blizzard</td>
<td>593</td>
</tr>
<tr>
<td>218</td>
<td>Cadence Design Systems</td>
<td>585</td>
</tr>
<tr>
<td>228</td>
<td>Ubisoft Entertainment</td>
<td>567</td>
</tr>
<tr>
<td>244</td>
<td>CA</td>
<td>514</td>
</tr>
<tr>
<td>249</td>
<td>Dassault Systemes</td>
<td>492</td>
</tr>
<tr>
<td>269</td>
<td>Qihoo 360 Technology</td>
<td>440</td>
</tr>
<tr>
<td>272</td>
<td>Workday</td>
<td>432</td>
</tr>
<tr>
<td>282</td>
<td>Pegatron</td>
<td>409</td>
</tr>
<tr>
<td>289</td>
<td>Sungard Data Systems</td>
<td>402</td>
</tr>
</tbody>
</table>

*Source: EU Industrial R&D Investment Scoreboard of the European Commission*
Figure 2: World Top Software & Computer Industry R&D investors by country

Source: EU Industrial R&D Investment Scoreboard of the European Commission

Figure 3: Increase of Industry Share of Top 100 Software Companies, regionally divided

Source: PWC (2017): Global 100 Software Leaders
**Figure 4: Software Industry Concentration**

*Software industry concentration*

The top 10 global software companies generated almost half of the entire industry’s revenues. The top 5 lag in cloud-based revenues.

2014 revenues

- **Overall software industry revenues**: US$385.3B, 71% of total
- **Top 100 revenues**: US$272.2B, 45% of total
- **Top 10 software companies**: US$171.7B, 38% of total
- **Top 5 software companies**: US$146.1B
- **Total SaaS/PaaS revenues of top 50 companies**: US$22.4B, 63% of top 50 revenues
- **Top 10 share of SaaS/PaaS revenues**: US$14.0B, 29% of top 10 revenues
- **Top 5 share of SaaS/PaaS revenues**: US$6.5B

Source: PWC (2017): Global 100 Software Leaders

**Figure 5: Software Industry Annual Revenues Growth**

*Growth and innovation continue apace*

The Global 100 Software Leaders’ revenues grew from US$247.5 billion in 2012 to US$272.2 billion in 2014, a 10% increase. Meanwhile, the rest of the industry grew 13% amidst a relatively weak global economy.

<table>
<thead>
<tr>
<th>Year</th>
<th>Top 10 software companies</th>
<th>#11-100</th>
<th>Rest of the software industry</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>$161.5B</td>
<td>$86.0B</td>
<td>$100.1B</td>
</tr>
<tr>
<td>2014</td>
<td>$171.7B</td>
<td>$100.5B</td>
<td>$113.1B</td>
</tr>
</tbody>
</table>

Growth rate:
- Top 10 software companies: 13%
- #11-100: 16.9%
- Rest of the software industry: 6.3%

Source: PWC (2017): Global 100 Software Leaders
## Figure 6: Top 25 Software Vendors

