Aalto University
School of Business

XBRL implementation methods in COREP reporting

MSc program in Information and Service Management

Master's thesis

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2015

Department of Information and Service Economy
Aalto University
School of Business

Aalto University
School of Business

XBRL

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Master's Thesis
Teemu Kettula
05/2015
Information and Service
Management

Approved in the Department of Information and Service Economy 05/2015
and awarded the grade _____

AALTO UNIVERSITY SCHOOL OF BUSINESS ABSTRACT
Department of Information and Service Economy 05/2015
Master's Thesis
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ABSTRACT

Objectives of the Study
The main objective of this study is to find out the XBRL adoption methods for European banks to submit COREP reports to local FSAs and to explore transitions in these methods. Thus, the goal is to find patterns from the transitions in XBRL implementation methods.

The study is exploratory, as there is no earlier literature about XBRL implementation methods in COREP reporting or from XBRL implementation method transitions in any field. Additionally, this thesis has developed a useful framework for examination of technology adaption methods, transitions in technology adaption methods and patterns in technology adaption methods' transitions.

Academic background and methodology
Academic background includes general earlier XBRL related literature, explaining the major benefits and attributes for companies using XBRL, XBRL usage around the world and discussing the implementation strategies that companies may use to adopt XBRL into their organizational processes. It also presents the basic elements of COREP reporting. Additionally, the incremental vs radical change in technology adoption is adopted to this research as it brings valuable addition to the framework. The theoretical framework is built on the XBRL implementation strategies, on pieces from XBRL related literature and on the model of technology adoption.

The methodology consists of multiple case study with qualitative data collected through questions distributed via online tool and internet telephone interview with voluntary bank representatives around Europe. This data is analyzed with comparative case analysis/cross-case analysis.

Findings and conclusions
Findings confirm only one of the four propositions thoroughly. Propositions are presented in the theoretical part of the thesis. Results support the proposed theoretical framework, although XBRL have not yet matured deeply into banking industry's legacy systems in Europe. Respondents had clear opinions on methods they are using and the XBRL attributes. Four of the seven attributes arise as more valuable to respondents than other three attributes, meaning that respondents' opinion differed from earlier literature.
Keywords
XBRL, COREP, non-adoption, low adoption, medium adoption, advanced adoption

AALTO-YLIOPISTON KAUPPAKORKEAKOULU TIIVISTELMÄ

Tieto- ja palvelutalouden laitos 05/2015

Pro Gradu-tutkielma

Teemu Kettula

ABSTRAKTI

Tutkimuksen tavoitteet
Tutkimuksen päätavoitteena on löytää Eurooppalaisten pankkien XBRL adoptointi metodit COREP raportin jättämiseksi paikallisille Finanssivalvonnoille sekä tutkia mahdollisia muutoksia adoptointi metodeissa.

Tutkimus on luonteeltaan tutkiva, sillä aikaisempaa tutkimusta XBRL implementointi metodeista COREP raportoinnin yhteydessä ei ole tehty. Myöskään millään muullakaan alalla ei ole tutkittu XBRL implementointi metodien mahdollisia muutoksia. Tämän lisäksi tutkimuksessa on luotu uusi hyödyllinen tutkimuskehikko teknologioiden implementointi metodien, niiden muutosten sekä muutosten mallien tutkimiseen.

Kirjallisuuskatsaus ja metodologia
Tutkimuksen kirjallisuuden taustoihin kuuluu aikaisemman XBRL kirjallisuuden läpikäynti, suurimpien XBRL:n hyötyjen sekä attribuuttien tutkiminen, XBRL:n käyttö ympäri maailmaa sekä erilaisten XBRL implementointi metodien läheisempi tarkastelu. Kirjallisuudessa esitetään myös COREP raportoinnin perus elementit sekä teknologian vähäisten ja radikaalien muutosten käyttöönottoon liittyvää teoriaa ja kuinka nämä vaikuttavat tutkimuksen viitekehikkoon. Tutkimuksen viitekehikko on rakennettu XBRL käyttöönotto metodien sekä teknologian käyttöönottoon liittyvän teorian pohjalle.

Metodologia koostuu moni tapaustutkimuksen tutkimisesta. Kvalitatiivinen datan keräys on suoritettu verkko työkalulla, jonka avulla on päästy kiinni useampaan vastaajaan. Tämän lisäksi Internet puheluita on käytetty vapaaehtoisten pankkien vastaajien haastattelemiseen Euroopan laajuisesti. Kerätty tieto on analysoitu vertailevalla tapausanalyysillä/cross-case analyysillä.

Tulokset ja päätelmät
Tulokset vahvistavat kokonaisvaltaisesti ainoastaan yhden neljästä tutkimus ehdotuksesta. Tutkimus ehdotukset on esitetty tutkimuksen teoreettisessa osiossa. Tulokset tukevat myös ehdotettua teoreettista viitekehystä, vaikka XBRL ei olekaan vielä syvästi vakiintunut tiedostomuoto Euroopan pankkisektorin it-järjestelmissä. Vastaajilla oli selvä näkemys organisaationsa käyttämästä XBRL metodista sekä XBRL attribuuteista. Aikaisemmassa kirjallisuudessa on tunnistettu seitsemän XBRL attribuuttia, näistä tämän tutkimuksen vastaajien mielestä neljä attribuuttia olivat arvokkaimpia. Tämä tulos eroaa aikaisemmasta tutkimuksesta.

Avainsanat
XBRL, COREP, ei-adoptointi, vähäinen adoptointi, keskinkertainen adoptointi, kehittynyt adoptointi

ACKNOWLEDGEMENTS

I am especially grateful for persons in Federation of Finnish Financial Services, TIEKE and those local FSAs all around EU area that helped me to connect with key informants of banks. I would also like to thank my supervisors Esko Penttinen and Timo Saarinen for their time and devotion to give me guiding comments and practical assistance along the thesis process.

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ABBREVIATIONS

AICPA	American Institute of Certified Public Accountants
CEBS	Committee of European Banking Supervisors
COREP	Common Reporting
CRD	Capital Requirement Directive
CRR	Capital Requirement Regulation
DPM	Data Point Model
EBA	European Banking Authority
EDI	Electronic Data Interchange
ESMA	European Securities and Markets Authority
FFIEC	Federal Financial Institutions Examination Council
FINREP	Financial Reporting
FRC	Financial Reporting Council
FRSSE	Financial Reporting Standard for Smaller Entities
GAAP	Generally Accepted Accounting Principles
GL	Global Ledger
HTLM	Hypertext Markup Language
IOS	Inter-Organizational System
IT	Information Technology

ITS	Implementing Technical Standards
iXBRL	Inline eXtensible Business Reporting Language
PDF	Portable Document Format
SEC	U.S. Securities and Exchange Commission
SBR	Standard Business Reporting
SORPS	Statement of Recommented Practise
XBRL	eXtensible Business Reporting Language
XBRL GL	eXtensible Business Reporting Language Global Ledger
XML	eXtensible Markup Language

1. INTRODUCTION

Introduction chapter presents the background and purpose of this research. It will explain why the topic is important and present the research questions. Lastly, this chapter provides a presentation of method and structure of the thesis.

1.1. Background and Motivation

Recent years have shown the fast evolvement of open standards in information technology (IT). Organizations are deploying inter-organizational systems (IOS) to alleviate cooperation with their stakeholders such as suppliers, trading partners (Zhu et al 2006) and regulators. Especially, the Internet has been the key channel for organizations to communicate with their stakeholders (Hunton 2002; Beattie and Pratt 2003; Kelton and Yang 2008). Hacki and Lighton (2001) stated that drastic decrease in communication costs has facilitated several forms of networked organizations. Additionally, the open-standard character of the Internet uncovers a much broader trading community (Zhu et al 2006) than yet revealed. However, the standards have played a crucial part in IT adoption and diffusion (Shapiro and Varian 1999).

Already in 1990, David and Greenstein distinguish that innovations related to operating standards were the major drivers for industrial productivity. The wide diffusion of successful new standards over industries is crucial for individual organizations to realize economic value (Zhu et al 2006) and to seize competitive edge against the organizations lagging in adoption of technologies (Zhu 2004). In turn, organizations that do not adopt new standards may lose their competitive advantage (Shapiro and Varian 1999; Zhu and Weyant 2003).

First steps for organizations to take advantage of IOS started in 1970s, when industries adopted Electronic Data Interchange (EDI) systems (Iacovou et al 1995; Riggins et al 1994) to facilitate cooperation among suppliers and other stakeholders. Unfortunately, EDI was inflexible and not very user friendly, though it helped the transmission of structured machine-readable data across organizational boundaries (Pallis 2007, 390). Fortunately, better IOS than EDI have been

established since the beginning of the Internet era; the development of open standards such as eXtensible Markup Language (XML), Hypertext Markup Language (HTML) and Portable Document Format (PDF) has increasingly become general platform for inter-organizational cooperation (Shapiro and Varian 1999) over the internet.

Current trend for organizations has been to disclose their business and financial information into their web pages within aforementioned forms (Janvrin and No 2012). This process allows organizations to be able to meet stakeholders' demands for transparency allowing simultaneous gains in cost efficiencies (Beattie and Pratt 2003; Hodge et al 2004; Kelton and Yang 2008). Although, XML, HTML or PDF formats are full of valuable information, the stakeholders need to do time-consuming and error-prone cutting and pasting before the data can be exploited for analysis (Janvrin and No 2012).

Troshani and Lymer (2010, 136) state that current financial reporting suffers from efficiency, transparency and accuracy problems related partly to economic comparability of data and reporting of interaction failures. Nowadays, preparing and publishing financial information is problematic for all the organizations in all over the world (Pinsker and Li 2008, 47). However, eXtensible Business Reporting Language (XBRL) is the newest open information and communication reporting language, which has been said to overcome aforementioned limitations by providing standards for financial reporting which will revolutionize methods to prepare, validate, publish, exchange, consume, and analyze financial and business information (Cox 2006; Steenkamp and Nel 2012, 409; Hao et al 2013; XBRL International 2014a). In other words, XBRL is creating a new way to transmit financial information to stakeholders (Williams et al 2006; Locke and Lowe 2007).

XBRL, or "*the open international standard for digital business reporting*" as the XBRL International (2014a) refers to it, is an XML-based computer language that enables data to be tagged and later stored as well as retrieved from a financial database (Plumlee and Plumlee 2008). It is "*a standards-based way to communicate and exchange business information between business systems*" (XBRL International 2014a). The XBRL is also stakeholder friendly as stakeholders can easily find the unique tagged data associated with reported facts, extract or

transform it, and use analytical applications instantly to make analysis (Plumlee and Plumlee 2008; Janvrin and No 2012; XBRL International 2014a). Moreover, XBRL tags make the data understandable, readable, searchable for both computer, and human (Pinsker 2003; Plumlee and Plumlee 2008).

XBRL tags are standardized all over the world through multiple accounting rules called taxonomies (Pinsker 2003), they seize the idea inside all of the reporting terms used in financial reports as well as the connection among all of the terms (XBRL International 2014a). Namely the standardized tools changes an internal and external auditor's work for more efficient, leaving them only to understand the rules within the financial reporting (Pinsker 2003). Parties responsible for the development of the standard XBRL taxonomies are worldwide XBRL consortium, regulators, accounting organizations, government agencies, software vendors and other entities that are involved in defining the information in the reports (Pinsker 2003; XBRL International 2014a). As a specific example, European Banking Authority (EBA) has developed Implementing Technical Standards (ITS) draft for supervisory reporting (FCA 2014). In order for EBA to ensure that ITS supervisory reporting requirements are executed systemically, the data items are translated into a Data Point Model (DPM). DPM is a technical composition of an XBRL taxonomy developed to support EU area's XBRL adoption in banking field. According to EBA, the DPM is "*a structured representation of the data, identifying all the business concepts and its relations, as well as validation rules*". (EBA, 2014a.)

O'Riain et al (2012, 141) state that XBRL has become inseparable part of the financial information, though it should not be understood for just financial reporting purposes as the standard is also widely used in variety of other projects around the world. Otherwise, slow implementation of the latest online reporting innovation, XBRL, has forced in use by many regulators around the world with multiple modern regulations. Lin and Wu (2007) state that new regulatory settings have the power to drive or demand innovation in organizations, whereas Cordery et al (2011) find three main reasons for XBRL non-adoption, and one of them is the lack of governmental push which results in organizational ignorance.

Even though governments have pushed XBRL related technology to organizations, the knowledge of XBRL is poor according to Pinsker (2003), Steenkamp and Nel (2012). Cohen (2009, 190) states that the benefits for investors and regulators of XBRL usage has been clearly presented, but the presentation of XBRL reports immediate value for the organizations have not been done properly. Thus, the biggest reason for organizations XBRL non-adoption has been the lack of information regarding XBRL's purpose and benefits for them (Cordery et al 2011). Therefore, it is important to spread the knowledge and consciousness of the XBRL to all organizations, as all the stakeholders will benefit directly or indirectly from the implementation of XBRL.

Regulators use XBRL in a wide range of purposes around the globe. Some examples of regulative XBRL usage are firstly, a Global Reporting Initiative (GRI) framework intended for reporting organization's economic sustainability (Tuovinen 2013). Secondly, Solvency II reporting framework an insurance companies' risk regulation. Thirdly, COREP-FINREP reporting based on the global BASEL III agreement associated with risks in banking industry (Bonsón et al 2010). Moreover, COREP (Common Reporting) reporting is for banks', investment firms' and building societies solvency regulation whereas FINREP (Financial Reporting) is for all credit institutions applying IFRS (International Financial Reporting Standards) (Accenture 2013).

The European Union (EU) proceeds also collaboration with supervisory authorities for harmonization of the financial system (Vives 2001). Recently, minimum solvency requirements have changed in the banking industry due to the BASEL standards, especially because of the BASEL III. In BASEL III agreement, new technologies have played a crucial role. (Bonsón et al 2010.) For that reason and others, the EBA issued a mandate that requires banks to furnish financial solvency information, COREP, quarterly in XBRL format starting from January 1, 2014 and FINREP staring from July 1, 2014 (Accenture 2014).

The co-founder Charlie Hoffman presented the idea of XBRL to the American Institute of Certified Public Accountants (AICPA) in 1998 (Roohani and Xianming 2009). Roohani and Xianming (2009) noticed that within the first ten years of its existence, there were 114 XBRL

related articles in major academic journals. Between the years 2009-2014 there has been over 200, so the pace of XBRL related research is getting faster. Only in Finland, XBRL related Master's thesis have been made nine couples. Five out of nine Master's theses were publicly available. Those studies' title, year, author and key results are presented in Table 1-1.

Author (year)	Title of the thesis	Key results
Asatiani (2012)	The business value of XBRL to the financial report receivers in Finland	Most important environmental factor to increase business value of XBRL is network effects. Efficiency and interoperability are two business value components that affects to the adoption of XBRL and yield significant benefits from it.
Norovuori (2012)	The factors in ICT innovation's diffusion from an environmental context perspective: The case of XBRL	Most important factors affecting to the diffusion of XBRL are regulatory pressures. Less effective factors: path dependencies, national market characteristic and support infrastructure.
Lindfors (2012)	XBRL and the qualitative characteristics of useful financial statement information	First officially filed XBRL documents have significant deficiencies. Still XBRL enhances the usefulness of financial statements as they area more understandable to users, leads to better investment decisions. XBRL is regulatory-driven infrastructure project.
Tuovinen (2013)	Effects of XBRL's adoption from the companies perspective	Implementation of XBRL takes time at the beginning due to employees' education. Companies experienced that implementation decreases only little time from reporting. Groups thought that reporting information could be more easily available into use than companies without subsidiaries.
Suonsalo (2013)	XBRL from audit companies' perspective	Audit companies develop XBRL to gain positive reputation. Most benefits of XBRL are for authorities and users. Deep XBRL implementation requires effective internal control and enables better ways to analyze information.

Table 1-1 Previous Finnish thesis on XBRL

This study evolves XBRL literature by creating a picture of the changes in the XBRL implementation methods. The study will be limited in European COREP reporting, thus into the banking industry. Even though a lot of XBRL implementation research exists (Phillips et al 2008; Garbellotto 2009a; Garbellotto 2009b; Garbellotto 2009c; Mascha et al 2009; Barley et al 2010; Janvrin and Mascha 2010; Henderson et al 2012; Janvrin and No 2012; Garner et al 2013; Eierle

et al 2014), the examination of European banks' changes in XBRL implementation methods will contribute the XBRL research. According to Alles and Debrecyny (2012, 83-89), XBRL related research is still needed in the near future, because academic research plays an important role for regulators, software vendors and other XBRL users to adopt XBRL into their operations. Different countries have inevitably differences in their reporting environment, which in turn creates research opportunities for XBRL globally (Alles and Debrecyny 2012, 83-89). Williams et al (2006, 92) notice that research lacks empirical studies for XBRL's implementation and impacts. Baldwin et al (2006, 108) explain that research regarding XBRL adoption patterns and penetration is needed to better understand the adoption.

This study aims to formulate a theoretical framework through extensive literature review. The idea is to validate the framework by interviewing bank representatives with a set of questions asked via an online tool. Deeper analyses is done by calling voluntary banks representatives after the online tool responses and asking for questions that are more specific. Analysis method for the study is a multiple case study. It was selected since the sample size can be greater than one, and to collect responses from multiple banks to be able to find transitions and patterns from the changes in the XBRL adoption methods.