<table>
<thead>
<tr>
<th>Rank</th>
<th>Company</th>
<th>Country HQ</th>
<th>2014 Software revenue (US$M)</th>
<th>2014 Total revenue (US$M)</th>
<th>Software revenue as % of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Microsoft</td>
<td>USA</td>
<td>62,014</td>
<td>93,466</td>
<td>66.36%</td>
</tr>
<tr>
<td>2</td>
<td>Oracle</td>
<td>USA</td>
<td>29,881</td>
<td>38,828</td>
<td>76.96%</td>
</tr>
<tr>
<td>3</td>
<td>IBM</td>
<td>USA</td>
<td>29,286</td>
<td>92,793</td>
<td>31.56%</td>
</tr>
<tr>
<td>4</td>
<td>SAP</td>
<td>Germany</td>
<td>18,777</td>
<td>23,289</td>
<td>80.63%</td>
</tr>
<tr>
<td>5</td>
<td>Symantec</td>
<td>USA</td>
<td>6,138</td>
<td>6,615</td>
<td>92.79%</td>
</tr>
<tr>
<td>6</td>
<td>EMC</td>
<td>USA</td>
<td>5,844</td>
<td>24,439</td>
<td>23.91%</td>
</tr>
<tr>
<td>7</td>
<td>VMware</td>
<td>USA</td>
<td>5,520</td>
<td>6,035</td>
<td>91.47%</td>
</tr>
<tr>
<td>8</td>
<td>HP</td>
<td>USA</td>
<td>5,082</td>
<td>110,577</td>
<td>4.60%</td>
</tr>
<tr>
<td>9</td>
<td>Salesforce.com</td>
<td>USA</td>
<td>4,820</td>
<td>5,274</td>
<td>91.40%</td>
</tr>
<tr>
<td>10</td>
<td>Intuit</td>
<td>USA</td>
<td>4,324</td>
<td>4,573</td>
<td>94.55%</td>
</tr>
<tr>
<td>11</td>
<td>Adobe</td>
<td>USA</td>
<td>4,061</td>
<td>4,184</td>
<td>97.06%</td>
</tr>
<tr>
<td>12</td>
<td>CA Technologies</td>
<td>USA</td>
<td>4,053</td>
<td>4,410</td>
<td>91.90%</td>
</tr>
<tr>
<td>13</td>
<td>SAS*</td>
<td>USA</td>
<td>2,884</td>
<td>3,084</td>
<td>93.49%</td>
</tr>
<tr>
<td>14</td>
<td>Cisco</td>
<td>USA</td>
<td>2,836</td>
<td>47,823</td>
<td>5.93%</td>
</tr>
<tr>
<td>15</td>
<td>Dassault Systèmes</td>
<td>France</td>
<td>2,695</td>
<td>3,038</td>
<td>88.71%</td>
</tr>
<tr>
<td>16</td>
<td>Siemens</td>
<td>Germany</td>
<td>2,613</td>
<td>95,542</td>
<td>2.73%</td>
</tr>
<tr>
<td>17</td>
<td>Fujitsu</td>
<td>Japan</td>
<td>2,527</td>
<td>43,526</td>
<td>5.81%</td>
</tr>
<tr>
<td>18</td>
<td>Autodesk</td>
<td>USA</td>
<td>2,413</td>
<td>2,486</td>
<td>97.06%</td>
</tr>
<tr>
<td>19</td>
<td>Citrix</td>
<td>USA</td>
<td>2,376</td>
<td>3,143</td>
<td>75.60%</td>
</tr>
<tr>
<td>20</td>
<td>Google</td>
<td>USA</td>
<td>2,273</td>
<td>66,001</td>
<td>3.44%</td>
</tr>
<tr>
<td>21</td>
<td>Hitachi</td>
<td>Japan</td>
<td>2,159</td>
<td>91,246</td>
<td>2.37%</td>
</tr>
<tr>
<td>22</td>
<td>Apple</td>
<td>USA</td>
<td>2,110</td>
<td>199,800</td>
<td>1.06%</td>
</tr>
<tr>
<td>23</td>
<td>Infor</td>
<td>USA</td>
<td>2,099</td>
<td>2,815</td>
<td>74.58%</td>
</tr>
<tr>
<td>24</td>
<td>Synopsys</td>
<td>USA</td>
<td>1,934</td>
<td>2,100</td>
<td>92.12%</td>
</tr>
<tr>
<td>25</td>
<td>Intel</td>
<td>USA</td>
<td>1,899</td>
<td>55,870</td>
<td>3.40%</td>
</tr>
</tbody>
</table>

Source: PWC (2016): Explore the Data
Figure 7: General Provisions in a Software License Agreement

<table>
<thead>
<tr>
<th>Key Term</th>
<th>General provisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>grant of licence</td>
<td>states the term and key restrictive elements of the right to use granted to the licensee by the licensor</td>
</tr>
<tr>
<td>consideration</td>
<td>states the amount and terms of the licence fee or royalty to be paid to the software supplier</td>
</tr>
<tr>
<td>title of materials</td>
<td>provides that all rights, title and interest in the SW and documentation remain with that licensor. Includes acknowledgement by the licensee that the SW and documentation contain proprietary information of the licensor.</td>
</tr>
<tr>
<td>limitation on use</td>
<td>limits the SW to internal use by the licensee, and may prohibit sub licensing, relicensing, and use in processing data for others for a fee. Prohibits transferability without approval of the licensor.</td>
</tr>
<tr>
<td>limited warranty</td>
<td>limits modification to eliminating errors (bugs) in the code. Includes a specific warranty that the software does not infringe on any patents, copyrights, or trade secrets.</td>
</tr>
<tr>
<td>maintenance</td>
<td>Provides for modification to software to correct for errors during the warranty period. Sometimes provides for update services to data content, enhancements, or customer support services.</td>
</tr>
</tbody>
</table>

Figure 8: Illustrative Software License Agreement


APPENDIX 10-A

Illustrative Software License Agreement

This Software License Agreement ("Agreement") is entered into between _______ ("Licensor") and ________ ("Customer").