1.2. Research Questions and Objectives

The purpose of this paper is to investigate the changes in XBRL implementation methods within COREP reporting in European banking industry. The objective of the research is to find out the XBRL adoption methods for European banks to submit COREP reports to local FSAs and explore transitions in the methods. Thus, the goal is to find patterns from the transitions in XBRL implementation methods. Additionally, research aims to provide managerial answer for banking industry in general level, that have there been changes in the XBRL implementation strategies regarding COREP reporting. This thesis seeks answer to the following three questions:

- *What have been the XBRL adoption methods for EU banks to implement XBRL?*
- *Have there been any field-wide standard transitions within the XBRL implementation methods?*
- *If banks have implemented In-house integrated strategy, what have been the reasons?*

The research consists of a literature review among the XBRL implementation methods as well as a multiple case study for European banks done with an online tool, Webropol 2.0 and by interviewing voluntary COREP responsible. Eventually, comparison between literature and in-depth data from empirical part is performed in the results chapter.

Information Supply Chain Roles

Roles	Description of Roles
Systematizers	• XBRL taxonomers: XBRL Consortium • Accounting standard setters: FASB, IASC, etc. • Legislators and regulators: FDIC, SEC, etc. in their role of determining what information should be collected. • System developers: Microsoft, SAP, etc. • Researchers: ontologists

Providers	• Organizations and individuals
	  ○ Companies, divisions, subsidiaries
	  ○ Governments and governmental units: Oregon, U.S. Army, etc.
	  ○ Not-for-profits: United Way, etc.
	• Software systems and subsystems

Intermediaries	• Auditors and others who review and express opinions regarding financial information.
	• Financial Publishers: structure, aggregate, archive, and provide access to business data from a variety of sources.
	  ○ Aggregators: Collections of information, databases. Edgar Online etc.
	  ○ Statisticians: Industry averages, quartiles etc. Dun and Bradstreet etc.
	  ○ Publishers: Financial news. Wall Street Journal, Business Week etc.

Users	• Analysts • Investors: individual investors, mutual funds, pension funds etc. • Creditors: banks, companies selling on credit, etc. • Regulators: in their role of reviewing the information provided • Managers • Researchers

Figure 1-1 Financial reporting supply chain roles (Baldwin et al 2006)

Figure 1-1 presents the roles that each entity plays in the information supply chain. Roles in information supply chain are systematizers, providers, intermediaries and users. This classification helps to identify the impact of XBRL to specific roles. First role, systematizers are the ones to initially build the XBRL environment. Therefore, Baldwin et al (2006) explain that entities belonging to this group must have a deep understanding and application of the prevalent accounting standards. Second role, producers produce the XBRL data, for example, banks produce data and convert the data into information in XBRL format for regulatory reports. Additionally, banks can benefit from global XBRL adoption within all of their business reporting

processes: borrower reporting, investor reporting, regulatory reporting, internal financial reporting, and operational reporting (Penler and Schnitzer 2002). Third role, intermediaries are the ones to collect information and spread it to users. Last role, users use the information reported by intermediaries. Thus, users get more accurate data than before in real-time.

In Europe, banking industry is the second biggest XBRL user after regulators, due to heavily regulatory nature of the field and massive regulative reporting requirements. In the context of information supply chain roles, banks are both providers and users, thus this research focuses on banks' provider side. (Baldwin et al 2006.)

1.3. Structure of the Thesis

This study begins with a comprehensive review on XBRL and COREP as well as related literature in Chapter 2. The theoretical framework will be presented in Chapter 3. Chapter 4 introduces the study methodology and how the multiple case study is done in practice. Chapter 5 is empirical part of the study, presenting the results to the four propositions from online tool questions and assessment of the interview. Last, the Chapter 6 includes the conclusions, and limitations and suggestions for future research.

2. LITERATURE REVIEW

This chapter reviews the relevant literature for the study. Chapter begins by introducing XBRL, explaining the major benefits and attributes for companies using XBRL, its usage around the world and discussing about the implementation methods that companies may use to adopt XBRL into their organizational processes. Chapter continues by explaining the basic elements of COREP reporting and its roots from top-down basis. After the introduction of above-mentioned theories, the research concentrates on discussing the incremental vs. radical change in technology adoption.

2.1. XBRL

In order for companies to understand basic impact of XBRL reporting language to financial reporting, they first need to know how to generate XBRL documents and the key concepts of XBRL. This chapter reviews the basics of XBRL, its benefits, use around the world, implementation strategies and finding the right approach for individual organizations. Next subchapter presents the basic idea behind COREP reporting in EU area as well as the connection between XBRL and COREP reporting.

2.1.1. Basic Idea of the XBRL

XBRL (eXtensible Business Reporting Language) is the open international standard for digital business reporting, managed by a global non-profit consortium, XBRL International. Aim of the consortium is to collaboratively build XBRL language and to promote its global adoption (Hao et al 2013). Thus, tactical goal is the support in implementation projects, increasing awareness, development and maintenance of specifications, and management and coordination (Eurofiling 2014a).

XBRL is an XML-based computer language that enables data to be tagged, stored and retrieved from a financial database (Plumlee and Plumlee 2008). It provides major benefits for preparing, analyzing and communicating business information on the internet (Eirle et al 2014). Thus, the XBRL is a standards-based way to communicate and exchange business information between

business systems. Moreover, XBRL tags make the data understandable, readable, and searchable for both computer, and human (Pinsker 2003; Plumlee and Plumlee 2008), whereas standard internet page or regular document (pdf, html, spreadsheet) handles financial information only as a parcel of text and cannot be manipulated by its users (Pinsker 2003). XBRL erases manual re-entries of data from accounting processes and therefore cuts costs and increases the speed of handling data. (XBRL International 2014a.)

Troshani and Rao (2007) explain that change from current reporting practices to the use of XBRL will have a big effect on processes and presentation of data. Current practices are very time-consuming, labor-intensive and error-prone while many processes will be automated with the use of XBRL. Not only the display of information is easy, but also the manipulation of data with any XBRL-enabled hardware or software package. Nowadays, XBRL-enabled feature belongs to most of the software packages in the market, for example MS Excel. In general, XBRL enables interoperability among multiple technologies to any user around the globe. User just downloads the XBRL formatted data from internet into software of choice and starts analysis. (Pinsker 2003.)

Before users can use the financial information for analysis, its provider must first create the information in an XBRL format. Producer gets the data from their own accounting system to the XBRL document by making rules, tags, in each data point to describe taxonomy they are using (Wu and Vasarhelyi 2003). As explained earlier, the systematizers make the specific reporting taxonomies, and they are selected in use by information providers to facilitate appropriate reporting. Provider need to select also the best suitable individual tag for all of the individual reporting concepts standing in their reports. (Moeller 2010, 347.)

Since the early days of XBRL, the number of XBRL taxonomies has grown steadily. Taxonomies are like dictionaries taking into consideration the specific accounting rules. Taxonomies give also information about tags interrelationships within specific type of report (Moeller 2010, 347). XBRL International (2014) defines taxonomies "*They define the specific tags that are used for individual items of data (such as "net profit"), their attributes and their interrelationships. Different taxonomies will be required for different business reporting*

purposes. Some national jurisdictions may need their own reporting taxonomies to reflect local accounting and other reporting regulations. Many different organizations, including regulators, specific industries or even companies, may require taxonomies or taxonomy extensions to cover their own specific business reporting needs."

Companies have the possibility to customize taxonomies just by establishing new rules for tags in to the taxonomy they are using. This process is one of the most important features of XBRL, namely extending the used taxonomy if it does not have the specific item belonging to company's financial statement (Cohen 2004). However, Baldwin et al (2006) as well as Alles and Debreceny (2012) state that extendable taxonomy creates expensive tradeoff for a standard taxonomy, which would enhance the comparability of companies' reports.

When the provider has decided to use certain taxonomy and made possible extensions to it as well as done with tagging the data points, the final XBRL-coded instance document is ready to be sent to intermediaries. After receiving the instance document, the intermediaries can read and process it with their XBRL-enabled application immediately. (Wu and Vasarhelyi 2003.) Boritz and No (2004) explain that only numbers, texts and parentheses exist in the XBRL instance document, thus it is not human readable, but only computer readable. Plumlee and Plumlee (2008) continue that an XBRL instance document can be also human readable if a style sheet application is added to an XBRL-conversion tool. Figure 2-1 shows what kind of data XBRL contains without a conversion tool. In XBRL, each data point contains semantic information, which makes the data readable for both humans and computers. This functionality erases the need for manual re-entries of data, thus making it valuable feature compared to a traditional financial statements reporting formats such as PDF, HTML or XML, which need a lot of manual work before analyzing with a computer. (Wu and Vasarhelyi 2003.)

```
<?xml version="1.0" encoding="UTF-8"?>
<xbrli:xbrl xmlns:ixt="http://www.xbrl.org/inlineXBRL/transformation/2010-04-20"
            xmlns:xbrli="http://www.xbrl.org/2003/instance"
            xmlns:link="http://www.xbrl.org/2003/linkbase"
            xmlns:xlink="http://www.w3.org/1999/xlink"
            xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
            xmlns:iso4217="http://www.xbrl.org/2003/iso4217"
            xmlns:xbrldi="http://xbrl.org/2006/xbrldi"
            xmlns:xbrldt="http://xbrl.org/2005/xbrldt">
   <link:schemaRef xmlns:us-gaap="http://xbrl.us/us-gaap/2009-01-31"
                   xmlns:us-types="http://xbrl.us/us-types/2009-01-31"
                   xmlns:dei="http://xbrl.us/dei/2009-01-31"
                   xmlns:masd="http://www.massivedynamic.com/20101231"
                   xlink:type="simple"
                   xlink:href="masd-20101231.xsd"
                   xlink:arcrole="http://www.xbrl.org/2003/linkbase"/>
   <dei:DocumentType xmlns:dei="http://xbrl.us/dei/2009-01-31" contextRef="fy10d">10-
K</dei:DocumentType>
   <dei:DocumentPeriodEndDate xmlns:dei="http://xbrl.us/dei/2009-01-31"
contextRef="fy10d">2010-12-31</dei:DocumentPeriodEndDate>
   <dei:EntityRegistrantName xmlns:dei="http://xbrl.us/dei/2009-01-31"
contextRef="fy10d">MASSIVE DYNAMIC INC</dei:EntityRegistrantName>
   <dei:EntityWellKnownSeasonedIssuer xmlns:dei="http://xbrl.us/dei/2009-01-31"
contextRef="fy10d">Yes</dei:EntityWellKnownSeasonedIssuer>
   <dei:EntityCurrentReportingStatus xmlns:dei="http://xbrl.us/dei/2009-01-31"
contextRef="fy10d">Yes</dei:EntityCurrentReportingStatus>
   <dei:EntityFilerCategory xmlns:dei="http://xbrl.us/dei/2009-01-31"
contextRef="fy10d">Large Accelerated Filer </dei:EntityFilerCategory>
   <dei:EntityPublicFloat xmlns:dei="http://xbrl.us/dei/2009-01-31"
contextRef="fy10e_MeasurementDate"
                          unitRef="USD"
                          decimals="0">149769380603000000</dei:EntityPublicFloat>
```

Figure 2-1 Example of XBRL code (XBRL.org 2014)

2.1.2. Common Benefits and Attributes in XBRL Adoption

Earlier XBRL literature has investigated the common benefits of XBRL. It helps companies to reduce time and costs in reporting by addressing and eliminating incompatible reporting formats (Weber 2003; Hao et al 2014). Markelevich and Riley (2013) claim that XBRL can facilitate improved information quality and flow of information if company is willing to go beyond the regulative requirements.

Asatiani (2012) has collected most important global attributes associated with XBRL adoption into Table 2-1. XBRL attributes are accessibility, accuracy, comparability, usability, relevance, transparency and understandability. Asatiani (2012) found out in his research that for couple of Finnish regulator organization most important attributes were accessibility, accuracy, comparability, usability, relevance and understandability.

XBRL attributes	Description	Source
Accessibility	XBRL is open standard that can be easily distributed through the Internet. Documents created in XBRL are also compatible with wide range of software contributing further to the accessibility of the information.	Baldwin et al 2006; Farewell and Pinsker 2005
Accuracy	The decrease of human intervention in the reporting process and ability to access and check information at any time, increases the accuracy of the reports published using XBRL.	Baldwin et al 2006; Vasarhelyi et al 2010
Comparability	Comparability derives from the standardized taxonomy that ensures that tagged items from the different reports refer to the same thing, thus making them easily comparable.	Baldwin et al 2006; Farewell and Pinsker 2005; Vasarhelyi et al 2010
Usability	XBRL is fully compatible and editable with variety of the software, unlike for example PDFs or HTML document there is no need to manually transfer the data into usable format and it is ready "out-of-the-box".	Farewell and Pinsker 2005
Relevance	The possibility of automatization supports the timely delivery of the information and selection of currently needed data by the system.	Baldwin et al 2006; Vasarhelyi et al 2010
Transparency	Transparency in XBRL means clear definitions of each component of the report, ability to easily and quickly analyze the reports are serving that purpose.	Hodge et al 2004; Baldwin et al 2006; Pinsker and Li 2008; Vasarhelyi et al 2010; Hao et al 2014
Understandability	XBRL has potential to convert financial reports into information for everybody, not just accountants. The ability to connect elements with each other and administrative footnotes, also easiness to analyze the report with the help of software can enable other stakeholders interested in financial reports, but lacking proper background, to use them in their own benefit with ease.	Vasarhelyi et al 2010

Table 2-1 Summary of literature on XBRL attributes, adopted from Asatiani (2012)

2.1.3. The Use of XBRL around the World

The idea about the XBRL was established in 1998 when Charlie Hoffman presented the idea of XBRL to the AICPA (Roohani and Xianming 2009). In 1999, AICPA established steering committee to develop and promote XBRL and to improve financial reporting (Locke and Lowe 2007). Nowadays, steering committee has expanded to a consortium that consists of more than 700 direct or indirect members in more than 50 countries. Members around the world consist of commercial companies (banks, stock exchange, audit, consulting, and software), non-profit organizations (accountants, securities exchange, banks, analysts) and public authorities (banking supervisors, central registers, central banks, securities regulators, statistical offices, tax authorities). (Eurofiling 2014a.)

Regulatory initiative	Taxonomies	Description
NBB (National Bank of Belgium) Annual Financial Statement	Belgian	More than 400.000 companies in Belgium need to file their balance sheet annually in XBRL format to central bank. Data is available for anyone to analyze.
DBA (Danish Business Authority)	Danish	All Danish companies need to file their annual financial statements in XBRL/iXBRL format to DBA. Data is available for purchase from DBA for anyone to analyze.
HMRC (HM Revenue & Customs) Corporate Tax Returns	UK GAAP & IFRS	All UK companies need to file their tax filings in iXBRL format. Extensions with dimensions are permitted, though not mandatory.
Companies House Financial Statement Filing	UK GAAP & IFRS	All UK companies need to file annually their financial statements in iXBRL format. Data is available from 2013 for anyone to analyze. Extensions with dimensions are permitted, though not mandatory.
Spanish Business Register	Spanish	Since 2008, all Spanish companies need to file annually their financial statements in XBRL format. Data is available for anyone to analyze. Extensions are permitted.
German E-Bilanz	German Commercial Code	Since 2011, all German companies need to file their tax filings in E-Bilanz format (XBRL) using a wide range of industry specific taxonomies.
EBA COREP/FINREP	EBA	Since 2008, banking industry has been required to file quarterly their solvency and financial statements in XBRL format through local FSAs to EBA. Data is private.

Table 2-2 Examples of XBRL's use in EU

Members of worldwide XBRL consortium use XBRL in many different ways. Some of them might use it only to fulfill financial regulatory settings developed by local authorities to monitor and control financial sustainability of reporting organizations (producers). Others might use it to develop taxonomies for the organizations doing the regulative reports (systemizers) and some of them, usually analysts or investors, use XBRL to analyze and understand the risks and performance involved with organizations they are analyzing (users). (XBRL International 2014a.) Table 2-2 shows couple of local and global regulatory initiatives in Europe (XBRL International 2014b).

The use of XBRL is initiated by regulators around the world. This however, does not mean that all the different countries would have the same legislation or accounting standards. Actually they all differ in some way, but still XBRL can fit for them all as XBRL taxonomies can be modified or "extended" to various reporting scenarios. Therefore, each country needs to have their own taxonomy.

A good and clear example is the difference in IFRS (International Financial Reporting Standards), UK GAAP (Generally Accepted Accounting Principles) and COREP reporting. All reports have differencies compared to each other, while most data might be similar in each report. Reason for this is to support decision makers in variety of countries and institutions to make better decisions from data they have learned to process over time. This also means that these regulative reporting procedures need to carry their own XBRL taxonomy in order for companies to be able to report according to these standards (Wu and Vasarhelyi, 2003). Some companies may need to report under several regulative standards which have different purpose for different regulators. Thus, each country may have many different XBRL taxonomies for different industries and reporting initiatives as well as taxonomies for companies of different sizes.