1. Definitions

a. Software. The Term "Software" shall mean the computer program in object code only and use manuals described in the specifications set forth in Exhibit A. The term "Software" includes any corrections, bug fixes, enhancements, updates or other modifications, including custom modifications, to such computer program and user manuals.

b. Certificate of Installation. The term "Certificate of Installation" shall mean a written notice, signed by Licensor, certifying that the Software has been installed and that the Software substantially complies with the specifications set forth in Exhibit A.

2. License

a. Grant of License. Licensor grants Customer, pursuant to the terms and conditions of this Agreement, a perpetual, nonexclusive, nontransferable license to use the Software.

b. Authorized Equipment and Site. Customer shall use the Software only on the computer equipment ("Authorized Equipment") at the location ("Site") listed below:

Authorized Equipment (Manufacturer, Model and CPU):

Site:

Customer may temporarily transfer the Software to back-up computer equipment at a location different from the Site if the Authorized Equipment is inoperative for more than twenty-four (24) hours and Customer provides Licensor advance notice, in writing, identifying the new computer equipment and its location.
c. *Restrictions on Use.* Customer agrees to use the Software only for Customer’s own business. Customer shall not (i) permit any parent, subsidiaries, affiliated entities or third parties to use the Software, (ii) process or permit to be processed the data of any other party, (iii) use the Software in the operation of a service bureau, or (iv) allow access to the Software through any terminals located outside of Customer’s Site.

d. *Copies.* Customer, solely to enable it to use the Software, may make one archival copy of the Software’s computer program, provided that a copy shall include Licensor’s copyright and any other proprietary notices. The Software delivered by Licensor to Customer and the archival copy shall be stored at Customer’s Site. Customer shall have no right to copy, in whole or in part, the software. Any copy of the Software made by Customer is the exclusive property of Licensor.

e. *Modifications, Reverse Engineering.* Customer agrees that only Licensor shall have the right to alter, maintain, enhance or otherwise modify the Software. Customer shall not disassemble, decompile, or reverse engineer the Software’s computer program.

f. *Material Terms and Conditions.* Customer specifically agrees that each of the terms and conditions of this Section 2 are material and that failure of Customer to comply with these terms and conditions shall constitute sufficient cause of Licensor to terminate this Agreement. The presence of this subsection 2.f shall not be relevant in determining the materiality of any other provision or breach of this Agreement by either party.

3. Delivery, Installation, Data Conversion, Testing, and Acceptance

a. *Delivery.* Licensor shall deliver the Software to Customer’s Site designated in Subsection 2.b within twenty (20) days of the effective date of this Agreement.

b. *Installation.* Within ten (10) days after the effective date of this Agreement, Customer shall (i) provide the Site the computer equipment and all required peripherals identified in Exhibit A to this Agreement, and (ii) obtain and install thereon all required third party software identified in Exhibit A to this Agreement. Customer agrees that such computer equipment, peripherals and third party software shall be installed and fully operational before Licensor begins installation of the Software. Licensor shall install the Software at the Site within the next ten (10) days. Any installation time incurred by Licensor as a result of Customer’s delay or failure to comply with this Agreement shall be charged to Customer at Licensor’s then-current hourly rates. Customer shall grant Licensor access to the Site and the computer system for the period of time required for such installation and shall give Licensor priority use of such system during installation. Upon completion of installation, Licensor shall deliver to Customer a Certificate of Installation.

c. *Data Conversion.* Customer shall be solely responsible for data conversion, data entry, and verification of data.
d. Testing. Customer shall have thirty (30) days, commencing upon delivery of the Certificate of Installation, to test the Software for substantial compliance with the specification set forth in Exhibit A (the "Testing Period"). During the Testing Period, Customer shall immediately provide notice to Licensor of any failure of the Software to substantially comply with such specifications. Upon receipt of such notice, Licensor shall use its best efforts to remedy the failure and install a fix within fourteen (14) days. If such notice is provided by Customer to Licensor, the Testing Period shall be extended through the thirtieth (30th) day after Licensor's last receipt of notice of a failure of the Software or ninety (90) days after the delivery of the Certificate of Installation, whichever occurs first.

e. Acceptance. Acceptance shall occur (i) upon Customer’s delivery of notice to Licensor that the Software substantially complies with the specifications set forth in Exhibit A, or (ii) if Customer does not provide notice of a failure of the Software within thirty (30) days of the close of the Testing Period, then the close of the Testing Period.

4. License Fee

a. In General. In consideration for the license granted by Licensor under this Agreement, Customer shall pay Licensor a fee as set forth in Exhibit B (the "License Fee").

b. Payment Terms. Each installation of the License Fee shall be due and payable in accordance with the Payment Schedule set forth in Exhibit B. All amounts not paid within ten (10) days of the due date shall bear interest at the rate of ______ percent (____%) per month, or at the highest rate allowed by law, whichever is less, from the date due until paid. Failure of Customer to pay any amounts when due shall constitute sufficient cause for Licensor to terminate this Agreement.

c. Taxes. Customer shall, in addition to the other amounts payable under this Agreement, pay all sales, use, value-added or other taxes, federal, state or otherwise, however designated, which are levied or imposed by reason of the transactions contemplated by this Agreement.

5. Ownership

a. Title. Customer and licensor agree that Licensor owns all proprietary rights, including patent, copyright, trade secret, trademark, and other proprietary rights, in and to the Software and any corrections, bug fixes, enhancements, updates or other modifications, including custom modifications, to the Software, whether made by Licensor or any third party.

b. Transfers. Under no circumstances shall customer sell, license, publish, display, distribute, or otherwise transfer to a third party the Software or any copy thereof, in whole or in part, without Licensor’s prior written consent.
6. Confidential Information

Customer agrees that the Software contains proprietary information, including trade secrets, know-how, and confidential information, that is the exclusive property of Licensor. During the period this Agreement is in effect and at all times after its termination, Customer and its employees and agents shall maintain the confidentiality of this information and not sell, license, publish, display, distribute, disclose or otherwise make available this information to any third party nor use such information except as authorized by this Agreement. Customer shall not disclose any such proprietary information concerning the Software, including any flow charts, logic diagrams, user manuals and screens, to persons not an employee of Customer without the prior written consent of Licensor.

7. Use of Training

Customer shall limit the use of the Software to its employees who have been appropriately trained. Licensor shall provide, at a mutually convenient time, a _______ (_____) day training program at no charge at Customer's Site for up to _______ (_____) employees of Customer.

8. Warranty

a. Scope of Warranty. Licensor warrants to Customer that for a period of ninety (90) days commencing upon Acceptance, the Software will substantially comply with the specifications set forth in Exhibit A. During this warranty period, Licensor shall also provide Customer the support and maintenance services set forth in the Maintenance Agreement appended hereto as Exhibit C. After expiration of the warranty period, Licensor shall provide support and maintenance for the Software pursuant to the terms of such Maintenance Agreement.

b. Disclaimer of Any Other Warranty. THE LIMITED WARRANTY SET FORTH IN SUBSECTION 8.a IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

9. Limitations Period

No arbitration or other action under this Agreement, unless involving death or personal injury, may be brought by either party against the other more than one (1) year after the cause of action arises.

10. No Consequential Damages

Licensor shall not be liable to Customer for indirect, special, incidental, exemplary, or consequential damages (including, without limitation, lost profits) related to this Agreement or resulting from Customer's use or inability to use the Software, arising from any cause of action...
strict liability, or negligence, even if Licensor has been notified of the possibility of such damages.

11. Limitation on Recovery

Under no circumstances shall the liability of Licensor to Customer exceed the amounts paid by Customer to Licensor under this Agreement.

12. Indemnification

Licensor shall indemnify and hold harmless Customer from and against any claims, including reasonable legal fees and expenses, based upon infringement of any United States copyright or patent by the Software. Customer agrees to notify Licensor of any such claim promptly in writing and to allow Licensor to control the proceedings. Customer agrees to cooperate fully with Licensor during such proceedings. Licensor shall defend and settle at the sole expense all proceedings arising out of the foregoing. In the event of such infringement, Licensor may replace, in whole or in part, the Software with a substantially compatible and functionally equivalent computer program or modify the Software to avoid the infringement.