For example, in UK, they have several optional taxonomies in use: IFRS, FRS 100, FRS 101, FRS 102, FRS 103, FRSSE, SORPS and plenty of more. Most importantly, all listed companies are required to to use IFRS taxonomy. Other companies have had the possibility to choose to follow UK GAAP or IFRS taxonomy. Whereas, smaller companies have had the possibility to

choose to use FRSSE (Financial Reporting Standard for Smaller Entities). However, in the beginning of 2015, UK has regulated three new Financial Reporting Standards mandatorily in use (FRS 100, 101 and 102), these standards brings new options for UK entities and organizations. Eventually, SORPS (Statement of Recommented Practise), which is the old reporting standard for companies that operate within specialised sectors, will be replaced by FRS 102. In addition to the above new standards, Financial Reporting Council (FRC) issued standard FRS 103 is for insurance companies. (FRC 2014.)

Another example is from U.S., where they have taxonomies for dozens of different purposes or fields of business. Similarly to UK, U.S. have financial reporting taxonomy for commercial and industrial companies (U.S. GAAP CI), banking and savings institutions (U.S. GAAP BASI) and for insurance companies (U.S. GAAP INS) (XBRL US, 2014). Locke and Lowe (2007) remind that these taxonomies are based on accounting standards and regulator specifications and the outcome is reported to external parties.

Around the globe, XBRL is used mainly to transfer unambiguously aggregated information about company's performance from company to company/regulator. From (local) government agencies to central government agency. From subsidiaries to headquarters. From suppliers to customers. Information they are transferring to each other is usually at a summary level. This kind of information can be suitable for making a variety of decisions in each end and it is everything one needs. However, when the summaries are separated from original systems, lots of details of the original transactions become unavailable leaving summaries out of questions in accounting reporting. (XBRL International 2014c.)

Even though the external reporting has been the main focus area of many regulative reporting initiatives, XBRL fits also for other tasks as described in Figure 3. XBRL enables also transactions layer, which can be used to improve accounting data. Additionally, XBRL GL (Global Ledger), which is a standardized way to store and process operational (transactions) data and data specifications included in an accounting or ERP systems (XBRL International 2014c), to update general ledger and to generate financial reports (Bizarro and Cargia 2011). The use of XBRL GL taxonomy requires more internal work from the company that reports, because they

need to understand XBRL technology (Locke and Lowe 2007) and use sophisticated ERP or accounting systems with XBRL enabled add-ons.

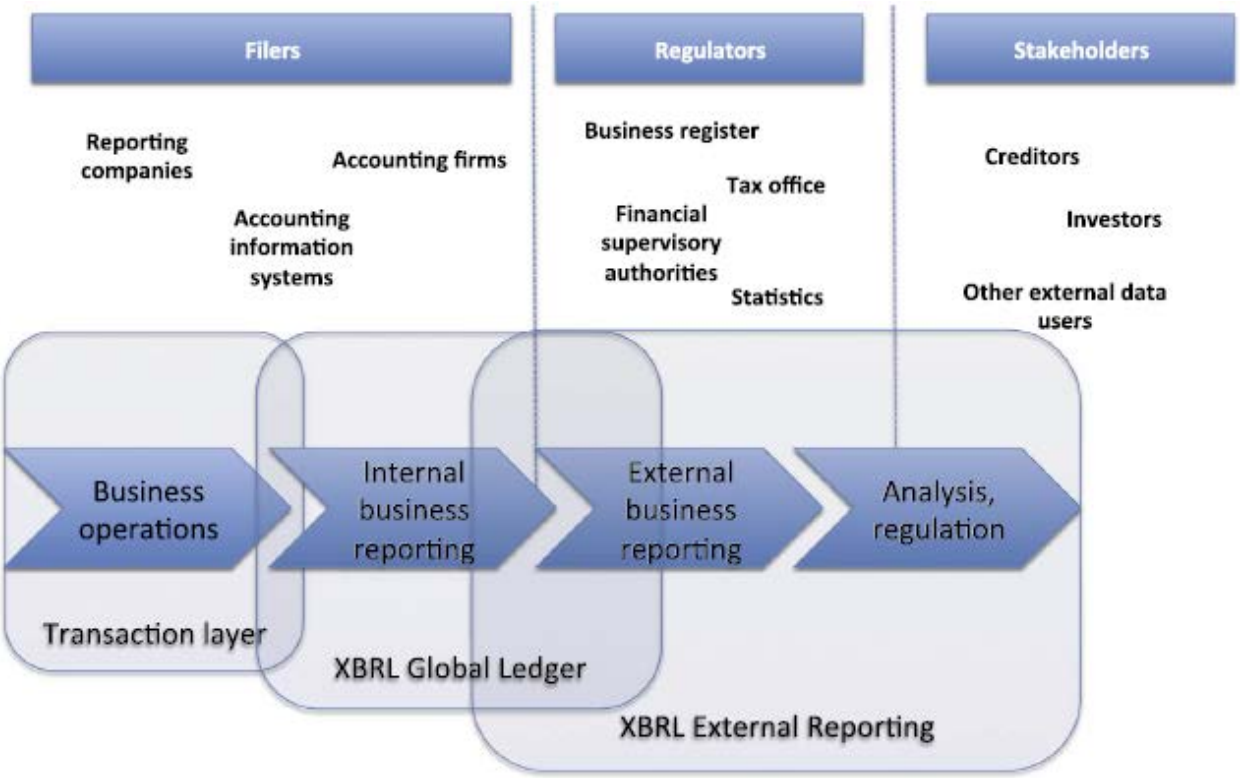

Figure 2-2 XBRL reporting supply chain (Eirle et al 2014)

As mentioned in Table 2-2, XBRL can also be used in tax reporting. In UK, it is mandatory for private companies to file their tax and revenue reports by using the inline XBRL (Brands 2012; HMRC 2014). Monterio (2011) believes that the amount of XBRL related tax reporting initatives for companies will continue to grow in near future as the tax regulators around the world have seen proof of XBRL's benefits in tax reporting.

One could argue that regulation and throught that, the amount of deliverables continues to grow. For example, some organizations may need to report several different reports to authorities just from different sides of the business. However, authorities in some countries have combined their strenghts and started to combine different reporting requirements from several authorities into one taxonomy. This kind of standardization project is called Standard Business Reporting (SBR)

and its purpose is to reduce the burden of regulative and other forms of reporting for SMEs (Cohen 2006; Alles 2009). Eirle et al (2014) seize the idea behind the SBR: government has only one common gateway for individual filers to return their deliverables. This, channel is linked to all governmental agencies and they have the access to the data layers they need, see Figure 2-3. Multiple SBR projects are in place, for example, in Australia, Belgium, Netherlands, New Zealand, Singapore (OECD 2009; Debreceny and Farewell 2010) and Finland (Eirle et al 2014; Tieke 2014).

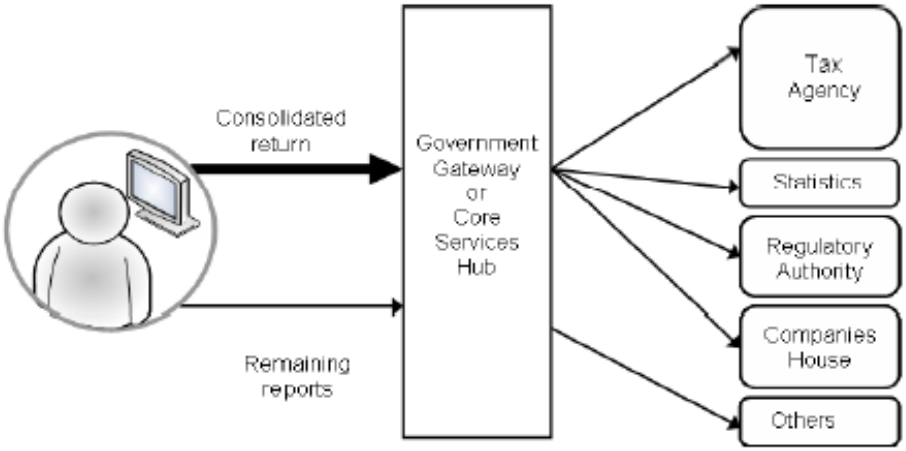

Figure 2-3 Governmental gateway (OECD 2009)

If current technological trend in financial reporting goes on, the XBRL is expected by XBRL International assurance working group's one scenario to be the primary and only format in which companies needs to publicly report their financial statements (XBRL International 2006; Boriz and No 2009). This way the process would be much easier than it is currently in most countries, where financial statements need to be handed out in PDF and XBRL format. This is the case at least with the listed companies in U.S. and UK (SEC 2009; FRC 2014). Plumlee and Plumlee (2008) estimate that in the near future XBRL tags are included into an accounting and ERP systems, pushing tagging into the report creation process.

As stated earlier, banking industry is so far one of the biggest user segments in XBRL and they have used it for over decade. For example, in February 2002 Australian Prudential Regulation Authority (APRA), regulating banks, was the first institution in the world to allow XBRL

submission from banks, insurance companies ans funds (Doolin and Troshani 2007; Cordery et al 2011). Another example is in the U.S. where banks have needed to report quarterly the Call Report to the Federal Financial Institutions Examination Council (FFIEC) in XBRL format since 2006 (Alles and Debreceny 2012). Last example, is from EU, where FSAs have been regulated to send their local banks COREP reports quarterly in XBRL format since the beginning of 2014 (Bonsón et al 2010). Eventually, this leads to a situation where banks are also obligated to send COREP in XBRL format to local FSA.

In the future, the use of XBRL will continue to grow and cut the regulative burdens from the reporting by automating it. It is also possible that there will be new kinds of applications to use and take advantage of XBRL. European Securities and Markets Authority (ESMA) have also prepared an Article 4 § 7a which demands all publicly traded companies in EU to do all of their annual financial reports within XBRL format starting from January 1, 2020 (XBRL Europe 2014).

2.1.4. Implementation Methods

Earlier literature has identified couple of different ways to name the implementation methods for XBRL. Figure 2-4 indicates the most popular ways to name the implementation methods, their relations to similar methods (on a column basis) with different name and the author of origin (on a row basis). Following subchapters will follow the Garner et al (2013) classification with one minor change; “high adoption” will be named as “advanced adoption”, because it better fits in this study. Subchapters will also discuss studies from Garbellotto (2009) and Henderson et al (2012).

Nonadoption	Low Adoption	Medium Adoption	High Adoption (Advanced)	Garner et al 2013
	Outsourcing	Bolt-on	Built-in Deeply embedded	Garbellotto 2009
	Inter-organizationally	Inter-organizationally	Inter-organizationally Inter-organizationally & Internally	Henderson et al 2012

Figure 2-4 Earlier studies on XBRL implementation

Non Adoption

This group of organizations has not taken XBRL in use at any forms. The nonadoption occurs when an organization lacks trading partners or regulatory agencies who are using XBRL and requiring their stakeholders to use it. Thus, organizations in this group avoid timely and monetary costs associated with XBRL conversion but simultaneously are passing by the benefits of using XBRL. (Garner et al 2013.)

Low Adoption

As figure 5 indicates, the low adoption approach is practically outsourcing. When organizations decide to outsource their financial reports' XBRL conversion and filing to a third party, they simultaneously decide not to remarkably change their internal information systems. For many organizations, the outsourcing has been the best approach, as they perceive outsourcing to be cheaper, and they know they do not have XBRL tagging expertise in-house or they simply do not want to purchase an XBRL mapping tool. (Garner et al 2013.) It can be a permanent solution for some organizations due to environmental difficulties and risks or a way of starting transition from zero XBRL expertise at the beginning of new regulatory arrangement (XBRL International 2014d). Thus, organizations typically outsource these processes and rarely do them by themselves (Markelevich and Riley 2013).

Outsourcing process is relatively fast as it typically takes only three to four months to complete. Usually, outsourcing XBRL conversion and filing involves tight collaboration with a third party expert. The collaboration can be achieved by using sophisticated tools, which allow the outsourcing organization to do some of the work by themselves. (XBRL International 2014d.) Organization just prepares the plain text documents, sends them to vendor for conversion into XBRL (Markelevich and Riley 2013) and before sending final XBRL instance documents to appropriate regulator or trading partner, the organization needs to validate the accuracy and completeness of the work performed by the vendor (Garner et al 2013).

The advantage of outsourcing is that organization submitting the documents do not need to have any XBRL knowledge. Additionally, organizations can save lots of time by outsourcing XBRL conversion compared to converting XBRL documents in-house.

Medium Adoption

Organizations with advanced reporting requirements and pervasive reporting processes that are severe, costly and doctrinaire to change are often medium adopters. This level is the cheapest solution for in-house XBRL conversion. (XBRL International 2014d.) Medium adoption refers to bolt-on approach, where organization buys XBRL mapping tool to convert financial data in-house into XBRL instance document to meet regulatory or trading-partner requirements (Garner et al 2013). Organization can retain their existing information systems and reporting process, as the mapping tool is just separate additional tool (SaaS) or add-on (Microsoft Excel or Word) which can be planted in the reporting process by "bolting on" (Garbellotto 2009a).

Use of some bolt-on software requires considerably XBRL knowledge and decision making in selecting tags for financial data. Usually the level of XBRL related knowledge in using bolt-on software is dependent on what is being reported. Organizations continue to use bolt-on solution to ensure that they fully control the process of making regulatory reports and simply because it is so cheap. (XBRL International 2014d.)

The time spend in the complete XBRL conversion process, including the software selection process, creating first set of XBRL instance documents has been estimated to take about half a year. Garbellotto (2009a) claims that the cost of XBRL mapping tool is only around $1.000, whereas Weirich and Harrast (2010) go a step ahead and estimate that the first submission by using bolt-on tool would cost between $40.000 and $82.000 for staff and software time. Thus, after purchasing the software, organization needs to train personnel to use it, make decisions about the taxonomy and tags, and create a repeatable process for the mapping and the conversion. The learning curve between first and second submission can be very radical. U.S. Securities and Exchange Commission (SEC) experienced in their Voluntary Filing Program (VFP) that the decrease would be around 70 percent (average costs: 1. submission $30.933 & 2. submission $9.0601). (Garbellotto 2009a.)

Organizations who use medium adoption spend lots of money and staff time to convert their documents into XBRL instance documents. Notwithstanding, they do and control the conversion process themselves, the XBRL is not fully integrated into their accounting systems. Therefore

they cannot use XBRL in internal purposes, thereby cannot fully utilize the efficiency advantages of XBRL. Organizations that have medium adoption need to update accounting system and XBRL tags if organization voluntarily does or regulator mandates any changes. The advantage over low adoption is that XBRL tags can be used for other purposes later. (Garner et al 2013.)

Advanced Adoption

Organizations using advanced adoption have the possibility to take full advantage of the benefits associated to XBRL implementation (Garner et al 2013). Garbellotto (2009b) states that in this level of adoption, the XBRL conversion belongs to the reporting process naturally rather than being a separate part of the reporting process. By this Garbellotto (2009b) refers to a bolt-on approach, which has an output of conversion from Excel spreadsheet that does not have any connection to the accounting systems and the data. Under these circumstances, Garner et al (2013) state that the advanced adopters *"maintain full control over the conversion process, boast an easier transmission of internal financial data, and have the potential to realize lower total reporting costs"*.

Organizations with advanced adoption need to maintain continuously superior XBRL expertise and initially make great investment in hardware and/or software needed in the XBRL conversion process. Advanced adoption has similar problems than ones in medium adoption; if regulation or trading partner requirements changes, both accounting system and XBRL tags may need to be updated. These changes might bring mistakes and inconveniencies into the XBRL reporting process.

Most of the advanced adoption organizations avoid these problems by using XBRL GL framework. As said earlier, this framework allows different financial systems to communicate, leading to more accurate and faster information supply chain. Therefore, XBRL GL software can be substantially cheaper in money and timely measures than corresponding Enterprise Resource Planning ERP system. Additionally it offers a more efficient way to connect internal systems than making the decision to purchase for example new ERP system. Managers and decision makers can find the use of XBRL GL very useful. (Garner et al 2013.) However, Locke and

Lowe (2007) and Cohen (2009) continue that if an organization wants fully utilize XBRL's efficiencies; they have to combine the XBRL GL and XBRL for external reporting.

Garbellotto (2009b; 2009c) has divided the most complex level of adoption into two categories, firstly to built-in approach and secondly to deeply embedded approach, see figure 5. The difference between these two categories is mostly related to the use of XBRL reporting. The built-in is lighter version of these two, yet it covers only inter-organizational implementation of XBRL reporting. The heavier version, deeply embedded approach covers both inter-organizational and internal implementation of XBRL reporting. (Garbellotto 2009b; Garbellotto 2009c.) This means that within deeply embedded approach organization is able to also internally fully utilize the benefits of XBRL and substantially reduce the amount of money and time used for overall reporting. Thanks to the fact that multiple software inside the organization can function together, such as general ledger and payroll. (Garner et al 2013.) Stantial (2007) found one case where advanced adoption compared to nonadoption saved 25 percent in time and cost of organizational reporting as they had deeply embedded systems.

Compared to bolt-on strategy, the built-in is more complex, but still its benefits are for example that it automatically combines different reports, it enables single reporting process, easier responding to changing reporting requirements and easier transition to deeply embedded approach. In built-in approach, organization cannot separate the reports creation process and conversion to XBRL format. (Garbellotto 2009b.) In this approach, organizations may use XBRL GL taxonomy to standardize their trial balance accounts and amounts to correspond with the XBRL taxonomy (Garbellotto 2009b). Markelevich and Riley (2013) claim that not all organizations can realize the same benefits, nor have similar costs from the integration.

Deeply embedded approach is the most complex of all the approaches presented above and its implementation demands careful planning. In this approach, organization's financial data and links among XBRL usage are standardized by using XBRL GL taxonomy. Thus, the entire reporting process is automated including every original piece of information. Additionally, organization can create clear and accessible audit trail (Baldwin et al., 2006; Garbellotto, 2009c) and use the same information for multiple purposes easily (Garbellotto, 2009c). In result, XBRL

enables organization to form consistent information supply chain, where uniform business rules, controls and analysis can be applied to the standardized data regardless to the initial software with what the data has been formed or where the data locates. XBRL can also be embedded to organization's ERP system; therefore, it can be used to internal reporting and information management. Yet, XBRL does not replace existing information technology infrastructure rather it is a supplement and it can be implemented gradually, starting from a single process or a business unit. (Garbellotto 2009c.)

Finding the Right Approach

Janvrin and No (2012) found four themes affecting to an XBRL implementation from existing literature. The four themes are management support and involvement, implementation approach, organizational readiness or expertise and control over XBRL reporting process. Thus, in information system adoption the most important factor is the support from top management. Yet, organization's decision to either outsource or insource the XBRL process, financial and technical readiness and the level of control over XBRL reporting process affects greatly on XBRL implementation. (Janvrin and No 2012.)

Harding (2010) finds that in most cases, the first approach for XBRL implementation to organizations is to take advantage of outsourcing for the production of first few reports and after organizations internal XBRL knowledge and expertise has increased, to move to produce XBRL instance documents by themselves. Markelevich and Riley (2013) have counter argument as from their experience organizations normally start with bolt-on tool as it is easy to implement and it requires only little amount of XBRL expertise. When organization chooses among all the implementation approaches, they must scale the XBRL implementation project's control, costs, knowledge, level of commitment, timing and the purpose for XBRL internally in the future (Harding 2010).

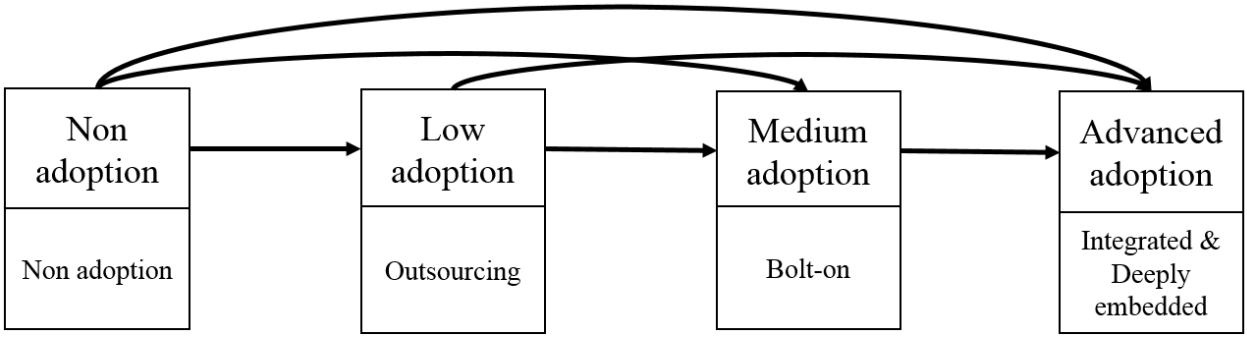

Figure 2-5 XBRL adoption levels

Markelevich and Riley (2013) claim that none of the approaches presented in figure 2-5 are necessarily better than others, as one approach cannot be a fit for all of the organizations. Besides, the success of chosen approach is dependent on multiple factors, like Cordery et al (2011), and Markelevich and Riley (2013) notice, the company size plays an important role in determining the XBRL adoption: larger organizations are more likely to adopt XBRL voluntarily. Organization should also consider following facts before choosing the approach for XBRL document creation. The type of present information systems, number of current IS data sources, prevailing quality of IS information, as well as the size and frequency of organizations reporting. Biggest benefit from XBRL for organizations is currently having disintegrated IS. Several organizations have disconnection between their external reporting and rest of the organization (i.e. compliance, governance, managerial accounting, risk management and tax). XBRL integration leads to a situation where the entire organization uses the same data, even though it can be used differently within each department. (Markelevich and Riley 2013.)

When XBRL is used for tagging the raw accounting data, that data can be used throughout the organization for consolidation, data transfer, internal auditing and compliance tasks. Tagging can be done with the XBRL GL, which was made for tagging financial and nonfinancial data at transactional level. As said before, under these circumstances, it erases manual reentries of data, ease the flow of information supply chain, and improves the data quality in an organization. (Markelevich and Riley 2013.)

An organization would have fewer benefits from XBRL if their prevailing information quality was high, with only couple of known problems. Same thing when an organization creates infrequently structured financial reports. Therefore, XBRL is most valuable for organizations reporting frequently and/or if the organization has several problems with the data. Even though organization's prevailing ERP system could do similar things than XBRL, decision maker should remember that most of the ERP systems are proprietary and XBRL is open and free format for everybody.

2.2. COREP Reporting

In 2006, Committee of European Banking Supervisors (CEBS), currently European Banking Authority (EBA), developed guidelines for Common Reporting (COREP). COREP is a standardized reporting framework following EU wide Capital Requirement Directive IV (CRD) and Capital Requirement Regulation (CRR). CRD IV and CRR have been created to serve global BASEL III agreement. BASEL III agreement, CRD IV and CRR came into force in the beginning of 2014 (Better regulation 2015). Outcome of the COREP was to deliver a prudential reporting scheme for institutions to communicate their results in a standardized way (EBA 2010). The COREP reporting covers credit risk, market risk, operational risk, capital adequacy and large exposures (own funds) based on the Directives 2006/48/EC and 2006/49/EC (EBA 2010; FCA UK 2014). Almost 30 countries in Europe are using COREP reporting and around 8.000 banks (Eurofiling 2014b), building societies and investment firms report it to their local FSA quarterly (Accenture 2014).

BASEL III agreement is above all the banking field's agreements and it is associated with capital measurement and capital standards around the world (Apostolou & Nanopoulos 2009, 270; Bonsón et al 2010). It stands behind "three pillars" concept: firstly, minimum capital requirements (addressing risk), secondly, supervisory review, and thirdly, market discipline (Decamps et al 2003). Goal of the agreement is to enhance collaboration of Supervisory Authorities (Boixo and Flores 2005). In Europe, EBA regulates the banking industry accordance with the global BASEL III agreement.

The EBA is an independent EU Authority to supervise and control European-banking sector through effective and consistent regulations. EBA's main objective is to maintain financial stability in the EU. It was established in the beginning of 2011 to take control of its predecessors, Committee of European Banking Supervisors (CEBS), existing tasks and responsibilities. (EBA 2014b.)

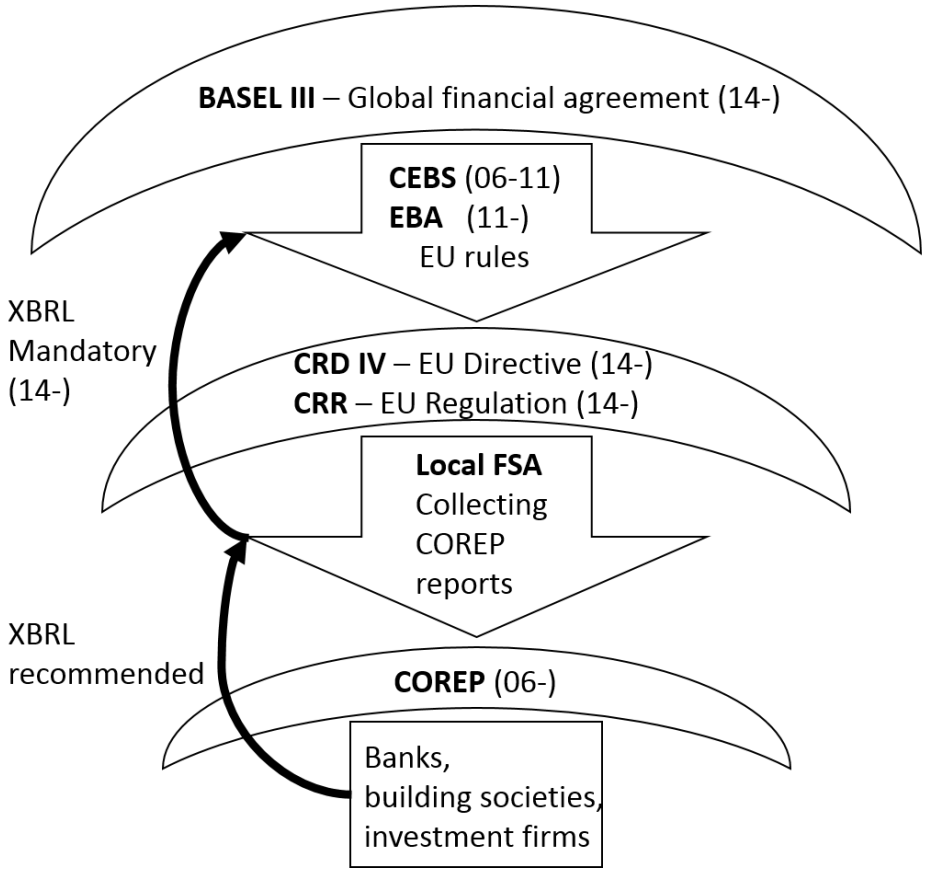

Figure 2-6 COREP supply chain

Figure 2-6 shows rough COREP supply chain, where BASEL III is an umbrella term that gives guidance for European financial sector's rules. In Europe, EBA amends these global rules in practice with CRD IV and CRR. COREP reporting belongs into the CRD IV and CRR framework. Local Financial Supervisory Authorities (FSA) collects COREP reports from regulated organizations. Each local FSAs have mandate to decide themselves how to gather COREP reports, but staring from January 1, 2014, they are obligated to deliver all the COREP

reports to EBA within XBRL format. Thus, EBA recommends local FSAs also to gather the data on XBRL format. For practicality issues, EBA have created a model COREP template for local FSAs that they can use to collect the data from regulated organizations. Regulated organizations fulfill the template that local FSA distributes to them, transforms it into an XBRL instance document and send it back to the local FSA. COREP reporting is done quarterly. (Eurofiling 2014b.)

2.3. The Significance of the Change in Technology Adoption

The change in organization/business processes can be distinguished in two different ways, incrementally or radically. Incremental change is continuous path starting from existing processes, proceeding step-by-step to its goal by carrying only moderate operational risk. Radical change is done once from clean table by carrying higher operational risks. Different elements of the incremental and radical change are shown in Table 2-3.

	Improvement	**Innovation**
Level of change	Incremental	Radical
Starting Point	Existing Process	Clean Slate
Frequency of Change	One-time/continuous	One-time
Time Required	Short	Long
Participation	Bottom-up	Top-Down
Typical Scope	Narrow, within functions	Broad, cross-functional
Risk	Moderate	High
Primary Enabler	Statistical Control	Information Technology
Type of Change	Cultural	Cultural/Structural

Table 2-3 Comparison among incremental and radical change, adopted from Saarinen, T., Aalto University School of Business (2013)

These two approaches are used in very different situations. For example, incremental change is better when company needs to cut costs or change their existing process to be more efficient, thus improving processes. Additionally, Cooper and Markus (1995) describe that incremental

change works better in humane change projects, where company needs to train personnel and give personnel keys to do the needed change in processes by themselves. Jarvenpaa and Stoddard (1998) stated that successful companies re-engineer their processes in incremental steps started by discontinuous radical change. Radical change alone is accomplished with business process re-engineering, which is about making huge steps in performance by acting fast in radical projects. To be successful in re-engineering, the project must be top-down driven and the change motivation must become from performance crisis. (Jarvenpaa and Stoddard, 1998.) Thus, radical change works better if organization's "back is against the wall", and it needs to think outside the box and brake the wall behind to create new opportunities or when company innovates new business opportunities.

2.3.1. Incremental Change

The incremental change model is linked to the sociotechnical change approach, where the change is influenced both hard and soft system changes. In incremental change model, employees who are recipients of the change must work and implement the change. Employees and leadership of existing process are used in change management and the communication about the change is wide and open for all. The speed of the change is determined by the capabilities of existing employees, thus milestones are flexible. Therefore, the pace of this type of change should be comfortable for existing employees and to all other internal and external constraints, which company have at the point of change. The motivation for the change comes from internal dissatisfaction for existing processes and the feeling for doing better. Before IT takes place and consolidates new processes, these new processes are stressed by piloting them. Additionally, incremental change model assumes that change is most suitable in tiny steps at a time. (Jarvenpaa and Stoddard, 1998.) Ettlie et al (1984) state that incremental change adoption tends to happen more likely within large, complex and decentralized companies that dominate markets with their growth strategies.

The major advantage of the incremental model is that the general risk of failure is small because many existing employees participate in the change, thus each employee can feel ownership for the changes happening. In general, incremental model increases company's capacity for change.

Additionally, translating radical vision into multiple incremental targets helps the company to get started with the change project, which could otherwise be seen, unreachable. (Jarvenpaa and Stoddard, 1998.)

The major disadvantage of the incremental model is the long time span to accomplish the vision, the vision that should be alive and reminded to employees every once and while, even though the market conditions change. Otherwise, the company can lose their sight into the motivation for their radical vision. The danger is that company declares victory too soon, after modest changes and turns their sight into newer focus points. (Jarvenpaa and Stoddard, 1998.)

2.3.2. Radical Change

In receipt of successful change, the radical change model is often linked to gradual steps that change the deep structure of the company. Radical change can also be sudden, revealed quickly and amend essentially the basic assumptions, business processes, culture and the structure of the company. The change is easier if company faces identity crisis and disorder. The participation of the change must be top-down and lead by CEO. (Jarvenpaa and Stoddard, 1998.) In addition, senior management must motivate employees by right vision and creating correct culture as well as developing requisite internal alliances (Nadler et al 1995; Ettlie et al 1984). External resources and outside vision is required to succeed. Persons outside the company, without fear of challenging existing processes are hired to lead and participate in the change. These persons can be consultants or executives new to the company or process that is being re-engineered. They might be also from other parts of the company, who have no earlier knowledge of the processes under the change. (Jarvenpaa and Stoddard, 1998.)

Ettlie et al (1984) state that centralization of decision-making increases in radical change projects. Therefore, the change team should be tiny, but devoted and individual part from the rest of the company in order for them not to be exposed to existing ways of doing the process. The communication about the becoming change should be limited and only in a level of have-to-know basis. Motivation behind the change arises from internal crisis and milestones are sharp to be concise when the old is replaced with new ways of doing things. The radical change process

targets usually for new advanced IT and therefore qualifies all employees for the new process. (Jarvenpaa and Stoddard, 1998.)

Jarvenpaa and Stoddard (1998) mentioned four conditions for companies that succeed with fast evolving radical change. First, the company needs to have a real performance crisis. Second, the change must take place in a tiny self-contained unit. Third, the company or a parent needs to have lots of money to cover fast evolving radical change. Fourth, the company needs to have ability to borrow and replant solutions like buying software packages from outside.

Most of the good managers hate the radical model because radical model challenge much of managing and motivating employees. Additionally, the radical change insists managers to cannibalize their own business. Some employees are naturally left out and their insecure position in company forms bottlenecks to prevent the change. The secrecy nature of the change project further increases the resistance. To create a need for the change, the change team uses reverse values that most companies have institutionalized: empowerment, self-management, and innovation from bottom-up. Therefore, the change team requires robust control and daily personal involvement from top management. For that reason, top management has only limited time to spend into following fast evolvement of marketplace, potentially leading to lost market opportunities or misaligned strategy. (Jarvenpaa and Stoddard, 1998.)

The major advantage of the radical model is that the change is accomplished quickly (Jarvenpaa and Stoddard, 1998). Radical change stands for heroism and tough decision-making, for example, cost cuttings, downsizing and changing structure of the company (Nadler et al 1995).

The major disadvantage of the radical model is that it increases risks in change project (Nadler et al 1995). If radical change fails, it can lead to chaos, and company and individuals may lose their identity (Gersick 1991; Clemons 1995).

3. THEORETICAL FRAMEWORK

This chapter reveals a theoretical framework developed for this study. It is based on theoretical assumptions stated in the previous chapter. Thus, this chapter argues, in detail, all the factors affecting to the framework and justifies the adopted theoretical framework.

3.1. Overview of the Framework

The objective of the research is to learn the adopted XBRL implementation methods from European banks and explore the possible changes in them. Thus, the goal is to find patterns from the changes in XBRL implementation methods and to find whether evolutionary path or "one shot" strategy is used in XBRL adoption. In order to achieve the goal, the study must find both current and earlier methods for XBRL adoption from European banks to be able to create rough image on the XBRL adoption patterns.