13. Term and Termination

a. Effective Date. This Agreement and the license granted hereunder shall take effect upon the date that the last party executes this Agreement.

b. Termination. Each party shall have the right to terminate this Agreement and the license granted herein upon the occurrence of the following events (an “Event of Default”):

(i) In the event the other party violates any provision of this Agreement; or
(ii) In the event the other party (A) terminates or suspends its business, (B) becomes subject to any bankruptcy or insolvency proceeding under Federal or state statute, (C) becomes insolvent or subject to direct control by a trustee, receiver or similar authority, or (D) has wound up or liquidated, voluntarily or otherwise.

c. Notice and Opportunity to Cure. Upon the occurrence of an Event of Default, a party shall deliver to the defaulting party a Notice of Intent to Terminate that identifies in detail the Event of Default. If the Event of Default remains uncured for thirty (30) days, the party may terminate this Agreement and the license granted herein by delivering to the defaulting party a Notice of Termination that identifies the effective date of the termination, which date shall not be less than thirty (30) days after the date of delivery of the Notice of Intent to Terminate.

d. Procedure. Within ten (10) days after termination of the license, Customer shall return to Licensor, at Customer’s expense, the Software and all copies thereof, delete or destroy all other copies of the Software, and deliver to Licensor a certification, in writing, signed by an officer of Customer, that the software has been returned, all copies deleted or destroyed and its use discontinued.
14. Assignment

Customer shall not assign or otherwise transfer the Software or this Agreement to anyone, including any parent, subsidiaries, affiliated entities, or third parties, or as part of the sale or any portion of its business, or pursuant to any merger, consolidation, or reorganization, without Licensor's prior written consent.

15. Force Majeure

Neither party shall be in default or otherwise liable for any delay in or failure of its performance under this Agreement if such delay or failure arises by any reason beyond its reasonable control, including any act of God, any acts of the common enemy, the elements, earthquakes, floods, fires, epidemics, riots, failures or delay in transportation or communications, or any act or failure to act by the other party or such other party's employee, agents or contractors; provided, however, that lack of funds shall not be deemed to be a reason beyond a party's reasonable control. The parties will promptly inform and consult with each other as to any of the above causes which in their judgment may or could be the cause of a delay in the performance of this Agreement.

16. Arbitration

The parties shall settle any controversy arising out of this Agreement by arbitration in [ ] in accordance with the rules of the American Arbitration Association. A single arbitrator shall be agreed upon by the parties or, if the parties cannot agree upon an arbitrator within thirty (30) days, then the parties agree that a single arbitrator shall be appointed by the American Arbitration Association. The arbitrator may award attorneys’ fees and costs as part of the award. The award of the arbitrator shall be binding and may be entered as a judgment in any court of competent jurisdiction.

17. Notices

All notices under this Agreement are to be delivered by (i) depositing the notice in the mail, using registered mail, return receipt requested, addressed to the address below or to any other address as the party may designate by providing notice, (ii) telecopying the notice by using the telephone number set forth below or any other telephone number as the party may designate by providing notice, (iii) overnight delivery service addressed to the address below or to any other address as the party may designate by providing notice, or (iv) hand delivery to the individual as the party may designate by providing notice. The notice shall be deemed delivered (i) if by registered mail, four (4) days after the notice’s deposit in the mail, (ii) if by telecopy, on the date the notice is delivered, (iii) if by overnight delivery service, on the date of delivery, and (iv) if by hand delivery, on the date of hand delivery.
18. General Provisions

a. Complete Agreement. The parties agree that this Agreement is the complete and exclusive statement of the agreement between the parties, which supersedes and merges all prior proposals, understandings, and all other agreements, oral or written, between the parties relating to this Agreement.

b. Amendment. This Agreement may not be modified, altered, or amended except by written instrument duly executed by both parties.

c. Waiver. The waiver or failure of either party to exercise in any respect any right provided for in this Agreement shall not be deemed a waiver of any further right under this Agreement.

d. Severability. If any provision of this Agreement is invalid, illegal, or unenforceable under any applicable statute or rule of law, it is to that extent to be deemed omitted. The remainder of the Agreement shall be valid and enforceable to the maximum extent possible.

e. Governing Law. This Agreement and performance hereunder shall be governed by the laws of the State of ________

f. Read and Understood. Each party acknowledges that it has read and understands this Agreement and agrees to be bound by its terms.

AGREED:

LICENSOR:

Signature

Name

Title

Address

Date: ______________

CUSTOMER:

Signature

Name

Title

Address

Date: ______________
Figure 9: 2016 Revenue Survey – Software Industry Expected Challenges

Source: PwC/FERF 2016 Revenue Recognition survey

Source: PwC/FERF 2016 Revenue Recognition survey