Previous chapter provides background literature for the theoretical framework. The framework is built to cover all the necessary viewpoints to learn the level of XBRL adoption and to learn XBRL adoption patterns over time within European banking industry. Simultaneously, the framework has been kept easy to understand and flexible, in order to be able to use it for wider range of cases. To succeed with these constraints, broad and general definitions needed to be able to customize framework without losing its validity.

Given the nature of the study to be qualitative in manner of data collection and the perspective of data quality due to the specific telephone interview, the framework needed to be built by leaning on the aforementioned assumptions. Background literature also shed light to the nature of the field and regulations, which helped in the framework creation.

The core of the theoretical framework is based on Garner et al (2013) classification on the implementation methods for XBRL: non-adoption, low adoption, medium adoption and high adoption. This classification is fine-tuned to be suitable for this study by changing the class of "high adoption" to "advanced adoption" and by mirroring each implementation method classes to other studies performed by Garbellotto (2009) and Henderson et al (2012). Garner et al (2013)

classification was selected to support this study as it gives the most general picture of the adoption levels for any technology. Additionally, it supported reviewing patterns in XBRL adoption methods over time by applying Jarvenpaa and Stoddard (1998) study on radical and evolutionary change in business process redesign. Radical change is named “One shot” and incremental/evolutionary change to “Evolutionary path”. On top of above mentioned the theoretical framework shows technology integration and organizational knowledge as well as reporting efficiency as they were the major enablers for XBRL adoption in previous literature. The basic structure of framework is established in figure 3-1.

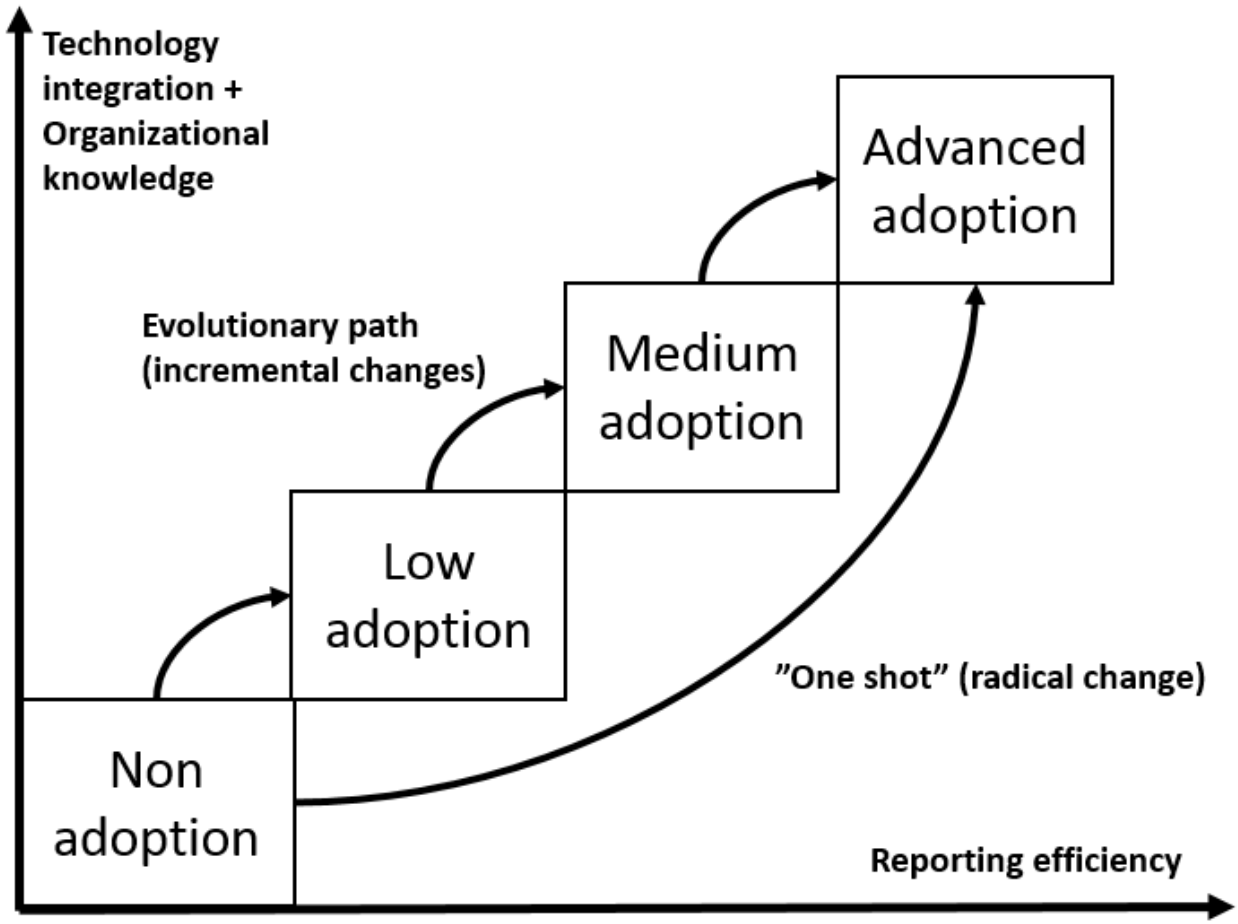

Figure 3-1 Theoretical framework for XBRL adoption patterns for European banks

The idea behind theoretical framework is that it distinguishes XBRL adoption pattern methods; evolutionary path and “one shot”. Depending on the level of technology integration and organizational knowledge about XBRL, company should initially choose the level of adoption. The reporting efficiency refers to the benefits/attributes of XBRL usage in the framework; it portrays how benefits are increasing with the complexity of adoption level. Firstly, companies that have no earlier XBRL experience should follow the evolutionary path and adopt XBRL related tools/technologies by incremental steps. Secondly, companies that have followed evolutionary path to low adoption may leap to advanced adoption if their organizational knowledge about XBRL has increased substantially during the introduction of XBRL to them. Thirdly, companies that have earlier XBRL experience/capable employees may leap to advanced adoption immediately by “One shot” implementing XBRL deeply into their operating systems.

3.2. Propositions Development

This subchapter discusses the research constructs of theoretical framework and reporting efficiency, attributes of XBRL. Chosen propositions development, constructs and attributes are justified by earlier XBRL literature.

In general, study questions and propositions help identify the relevant information to be collected about participants. Without such questions and propositions, the research might end up covering too much information. The more questions and propositions are included in the case study the more the case study will stay within feasible limits. (Yin 2014, 31.)

3.2.1. Research Constructs

Four research constructs were identified to fit to this study, they are all presented in this subchapter in detail.

Evolutionary path

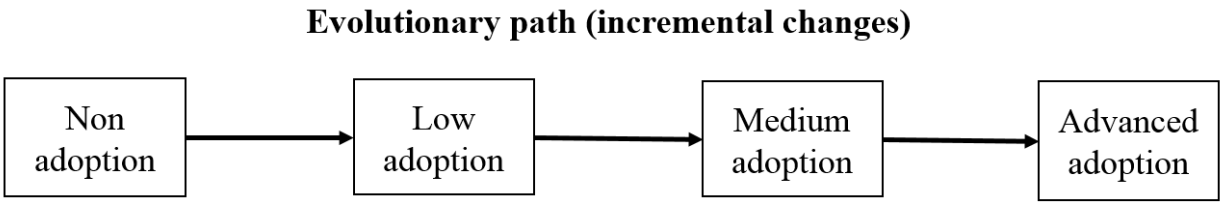

Figure 3-2 Evolutionary path

Depending on the level of organizational knowledge about XBRL and capabilities for XBRL integration, a company should initially choose a level of adoption. Companies that have no earlier XBRL experience should follow the evolutionary path and adopt XBRL related tools/technologies by incremental steps. This means that they can learn during the evolutionary path of changing XBRL conversion process.

At the beginning, a company should start with "low adoption" meaning that they should seek consultant or third party service provider to whom to outsource the XBRL conversion process. Company only needs to send the data to the outsourcer and audit outsourcers work before sending XBRL report to anyone. This way the company can buy time for increasing slowly organizational knowledge about XBRL. According to Harding (2010), the first XBRL implementation approach for companies is to take advantage of outsourcing for the production of first few reports. After company's internal XBRL knowledge and expertise have increased, they should move to produce XBRL instance documents by themselves. Additionally, company may make a deal with a consultant or third party service provider that they need to show to selected company representatives how XBRL conversion is done. Thus, the initial goal of their mutual agreement can lead to a situation where company could be independent on converting regular files to XBRL format.

After learning how outsourcer does the XBRL conversion, and when the company has increased their organizational knowledge about XBRL, they might jump to the next step to the level of "medium adoption". In this level of adoption, the company buys XBRL mapping tool to convert regular files to XBRL. The mapping tool is bolted-on to the existing software, usually in MS

Excel, and to the process. Still, company should use a consultant or software provider's representative to assist with the software and tagging process at the beginning, but slowly become independent in converting files to XBRL format. According to Markelevich and Riley (2013) experienced organizations normally start with bolt-on tool as it is easy to implement and it requires only little amount of XBRL expertise.

Stepping to "Advanced adoption" can be quite a huge and even impossible from "Non adoption" without earlier knowledge about XBRL. Therefore, it is important to take the steps in evolutionary path in order to learn about XBRL. This way, a company has easier transition to take full advantage of the benefits of XBRL. The level of "Advanced adoption" requires lots of integration synergies, exceptions and work from company implementing XBRL, thus this level should be done gradually, as a continuum from "medium adoption" level. Integrating XBRL to the company's existing legacy systems might take a while, as it is more complex than other adoption levels. Thus, deeply embedded integration brings efficiency gains in long run that cannot be accomplished with other adoption levels.

Ettlie et al (1984) state that companies should choose incremental changes adoption if they are large, complex and they have decentralized decision-making point. This approach also predicts, due to regulative nature of banking field, that most of the European banks should have adopted evolutionary path as adoption pattern.

Proposition 1: Most banks should follow evolutionary path in XBRL adoption if they do not have earlier experience from XBRL.

Low Adoption and Medium Adoption

Most banks are starting their regulatory COREP reporting and the usage of XBRL with either low adoption, outsourcing, or medium adoption, bolt-on software due to lack of organizational knowledge and experience about XBRL. Harding (2010) finds that in most cases, the first approach to XBRL implementation for organizations is to take advantage of outsourcing for the production of the first few reports and after their internal XBRL knowledge and expertise has increased, to move to produce XBRL instance documents by themselves. Yet again, Markelevich

and Riley (2013) argue that organizations normally start with bolt-on tool as it is easier to implement and it requires less XBRL expertise. Either way companies' start, they start because external pressures arise, to get rapidly hands-on with XBRL and because these adoption levels provide the simplest and fastest way to get along with XBRL.

Proposition 2: Most of the banks have started their regulatory COREP reporting with either low or medium adoption.

"One shot"

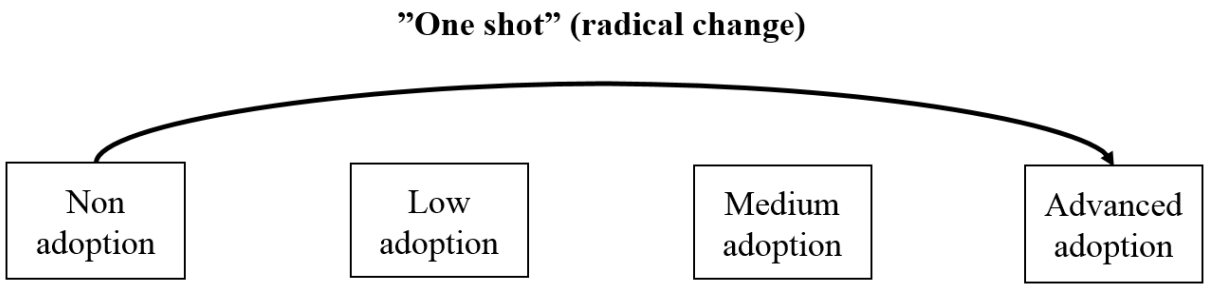

Figure 3-3 "One shot"

The implementation of advanced adoption happens in a relatively fast pace and XBRL technology will be integrated into company's legacy systems in a way that the existing legacy systems may communicate to each other. Garbellotto (2009c) compares deeply embedded XBRL integration to ERP system integration, and gives a rough indicator that completing XBRL implementation takes only one-third of the costs and time of a single ERP installation.

Companies that have earlier XBRL experience and capable employees may leap to advanced adoption immediately by radical "One shot" implementation strategy. Radical, "One shot" changes usually happen in agile companies that have centralized decision-making point (Ettlie et al 1984), in this implementation strategy, XBRL is integrated into company's operating systems, allowing company to fully utilize the benefits of XBRL.

Biggest trigger for companies to implement advanced adoption immediately arises from longer-term cost savings, increased data quality, organizational readiness (amount of knowledge) and

company size. If the company has subsidiaries, they can more easily collect all the subsidiaries documents through XBRL software, thus centralize data collection and management.

Proposition 3: If bank have excellent earlier experience about XBRL they can jump in advanced adoption by "One-shot".

Complexity of Adoption Level Correlates Positively with Attributes

Adoption levels low, medium and advanced are linked to the attributes, which are then compared among different levels of XBRL adoption. Next chapter will introduce XBRL's attributes in more concise manner. They are accessibility, accuracy, comparability, relevance, transparency, understandability and usability.

This study has the ability to collect information about the attributes from each adoption level due to the online tool's questions. It is interesting to find out if all the attributes act similarly in each adoption level or if there is a significant and positive correlation with complexity of adoption level, meaning that low adoption has lower positive significance with XBRL attributes than medium or advanced adoption level. Do the attributes change in different levels of adoption and how much do they change? However, earlier literature about advanced adoption of XBRL gives high expectations towards these seven attributes and their significance and positive relation to the deeply embedded implementation.

Proposition 4: The complexity of adoption level correlates significantly and positively with XBRL attributes.

3.2.2. Reporting Efficiency through XBRL Attributes

In this chapter, the attributes are presented in detail. Without them, this explanatory research might lead to invalid causal conclusions that are influenced by other building blocks than the ones of theoretical interest in the research (Atinc et al 2012). In order to avoid the use of implicit building blocks, research should be designed to distinguish and erase those implicit building blocks. Therefore, attributes for XBRL in different adoption levels help to separate possible undesired factors that might have effect on the validity of conclusions.

Earlier literature has distinguished between the main expected effects on efficiency for XBRL: they are an improved speed and quality of reports, lowered information asymmetry and fallen labor intensity. These efficiency effects have been enabled by XBRL attributes, such as accessibility, accuracy, comparability, relevance, transparency, understandability and usability.

Hence, these seven attributes are included in the theoretical framework to validate conclusions of this study. The most common attributes for XBRL have been found naturally from accounting practices. Their effect on the different adoption levels of XBRL have been studied a lot and they all seem to have a positive sign when XBRL has been taken into use.

Accessibility

Baldwin et al (2006) and Farewell and Pinsker (2005) remind that XBRL is an open standard that is easily shared through online and that XBRL instance documents are compatible with a broad range of software, increasing the accessibility for the information. Additionally, the content of information is more accessible to decision makers as XBRL allows semantic data to be processed by computers and analyzed by a decision maker without manually locating and retrieving the information from financial statements (Baldwin et al 2006).

Accuracy

The use of XBRL erases many manual data re-entries; therefore, it decreases human intervention in the data creation and reporting process. It also allows anyone to access, look and validate the information at any point of time improving accuracy of XBRL reports. (Baldwin et al 2006; Vasarhelyi et al 2010.) XBRL enhances the accuracy of the data that is being submitted, thus it decreases the public publishing cycle time, improves flexibility for needed changes to the requirements and applications, and improves the overall efficiency of business reporting process (Baldwin et al 2006).

Comparability

The standardization of XBRL taxonomies in financial reporting enables easier financial comparison between companies in different industries as well as comparison across times. Standardized taxonomy ensures that tagged items from different companies' reports refer

ultimately to the same matter, hence facilitating the comparability. (Baldwin et al 2006; Farewell and Pinsker 2005; Vasarhelyi et al 2010.)

Companies creating the data should concentrate on using correct tags and taxonomies for their business reporting. If some individual company notices that existing taxonomy does not cover particular information requirements, they can create their own extension into the taxonomy. However, extensions are less accessible and comparable to automatic processing than standard XBRL taxonomies (Baldwin et al 2006). The use of standard taxonomy also allows clearer mapping of elements, conversation among different forms of XBRL taxonomies easier (COREP, IFRS), and clarifies the use of terminology, both homonyms and synonyms (Baldwin et al 2006).

Relevance

XBRL supports faster deliveries of financial statements, making reports more valuable to receiving parties. Faster deliveries are possible due to the automation of information chain from data entry to information user and selection of the information needed for the reports (Baldwin et al 2006; Vasarhelyi et al 2010). Additionally, XBRL helps to streamline the sharing of information among diverse technologies, hence it can use the best and newest information rather than settling with information available for particular technology.

Transparency

Transparency is probably the most studied factor among XBRL literature. It has been studied by Hodge et al (2004), Baldwin et al (2006), Pinsker and Li (2008), Vasarhelyi et al (2010), and Hao et al (2014). They all refer that in XBRL, transparency is based on clear definitions of used items in the report, which makes information easier to understand. Baldwin et al (2006) continues that information is also easier to manipulate and analyze, but extra layer of software needed for XBRL report creation and translation of information.

Understandability

XBRL tags make the data understandable, readable, searchable for both computer, and human (Pinsker 2003; Plumlee and Plumlee 2008). Therefore, the potentiality of XBRL is much wider than only accountants that usually analyze and understand financial reports (Vasarhelyi et al

2010). XBRL enables elements to connect with each other and to create guiding footnotes for reports. The easiness of analyzing reports has been made possible with XBRL enabled software. With such a tool, stakeholders who are interested of financial reports can easily use them in their own purposes.

Usability

Like mentioned multiple times before, XBRL is compatible and editable with a wide range of software. It is not like PDF or HTML document that cannot be manipulated with other software and that needs manual transfer of information if it is wanted to get in usable format (Farewell and Pinsker 2005).

XBRL has still many business cases that are not yet taken into consideration or use. Mostly, regulators use XBRL to collect financial or business information from companies around the world. Hence, XBRL could be used more in companies' internal reporting and reporting for other stakeholders besides regulators.

3.3. Technology Integration and Organizational Knowledge

This chapter introduces how technology integration and organizational knowledge increases constantly with transitions towards the level of advanced adoption. They are both general terms in XBRL adoption; therefore, they were linked together in the theoretical framework (figure 3-1). In this study, their effects on XBRL adoption is not covered, rather just added to framework, because they are obvious facts from earlier literature.

In the theoretical framework, the level of technology integration means the level of XBRL technology integration to particular company's prevailing legacy systems. In low adoption, organization has none or very little amount of XBRL related integration to their software and legacy systems. Whereas, in the level of medium adoption the level of XBRL technology integration starts with XBRL enabled software and XBRL taxonomy that is needed to form the XBRL instance document. Lastly, the level of advanced adoption has a high level of XBRL technology integration in two different scenarios. First, "integrated method" has integrated

XBRL into company's legacy systems for inter-organizational usage. Second, "deeply embedded method" has XBRL integrated so far into company's legacy systems that company can use XBRL for internal and inter-organizational purposes with the help of XBRL GL taxonomy.

Additionally, the level of organizational knowledge has similar effects to companies XBRL adoption methods than the level of technology integration has. Organizational knowledge about XBRL increases from low to medium adoption and from medium to advanced adoption.

3.4. Summary of Theoretical Framework

In this subchapter, the summary of the theoretical framework, figure 3-4, and its items are discussed.

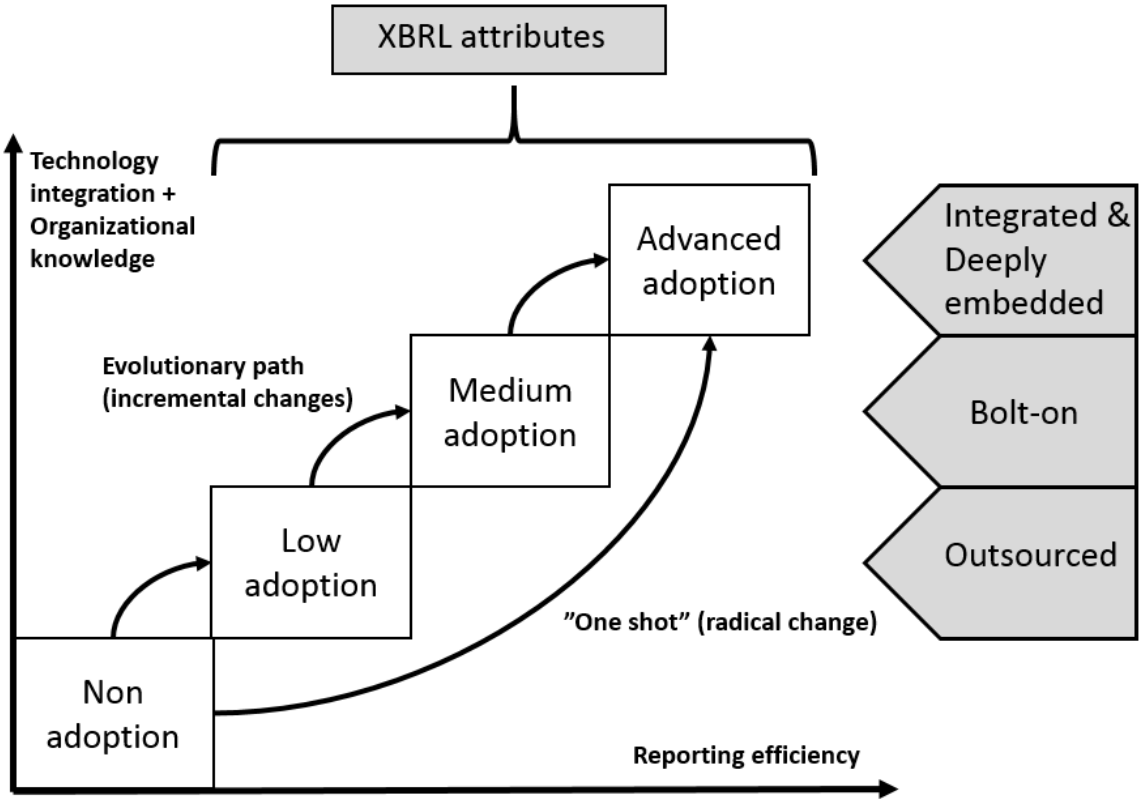

Figure 3-4 Summary of the theoretical framework for XBRL adoption patterns for European banks

Figure 3-4 portrays the summary of the theoretical framework. The aim of this framework is to give a broad model for technology adoption and adoption patterns. The framework does not give any exact numbers or tight facts to the managers, but illustrates possible transitions among the level of technology implementation methods and patterns.

The framework has two separate axes: horizontal describing the *reporting efficiency*, thus the level of XBRL attributes, and vertical, showing the level of *technology integration and organizational knowledge of XBRL*. Different adoption levels, *non-adoption, low adoption, medium adoption and advanced adoption*, are located in assumed relation to the axes. Most relevant issue in the theoretical framework is probably two strategies for XBRL adoption patterns: "*One shot*" and "*Evolutionary path*". Additionally, a relevant issue for the framework is to seek to establish a connection between XBRL attributes and different XBRL adoption levels. XBRL attributes have been noticed in earlier XBRL related research, therefore the relation to XBRL of the used attributes is asked from participants.

4. RESEARCH METHODOLOGY

The chapter discusses the research approach, analysis and the data collection methods used in this study. In addition, the chapter justifies these methods and reviews other possible methods. This chapter has four subchapters, type of research, data collection methods, respondents and analysis methods. Type of research chapter introduces the overall methodology of the research. Data collection methods present the way of collecting information from participants. Respondents' chapter focuses on creating a picture of the participants of this study. Finally, analysis methods chapter introduces the way the data is analyzed in this study.

4.1. Type of Research

The purpose of this study is to investigate the changes in XBRL implementation methods within COREP reporting in European banking industry over time. Therefore, the first logical step in the process of this study was to review literature around XBRL implementation methods. The second step was to develop an approach for existing phenomenon, and thirdly to find feasible chassis for finding solutions for research questions. The broad literature review helped to develop all components for the framework, and to combine them into comprehensive model for capturing potential patterns on XBRL adoption in European banks.

The nature of this study is exploratory. This approach applies that the problem of the study is understood in the first place. The problem of this study is defined earlier in this study, but it is related to the fact that there is no earlier research on XBRL adoption methods in COREP reporting. This study focuses only on banks' XBRL adoption methods in COREP, while possible participants can either be executive or director level person, narrowing the scope of possible participants to very tiny. For these reasons, a qualitative approach is used through the study. Qualitative research "*uses text as empirical material instead of numbers, starts from the notion of social construction of realities under study, is interested in perspectives of participants, in everyday practices and everyday knowledge referring to the issue under the study*" (Flick 2007). Ghrauri and Grønhaug (2005) state that in this type of research the easiest way to collect in-depth

information about organizations' knowledge and perspective is to do a qualitative research with higher flexibility than within quantitative research method.

Qualitative research approach offers many different methods to accomplish with the research. This study uses case studies among all the alternatives. Yin (2014, 4) states that case study method is relevant the more the questions require an extensive and in-depth description of some social phenomenon. Yin (2014, 16) continues, "*A case study is an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident*". Both Ghrauri and Grønhaug (2005) and Yin (2014) explain that case studies can be either single or multiple cases.

Multiple case study was chosen for this study's analysis method because more than one bank's key informant is being heard, but possible amount of respondents (sample size) is too small for quantitative approach. This method is used to compare and illustrate typical situations as well as extreme cases from the collected data. This study uses multiple case study where two distinctively different methods for data collection is used from banks around Europe. Firstly, online tool is used to collect responses with a preset question list from participants. Secondly, telephone interview is used to validate and fulfill the data quality for some of the answers as well as to discuss about bank's way of doing and submitting COREP and to discuss if banks have faced any obstacles or challenges with XBRL implementation. Both methods were chosen as they give more or less freedom and independence of place and time for respondents and researcher to participate.

Wilkinson and Birmingham (2003) have built model seen in figure 4-1, close-end questionnaire and structured interview leaves high control for researcher about the things asked from participants. Together both of the methods create a progressive research method to completely answer the research questions.

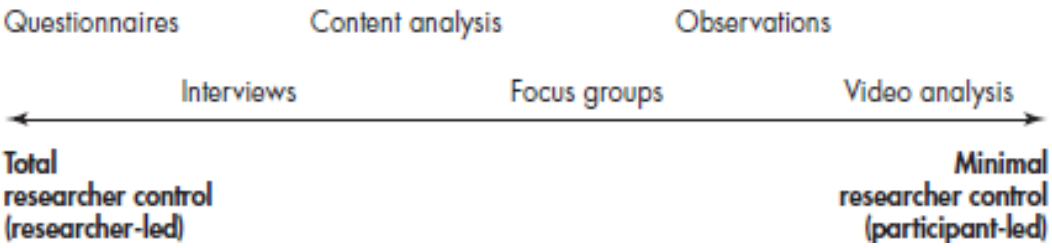

Figure 4-1 Research-participant control continuum, adopted from Wilkinson and Birmingham (2003, 5)

4.2. Data Collection Methods

The data collection is an important part of the case study. Couple of best practices to gather such data is in-depth interviews with participants (Ghrauri and Grønhaug 2005) and distribution of in-depth questions to participants via online tool (Wilkinson and Birmingham 2003).

4.2.1. About the Online Tool

General Knowledge about the Online Tool

The decision about the research instrument for gathering valid information for this study came shortly after analyzing different methods to obtain information for this type of study. Wilkinson and Birmingham (2003, 5) stated in their book, that most commonly used research instrument is a questionnaire, thus all types of instruments are presented in figure 4-1. As the purpose of this study is to test the propositions and framework, a qualitative data set needed to be collected. The data for this study can be collected most efficiently with an online tool similar to a closed-end questionnaire. More specifically, Wilkinson and Birmingham (2003, 10) indicate that mail survey has been the most common questionnaire type that has potential to efficiently gather large set of data, though it can be held impersonal and can end up with low response rate.

Mail survey may have experienced best days in past, as internet can also be used efficiently, conveniently and inexpensively for data gathering, therefore this study leans to an online tool to collect responses. De Leeuw et al (1998) agree with abovementioned and claim that an online tool for data gathering generates higher response rates than traditional mail surveys based on

paper format. Therefore, this study leans on Webropol 2.0 to build, distribute and analyze the question set to participants.

Measures and Question Types of the Online Tool

Typically, many different angles are asked from participants, in order to be certain about the things that are wanted to measure. Most likely, the question types are closed questions, multiple-choice or ranking questions, open-ended questions and scale item, Likert-type of questions. (Wilkinson and Birmingham 2003, 10.)

Close-ended questions provide all the possible answers to participant, for example, “yes” or “no”. Multiple-choice questions provide also predefined responses, but responses should be carefully thought in order to cover all the possible answers. Open-ended questions do not restrict participants’ answers, thus making analyses harder for the researcher. Questions with scaled items provide possibility for asking participants’ opinion about the asked question within predefined list or scale, typically ranging from a very positive to a very negative. Many ways of scaling the questions exists, but so far, the most famous approach is the Likert scale, which measures participants’ attitudes with scaled questions. Likert’s scale was published in 1932. (Wilkinson and Birmingham 2003, 11-12.)

In the online tool of this study, the participants were asked to answer for many types of questions, mostly for multiple-choice questions and scale items, Likert questions where the scale ranged from 1 to 7. All scaled item questions were using a seven-point scale ranging from “strongly disagree” to “strongly agree”, see Table 4-1 for the full list of scale. Option “I don’t know” was not provided, as the assumption was that all the participants has some knowledge about XBRL. Additionally, online tool included couple of close-ended questions and simple open-ended questions.

Scale	
1	strongly disagree
2	disagree
3	slightly disagree
4	neutral
5	slightly agree
6	agree
7	strongly agree

Table 4-1 Item measurement scale

Firstly, companies were asked to tell their current and previous five methods, if any previous methods, for delivering COREP report to the local FSA with multiple-choice questions. In order to get valuable data, companies were also asked the year of beginning the different methods and the names of the software they were using in different methods.

Secondly, additional information was gathered from companies through scaled items questions, where companies were asked about XBRL attributes and their overall XBRL usage. One multiple-choice question was also used to ask who is responsible in the company for deciding which method is used to deliver COREP to local FSA. As well as one close-ended question asking company's interest in taking XBRL into use in other parts of the business reporting. To gather valuable data, this question was added with open-ended boxes, letting participant tell in which side of the business reporting.

Thirdly, background information from companies was asked with multiple-choice questions and open-ended questions. Background information was measured in terms of revenue, employees on payroll and balance sheet value from the end of 2013 as well as country and the size of COREP reporting team in terms of full time employees (FTE) and days they are using to build COREP report.

Most of the questions asked from participants were compulsory except all the open-ended questions in the first part of the question set (Appendix A), where companies were asked to tell software providers names they are using as well as questions that were related to the previous

methods company have used to create COREP. Voluntary question was also the one where participants could specify if they used different method for delivering COREP to local FSA earlier than offered in the multiple-choice question.

4.2.2. About the Interviews

General Knowledge about Interviews

Interviews are usually linked to a conversation between two persons, other person answering to presented questions asked by another person. Interviews involve often understanding and assumptions about the situation and they are normally not casual conversations. (Wilkinson and Birmingham 2003, 43.)

Interviews are used often in research purpose as a way of obtaining specific information about studied situation. Often interviews are used if other methods are not appropriate or as a supportive method of obtaining or confirming validity of information already gathered. Interviews are far more resource-intensive compared to for example questionnaires, researcher need to devote his/her time to one-to-one meetings with respondents. It is also said that interviews contains vast amount of information, thus giving researcher better insight into the situation than just arranging a questionnaire. (Wilkinson and Birmingham 2003, 44.)

The nature of the interview used in this research is a structured telephone interview to support, confirm and make sure the quality of already gathered online tool data. Idea is to go through participants responses, to validate them and to assure that participants have understood questions and responded accordingly. Additionally, the aim is to get participants to tell their own words how they submit COREP reports to the local FSA and what kind of tools they use in submission process as well as problems they have faced within COREP submissions process.

Actual Data Collection via Interviews

The data from interviews were collected with one-telephone interview and by interviewing one Finnish bank's COREP team in person. Telephone interview was not recorded but notes were collected through the call following the structure of the online tool's preset question list. Data

collection follows confidentiality that was set in online tool and do not go into banks names or other revealing facts that may jeopardize anonymity of participants.

Similarly, the physical interview with one of Finnish bank's COREP team in the end of November 2014 was not recorded and facts that may reveal bank's anonymity are left away from this study. Even though, this interview was mostly concerned with enhancing the set of questions on online tool, team told their story behind COREP reporting in their bank.

4.3. Respondents

One of the most difficult parts of a study is to find correct respondents, key informants, for the topic that is being studied. Reasoning for difficulty lies behind the fact that initially this research has only tiny amount of potential respondents. Another challenge is to get them to respond to the question set as well as arranging time for the possible interview. Most of the key informants are executive or director level persons, so their time is very essential for their organizations, as it is to this study.

The initial intention was to get one answer from each bank, and to get couple of banks to respond in order to be able to compare and illustrate similarities and differences among respondents' banks ways of using XBRL for the COREP reporting. The idea was to interview some of the respondents shortly after they had responded via online tool.

4.3.1. Participants Using the Online Tool

After the initial set of questions in online tool was built, it was validated with the help of one of Finnish bank's COREP team in the end of November 2014. A group meeting was set where initial questions was gone through and enhanced. The improvements concerned about items under some questions and after the meeting, the set of questions was ready for distribution through the online tool. However, the set of questions was distributed in the middle of February 2015 to European banks with the help of Federation of Finnish Financial Services, TIEKE and local FSAs all around EU area. The help of these organizations made it more plausible to connect with correct key informants in banks.

Wilkinson and Birmingham (2003, 16) recommend to use a short cover letter for maximizing the response rate. The cover letter should explain clearly and understandably the purpose of the research. Wilkinson and Birmingham (2003, 16) also recommend to state in this letter if it was anonymous to respond as well as the address where the results would be accessible to third party as soon as completion of the work. In addition, reminder emails should be sent to recipients to make sure that they remember to respond.

Following these advices, two different cover letters (appendences B & C) with link to the online tool was created and further sent to participants as well as to contact persons distributing the link for their local banks in the middle of February 2015. Participants' cover letter contained the motivation for this research, stating confidentiality issues and promised that participants could find ready-made study from Aalto University's web pages, attached link, during the second quarter of 2015 and of course the link to the online tool. Contact persons´ cover letter was similar, thus it included also possibility to get managerial findings from research as soon as it is ready. These findings would be distributed only to the persons who initially asked them separately by email as advised in the cover letter email. Reminder email (Appendix D) was also created to maximize response rate.

4.3.2. Participants of the Interviews

The participants of the telephone interviews voluntarily gave their email addresses in the online tool. All participants that gave their email addresses were contacted and one was of them interviewed on April 2015.

The interview with one of the Finnish bank's COREP team was a group meeting at their premises on November 2014. Team accepted the proposal to interview them into this research. The meeting was successful in a way that some questions from online tool were enhanced after the meeting.

4.4. Analysis Methods

The analysis of this research trusts on *theoretical propositions*, which is a theory that reveals both the data and the phenomena. Yin (2014, 136) said that this strategy of analysis leans on a theoretical framework, propositions and research goals that have initially lead to study the current topic. Theory and propositions of the research support the structures of a data collection plan (Yin 2014).

The present study includes multiple cases within banking field in Europe. Yin (2014, 164) proposes that the optimal technique for studying especially multiple case studies is the *cross-case analysis*. It is a relevant analytical technique to explore case studies, which consist of at least two cases. Analyzing two or more cases is more likely to be easier and the findings more robust than in single case study. Of course, more cases the study has the stronger the findings will be. Cross-case technique treats each individual case study as a private study. (Yin 2014, 164.) The subject of this research is a single group of the COREP report providers, banks. Thus, banks and their methods of creating COREP differ in their features. Cross-case technique gives the space to study extensively single issues and structure the data that could be hard to organize otherwise.

This research uses word tables like Yin (2014, 165) has guided to use, to organize and present the data from individual cases according to multiple uniform categories. In general, cross-case technique tolerates some quantitative analysis methods in case of large number of respondents. However, modest number of cases needs alternatively ways for analysis. Thus, often the cross-case technique requires qualitative methods to reach into anticipated results. (Yin 2014, 165.)

In some cross-case studies, the objective is to explore whether the studied cases replicate or contrast with each other. In these circumstances, the investigation of word tables for cross-case patterns will rely highly on argumentative interpretation, not on numbers. Therefore, cross-case studies often require strong, plausible, and fair arguments that are supported by the data. (Yin 2014, 167.) In the present study a hybrid method is used to analyze the results, the data is compared and illustrated in both words and numbers due to modest amount of responses.

5. EMPIRICAL STUDY

This chapter presents the empirical part of the study, including results from online tool's question set and from telephone interview. Respondents had one month from the middle February to middle March 2015 to respond to the online tool's questions. This chapter follows a logical formula with subchapters, which introduces the results of the study in relation to the theoretical framework and propositions. Firstly, this chapter goes through the data collection. Secondly, it presents the description of the sample with subchapters that are presenting the basic information about the sample and the use of time versus workload in COREP submission. Thirdly, the results mostly related to theoretical framework and propositions.

5.1. Data Collection

An online tool link was distributed straight to 32 contacts in 23 banks and to seven local FSA contacts into variety of European countries as well as numerous other bank contacts being in the Eurofiling distribution list. Eurofiling distribution lists consist of members dealing with European banking sectors regulative reporting. However, the distribution of an online tool link happened during the period between 16.2.-27.2.2015. Three of the seven local FSA contacts responded by an email saying that they would distribute online tool link to their local bank contacts immediately. All the straight contacts were given a month to answer to the online tool's question set as it was closed on 13.3.2015. Eurofiling distribution list members had two weeks to answer as the first email to this list was sent 27.2.2015.

Due to the anonymity of the online tool's responses almost all the contacts as well as all the members in the Eurofiling distribution list were sent a reminder email a one week before online tool was closing to make sure that all the persons willing to respond to the questions would remember to respond. Contacts that sent an email, telling they have responded and would like to receive the results of this study were not sent a reminder email. Reminder emails did not yield any new responses nor recipients, persons opening the online tool's question set.

The number of recipients that opened tool, responses, response rates of online tool and amount of persons willing for a telephone interview are shown in the Table 5-1 below. The online tool yielded relatively good response rate of 22,2% compared to the amount of recipients. The online tool recipients, thus the number of times the tool was opened raised as high as 99. However, there might have been some people that opened the questions more than one time, raising the number of recipients. Additionally, people who opened the tool, answered to some questions and unfinished the questions.

Online tool response rates			
Recipients	Responses	Response rate	Amount of persons willing for a telephone interview
99	22	22,2%	2

Table 5-1 Online tool response rates

No duplicate responses were found from the data that was collected via online tool. Online tool included some missing data in voluntary questions. Likert-scale question number 12 (If your company uses XBRL, you use it internally to/for...) in the online tool has almost no difference in different items' averages or in any participants' answers. Most common answers to all these items were 1 (strongly disagree) by 41%, 2 (disagree) by 14% and 4 (neutral) by 45%. Therefore, it can be assumed either that participants have been unfamiliar with internal XBRL usage and it is disclosed from analysis as an invalid question or that this is their real opinion about their bank's internal XBRL usage.

Two persons had left their email addresses as a promise to be contacted later for telephone interviews. One interview was made in April via telephone call. The biggest benefit from this interview was to confirm that recipient had understood online tool's questions properly and responded accordingly. Additionally, the idea was to get clear picture about the difficulties and practicalities participant's bank had faced during and after the launch of XBRL in COREP reporting.

5.2. Description of the Sample

5.2.1. Basic Information about the Sample

The sample of the online tool contained only European banks. However, participants range in managerial status of COREP responsible, country, participant banks' size in terms of: (1) balance sheet value, (2) operating profit, and (3) banks' FTE. In these terms, the sample can be considered broad, and there is no reason to believe that majority of banks that did not respond to this tool would use highly different tools or methods for submitting COREP to the local FSAs. The information about the sample is presented in Table 5-2. The three size measures are filtered in groups of who is responsible for COREP in participant's bank.

The majority of the respondents were directors responsible for regulatory reporting (59%) ranging from small to very remarkable banks in Europe. Almost half (41%) of the respondents came from Finland and almost a third of the respondent banks employed more than 20,000 people.

In general, responses about the sample show the variety of the banks as well as variety of directors responsible for COREP reporting. Thus, the responses from Table 5-2 reveal roughly that the bigger the bank is the smaller is the responsibility of the director for COREP reporting. In addition, CEO led COREP reporting has been done only in small banks. Thus, small banks' COREP responsible can also be director responsible for regulatory reporting. CIO and CFO led COREP reporting occurs mostly in medium banks and in couple of large banks. Directors responsible for regulatory reporting were found in small, medium and large banks, fact that makes this group the most important in delivering knowledge into organizations about COREP reporting and XBRL reporting language.

Information about the sample				
Managerial status of COREP responsible				
Variable			Frequency (n=22)	%
CEO			1	4,55%
CIO			4	18,18%
CFO			4	18,18%
Director responsible for regulatory reporting			13	59,09%
Country				
Denmark			1	4,55%
Finland			9	40,91%
Germany			4	18,18%
Netherlands			1	4,55%
Portugal			1	4,55%
Spain			1	4,55%
Sweden			2	9,09%
United Kingdom			3	13,64%
The size of a bank in terms of balance sheet value (31.12.2013) vs Responsible for COREP				
Value (million €)	CEO (n=1)	CIO (n=4)	CFO (n=4)	Director responsible for regulatory reporting (n=13)
1-10	1			3
11-100		1		1
101-1000		1	2	1
1001-10000		1	1	2
10001-50000			1	2
100001-500000				3
>500001		1		1
The size of a bank in terms of operating profit (31.12.2013) vs Responsible for COREP				
<30	1	3	2	6
31-50		1		
>111			2	7
The size of a bank in terms of FTEs (31.12.2013) vs Responsible for COREP				
Value	CEO (n=1)	CIO (n=4)	CFO (n=4)	Director responsible for regulatory reporting (n=13)
<1000	1	2	2	6
1001-5000			1	2
10001-15000				2
>20000		2	1	3

Table 5-2 Information about the sample

5.2.2. The Use of Time Versus Workload in COREP Submission

Table 5-3 shows relevant background information about respondents' organizations COREP reporting. Firstly, amount of full time employees (FTE) in COREP reporting team. Secondly, amount of days used to submit COREP report to the local FSA. Thirdly, combination of FTEs and days used in COREP reporting to compare more easily the timely effort to the workload. Fourthly, it shows the amount of foreign country positions in banks' COREP report. Thus, these four additional measures are filtered in Table 5-3 into groups of who is responsible for COREP in participant bank.

Timely effort versus workload on submitting COREP				
FTE used to submit COREP vs Responsible for COREP				
Value	CEO (n=1)	CIO (n=4)	CFO (n=3)	Director responsible for regulatory reporting (n=13)
1-3	1	1	3	6
4-6		3		3
7-14				2
>14				2
Days used to submit COREP vs Responsible for COREP				
1-10	1	3	2	5
11-25		1		7
26-50				1
>51			1	
FTEs * days = work days used to submit COREP vs Responsible for COREP				
1-50	1	3	2	7
51-150		1	1	3
151-300				1
>301				2
Foreign country positions in COREP vs Responsible for COREP				
1-20	1	3	1	2
21-40			1	3
61-80				2
81-100			1	
100-		1		6

Table 5-3 Timely effort versus workload on submitting COREP

FTE and days used in COREP submission process tells how much timely effort is given to COREP reporting in participant banks. However, foreign country positions in COREP report tells the level of investments' country specific diversification. The number of positions means

the same as the number of countries the banks have open positions in. In COREP, each country is a separate sheet showing open positions in certain country. Thus, it is a good measure as it gives some guidance about the workload banks have with their COREP submission. As said earlier, the third measure combines the FTEs and days of submitting COREP into one table, in order to be comparable with foreign country positions in COREP submission, and to validate that the workload and time used in COREP submission will correlate.

The correlation between work days used to submit COREP report and foreign country positions in COREP is obvious, the more positions a bank has the more work effort they need to use to fill COREP. Additionally interesting fact was found, banks that have director responsible for regulatory reporting in COREP have on average bigger teams in COREP report creation than banks that have chief executives responsible for COREP.

Responses from days used to submit COREP to the local FSA might be invalid due to the fact that question is set poorly. “How many days full-time employees are using for finalizing the COREP reporting?” It can be understood both correctly, to calculate simply the days, and incorrectly, to multiply FTEs and days. If participants have understood question incorrectly, then results presented in Table 5-3 are distorted, but it seems like most of the participants have correctly understood the question, as the results are reasonable. Interview participant had understood the question initially wrong, multiplying FTEs and days. When looking into the data, their answer was the only one that was distorted from other responses. Now the interview participant’s response is corrected and it is in line with other responses.

5.3. Result

This subchapter reveals the results from the online tool’s question set and assessment of the interview. This chapter is divided to six subchapters, five explaining the contribution of the results from online tool’s questions to research propositions and explaining other findings and one chapter going through the interview, thus what has been difficult in XBRL and in COREP to the interview participant’s organization.

Eventually, the online tool resulted in 22 responses and one telephone interview. Online tool's responses revealed that 73 percent of the banks were using medium XBRL adoption, the bolt-on tool, and respectively 27 percent were using low XBRL adoption, the outsourcing option. Big and medium sized banks tend to use medium adoption. Whereas, small sized banks tend to use either low adoption in 50 percent of the cases or medium adoption in 50 percent of the cases. These results can be seen from left side of the Table 5-4 and in illustrated manner from Figure 5-1. More specifically, adoption level is compared to both managers responsible for COREP and to the size of the bank.

Data from Online Tool										
	Low adoption		Medium adoption		Big		Medium		Small	
CEO			1	4,5 %					1	10,0 %
CIO	1	4,5 %	3	13,6 %	1	16,7 %	1	16,7 %	2	20,0 %
CFO	1	4,5 %	3	13,6 %	1	16,7 %	1	16,7 %	2	20,0 %
Director	4	18,2 %	9	40,9 %	4	66,7 %	4	66,7 %	5	50,0 %
Big			6	27,3 %						
Medium	1	4,5 %	5	22,7 %						
Small	5	22,7 %	5	22,7 %						
Total	6	27,3 %	16	72,7 %						

Table 5-4 Data from online tool

Additional data was calculated to the right side of the Table 5-4, where on contrary the banks size is compared to managers responsible for COREP. These calculations show that small banks have reported as many executive level persons (5) as there is directors (5) responsible for COREP. While medium and big banks reported that their responsible for COREP was in 66,7 percent of the cases the director and only in 33,3 percent of the cases an executive level person. The conclusion from these figures is obvious: the bigger the bank is the higher is the percentage that a director for regulative reporting will be responsible also for COREP reporting.

The banks size classification to the Table 5-4 came from combination of balance sheet, operating profit and FTE figures used in Table 5-2. The classification to the adoption level as well as responsible person for COREP was taken directly from the response figures. The classification to adoption levels came from online tool's first question concerning the method of submitting the COREP files to local FSA. Low adopters tagged either "I fill manually the data in a word/excel

template provided by local FSA" or "I fill some data manually and some automatically from our software in a word/excel template provided by local FSA". Whereas, medium adopters tagged "I have a mapping tool (XBRL software) that converts our data into XBRL, afterwards I send the XBRL file to local FSA".

Figure 5-1 presents the online tool response distribution. The donut illustrates the same figures that are presented in left side of the Table 5-4. The central tier shows simply the amount and percentage of low and medium adoption as participant banks had no other adoption methods in use currently. Middle tier illustrates the amount of banks relative size in relation to both low and medium adoption. Thus, it reveals that all big banks, most of the medium banks and half of the small banks have adopted medium XBRL adoption level. In addition, in low XBRL adoption level there is only one medium sized bank and five small banks. External tier presents banks COREP responsible in relation to both low and medium adoption.

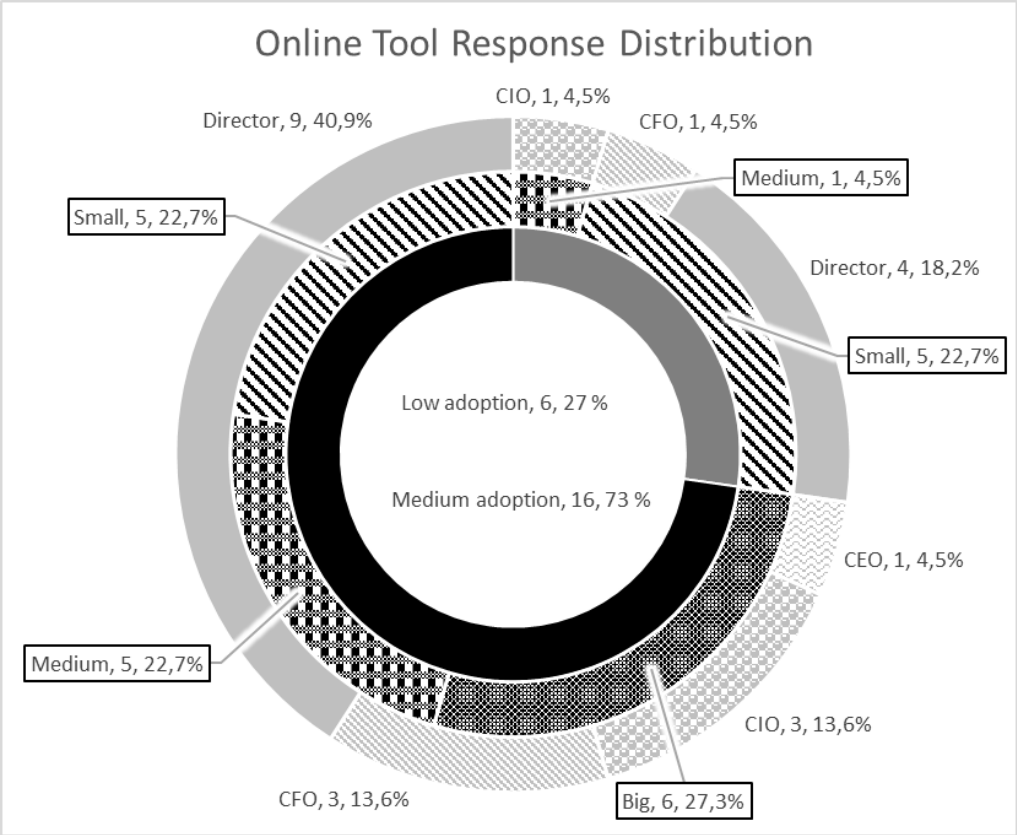

Figure 5-1 Online tool response distribution

5.3.1. Proposition 1: Most Banks Should Follow Evolutionary Path in XBRL Adoption If They Do Not Have Earlier Experience from XBRL.

Results show that first step for most banks (73%) have been medium adoption, whereas rests of the banks (27%) are in low adoption level. The responses did not reveal any banks that would have made transition from one XBRL adoption level to another. Nonetheless, these findings supports the "evolutionary path" idea presented in Figure 5-2, where banks increase their knowledge through practical learning and move forward as their organizational knowledge and readiness is in place.

However, XBRL became mandatory for FSAs' COREP submission to EBA in the beginning of 2014. Some local FSAs passed XBRL conversion responsibility straight to banks, but not all. In general, it can be said that banking fields' learning curve has not yet matured to take the step into advanced adoption.

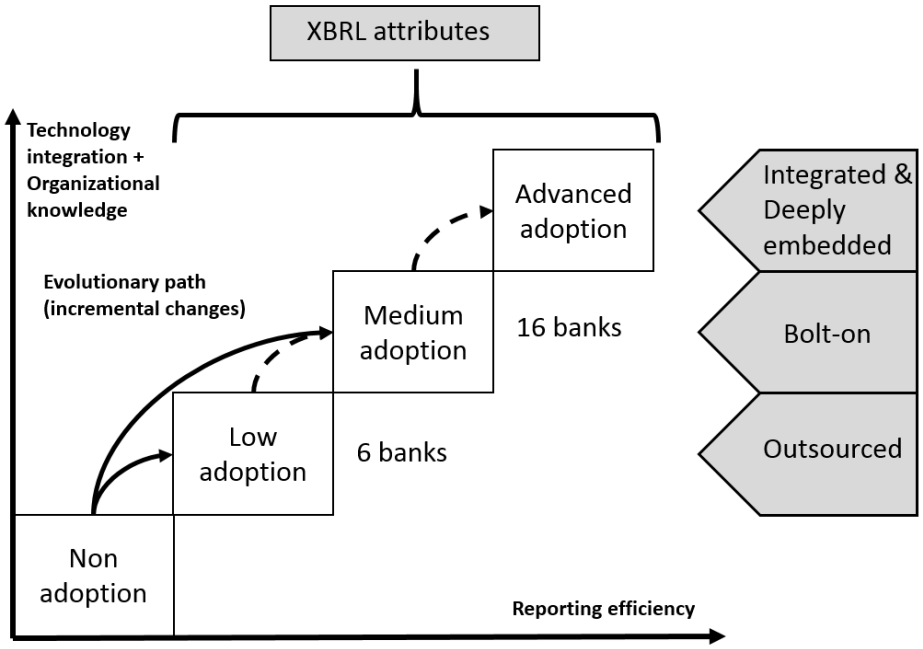

Figure 5-2 Results in framework

In Figure 5-2, the solid arrows represent the transitions that are reported from results of this research and the dotted line arrows represents possible future transitions in "evolutionary path".

Under these circumstances, proposition 1 is partly confirmed with the fact that online tool resulted zero transitions from low or medium adoption to other levels of adoption. Anyhow, all the responses resulted in transition from non-adoption to either low or medium adoption. This fact confirms that some banks have used more resources in XBRL adoption than others, giving medium adopters' COREP teams more XBRL knowledge. It also confirms that companies have started following the "evolutionary path" in XBRL adoption.

5.3.2. Proposition 2: Most of the Banks Have Started Their Regulatory COREP Reporting with Either Low or Medium Adoption.

As discussed and illustrated earlier in Figure 5-2, the results show clearly that all the companies participated in this study have started with either low or medium adoption. In practice, this means that medium adopters converts COREP data into XBRL file before sending it to the local FSA whereas, low adopters send the raw COREP data straight to the local FSA who are converting the data into XBRL on sight with their conversion (bolt-on) tool.

Hence, proposition 2 is fully confirmed, as all the banks have started their COREP submissions at latest in 2014 by either low or medium adoption tools.

5.3.3. Proposition 3: If a Bank Has Excellent Earlier experience About XBRL They Can Jump in Advanced Adoption by "One-shot".

Proposition 3 cannot be confirmed due to zero responses from advanced adopters and the low amount of responses (22) to the online tool. Another reason can be the fact that the banking industry does not have advanced adopters yet, but the transition has started through "evolutionary path".

One hypothetical reason for banks not to rush in major XBRL change in their IT by "One-shot" can be the fact that EBA has given lots of free space and liberty to the FSAs to change their methods to collect COREP reports from their banks. EBA have given guidelines and MS Excel template for collecting COREP from banks, but still local FSAs have the power to decide how to collect the COREP data from banks. Yet, banks have not been forced to build extensive systems behind COREP reporting as recently FSAs have used EBA's ready-made MS Excel template to

collect the data from banks. Banks only need to gather the data to the template and send it to the local FSA. Some banks might amend data (csv) into XBRL with their Bolt-on tools before sending it to the local FSA. Whatever the situation is currently in banks, the COREP procedure might not need extensive XBRL knowledge or systems from banks at this point of time.

Under these circumstances, proposition 3 is repealed with the fact that study resulted zero responses from advanced adopters. Yet, it seems that banks do not have excellent experience on XBRL.

5.3.4. Proposition 4: The Complexity of Adoption Level Correlates Significantly and Positively with XBRL Attributes.

Medium adopters have higher averages on each XBRL attributes than low adopters, meaning they agrees more about XBRL attributes validity than the low adopters do. Additionally, in most XBRL attributes the medium adopters have lower standard deviation than low adopters do. This means that medium adopters' opinions are closer to each other than low adopters'. This is also in line with the proposition 4: as the complexity of adoption level rises, the participants' thoughts on XBRL attributes grows significantly and positively. Furthermore, the increase in averages between medium and low adopters is significant. Table 5-5 presents participants' opinions on XBRL attributes.

All the other XBRL attributes' standard deviations are smaller within medium adopters, but accessibility. There is not that significant negative relation (-0,0851), but for somehow medium adopter participants have had more volatility in responses in this attribute than low adopters have had. The most significant positive difference between medium and low adopters' standard deviations has been in usability (0,473), transparency (0,3728), accuracy (0,3228) and understandability (0,178). These results show that the volatility of medium adopters' thoughts have converged more than low adopters thoughts have in these attributes.

However, when looked into averages in Table 5-5, only the understandability (3,8125) is below 4 (neutral), this can only mean that medium adopter participants thinks that XBRL is not understandable tool for them and that XBRL related exercises/courses/seminars should be more

available than they currently are. Medium adopters highest averages in XBRL attributes have been in accuracy (4,625), transparency (4,5625), comparability (4,375) and relevance (4,375). These results show that medium adopters agree that these four XBRL attributes are the most important ones.

Participants' opinions on XBRL attributes								
Adoption	Accessibility	Accuracy	Comparability	Relevance	Transparency	Understandability	Usability	Measure
Medium /	4	4,625	4,375	4,375	4,5625	3,8125	4,0625	average
Bolt-on	4	5	4	4	4,5	4	4	median
	1,4142	1,3102	1,4083	1,4083	0,8921	1,3276	1,3889	STDEV
Low /	3,1667	3,6667	3,3333	3,3333	3,0	2,6667	3,6667	average
Outsourcing	4	4	4	4	3,5	3	4	median
	1,3292	1,6330	1,5055	1,5055	1,2649	1,5055	1,8619	STDEV
Low-Medium	-0,0851	0,3228	0,0972	0,0972	0,3728	0,1780	0,4730	difference

Table 5-5 Participants' opinions on XBRL attributes

Eventually, the results signal that the correlation with medium XBRL adoption level and XBRL attributes is positive but moderate, not significant like proposition states. They are still greater than the correlation with low XBRL adoption level and XBRL attributes. This means that increasing complexity in adoption levels correlates moderately and positively with XBRL attributes.

Combination of XBRL attribute results and earlier research					
XBRL attributes	Respondents	TA	SF	FSA	NBPR
Accessibility		x			x
Accuracy	x	x	x	x	x
Comparability	x	x		x	
Usability		x	x	x	x
Relevance	x	x	x	x	
Transparency	x				
Understandability		x		x	

Table 5-6 Combination of XBRL attribute results and earlier research

Table 5-6 combines earlier XBRL literature on most important XBRL attributes, respondents opinions and Asatiani's (2012) findings on Tax administration (TA), Statistics Finland (SF), FSA and National Board of Patents and Registration (NBPR). Four of the seven attributes arise as

more valuable to respondents than other three attributes. This means that respondents' opinion differs from earlier literature.

5.3.5. Assessment of the Interview

The participant's bank is categorized as a medium sized organization in this study and they are using medium XBRL adoption, thus the bolt-on tool for XBRL conversion. Interestingly, participant stated that XBRL is only additional step for them and is used only mandatorily to fulfill regulatory requirements. Otherwise, XBRL is unnecessary tool for them as they have already good access to their reporting data. Participant said also that they generate over 1400 reports each quarter and that COREP added to this, even though it is a big one. In general, the bank has used their software provider for internal and external reporting for over seven years. Participant called their current software provider as their strategic reporting partner and therefore would not likely change their current reporting method only because of COREP.

Due to COREP report's extensive nature, bank's management has noticed that COREP gives more granularities of the bank's figures to the regulator. Participant says that this fact has made management more interested towards the figures send within COREP. Simultaneously, the reporting team has got bigger role in organization by educating management about the COREP figures.

What has been difficult in COREP?

When bank's local FSA informed that COREP reporting should be delivered in XBRL format, participant discussed with their software provider's representatives about their new issue with regulator. Software provider's representatives said that they will provide XBRL –enabled tool to bank before bank's first COREP submission in XBRL format. However, when participant's bank had less than one month to the deadline of the first COREP delivery in XBRL format, it looked like their software provider had issues with delivering XBRL –enabled tool for participant's bank on time. Participant's bank needed to discuss with another software provider for one time tactical COREP conversion into XBRL format in case their usual reporting software provider would not succeed delivering XBRL –enabled tool on time to the bank. Anyhow, their software provider managed to deliver the tool to participant's bank two weeks before first COREP

submission in XBRL format. Amazingly, participant's bank managed to deliver their first XBRL formatted COREP report on time to the local FSA.

What has been difficult in XBRL?

In the interview, participant mentioned that they have had only couple of known problems with COREP reporting and that most of them are related with EBA's XBRL taxonomy's fast update pace. According to participant, EBA had changed COREP related XBRL taxonomy three times in five quarters and at least one update will become in later 2015. These updates has brought difficulties for software provider, but so far they have been quick enough in updating XBRL –enabled tool for participant's bank. Thus, the updates have brought timely pressures also to participant's bank, as the XBRL –enabled tool has been also under update.

According to the participant, one minor thing caused problems initially to the software provider and the bank. The fact that all EBA's COREP taxonomy updates was supposed to save in software provider's tool in order for XBRL formatted report to form correctly if the bank needed to resubmit an old form to the regulator. Without knowing this fact, bank has delivered a COREP report in XBRL to the local FSA in format that was not readable for the local FSA.

Interview's key findings are firstly the fact that only one question was incorrectly answered in online question set. Secondly, bank's management has noticed that COREP report gives more granularities of the bank's figures to the regulator, thus management need also to devote their time on the education of COREP figures. Thirdly, only couple of known problems exists within XBRL, and all of them relate to the taxonomy updates. Lastly, the XBRL has been used only mandatorily in participant's bank.

5.3.6. Other Findings

Table 5-7 presents the responses to the question where participants were asked if their bank would be interested to take XBRL in use in other parts of business reporting. Participants replied in 45,5 percent of the cases "I don't know", 36,4 percent of the cases "No" and 13,6 percent of the cases "Yes". Participants were also asked to justify their "Yes" or "No" answers within open feedback field. CIOs' "Yes" answers were "*Solvency II (insurance reporting)*" and "*Include*

financial statements from customers (SME companies) in systems". Director's "Yes" answer stated "*FINREP*". Whereas, CIO's "No" answer were "*Lack of IT-resources and no identified value adding effects if XBRL would be taken into use*". Directors' "No" answers were "*We see no advantage in XBRL. We prefer XML-format*", "*Too complex and costly to implement and maintain*", "*Currently XBRL is built on top of other reporting processes, and doesn't as such add value to us*" and "*We don't see any value in it*".

These findings support the findings from XBRL attributes; accessibility, understandability and usability are in poor condition in XBRL according to average responses and open feedback.

XBRL's usage in other parts of business reporting						
	Yes		No		I don't know	
CEO					1	4,5 %
CIO	2	9,1 %	1	4,5 %		
CFO			2	9,1 %	2	9,1 %
Director	1	4,5 %	5	22,7 %	7	31,8 %
Total	3	13,6 %	8	36,4 %	10	45,5 %

Table 5-7 XBRL's usage in other parts of business reporting

Participants had similar thoughts about XBRL's usage in general, 86,4 percent of the respondents agreed that their bank is using XBRL for mandatory regulatory purposes for example to COREP. Thus, 63,6 percent disagreed that they would use XBRL voluntarily for other external purposes for example with trading partners. Additionally, 68,2 percent disagreed using XBRL voluntarily for internal purposes.

These results illustrate the significant unwillingness for voluntary XBRL usage at this point of time, but agree with earlier literature in regulators power to boost the technology usage in private companies.

6. CONCLUSIONS

The final chapter of this research consists of conclusions from the results presented above, and limitations and suggestions for future research. The conclusions chapter will begin with a general picture on the key results and findings. This is followed by the managerial findings, limitations and suggestions for future research.

6.1. Conclusions

This research set out to examine the XBRL implementation methods within COREP reporting inside European banking industry. The objective was to learn about European banks' XBRL implementation methods and to explore if there are field wide transitions in them. Based on earlier research on XBRL and incremental versus radical change in technology adoption, a research framework and four propositions was generated.

The nature of the study was exploratory, as the objective was to find XBRL implementation methods for European banks to submit COREP reports to local FSAs as well as transitions in the methods. This research' subject has not been studied in earlier literature, thus it gives a basis for further studies about transitions in XBRL adaption methods or studying patterns in transitions. The research framework can also be used generally in any technology adaption methods, seeking for transitions in adaption methods for IT and searching for patterns in transitions in IT adaption methods. This can be done with minor changes to the framework.

The framework's literature has been built by combining earlier research and theories on XBRL to the theory of incremental versus radical change in technology adoption. The earlier research on XBRL gave the idea of developing four distinctively different layers for XBRL adoption methods, which are embedded to the propositions 1 and 2. The methods used in this research are adopted from Garner et al (2013) research: nonadoption, low adoption, medium adoption and high adoption (advanced), presented in Table 2-4. These adoption methods are then combined to studies by Garbellotto (2009a, b, c) and Henderson et al (2012) in order to get holistic picture of different angles of XBRL adaption methods.

The results of this study show that banks in Europe are using low adoption (27 %) referred also to outsourcing and medium adoption (72 %) referred to bolt-on tool by Garbellotto (2009a). The outsourcing in this case means that these banks are using FSA's readymade excel template where they collect needed data and then send normal excel file to the local FSA. FSA then takes care of the data conversion to XBRL. Whereas, the bolt-on tool means that banks are using FSA's readymade excel template to the data collection and before sending file to the local FSA bank is transforming the data into XBRL with their bolt-on tool.

The other side of the theoretical framework was to compare the significance of the change in technology adoption through two different strategies: "evolutionary path" and "one shot". These strategies are embedded into the propositions 1 and 3.

Third body of the framework was to learn recipients thought on XBRL attributes presented in earlier XBRL related literature. Attributes are embedded to the proposition 4.

6.2. Managerial Findings

Only one research proposition (P2) was fully supported with the results from the empirical study. Proposition 2 stated that most of the banks have started their regulatory COREP reporting with either low or medium adoption. Actually, all banks responding to questions had started COREP submission in XBRL language with either low or medium adoption level.

Two propositions (P1 & P4) were supported partly with the results from the online tool. Proposition 1 states that most banks should follow "evolutionary path" in XBRL adoption if they do not have earlier experience from XBRL. This proposition was supported only partly, because there were zero banks responding about the transitions in XBRL implementation methods, but all the banks had started with either low or medium adoption level. Whereas, proposition 4 stated that the complexity of adoption level correlates significantly and positively with XBRL attributes. Reason for responses to support this proposition only partly was, because the results shows that increasing complexity in adoption levels correlates moderately and positively with XBRL attributes, not significantly and positively. The most famous and important attributes for medium

adopters were accuracy with average of 4,625, transparency with average of 4,5625, comparability and relevance both having average of 4,375.

One proposition (P3) was not supported at all with the results from this research. Proposition 3 stated that if banks have excellent earlier experience about XBRL they can jump in advanced adoption by “One-shot”. This proposition was not supported, because online tool resulted zero responses about transitions to advanced adoption. This result was expected because COREP reporting in mandatory XBRL filing from FSA to EBA has not yet matured in banks.

The results of this study have supported the proposed theoretical framework, although the XBRL have not yet matured in banking industry in Europe. Results helped to recognize the importance of each factor and component of the framework. Respondents had not only clear opinion on method they use to submit COREP, but also on XBRL attributes. Four of the seven attributes arise as more valuable to respondents than other three attributes, meaning that respondents’ opinion differed from earlier literature.

Interview resulted valuable information about the implementation of XBRL in COREP reporting. Interview participant stated that recently managers’ interests towards COREP reporting have increased because regulative reporting is more extensive and gradual than before. Therefore, managers need to know what kind of information is returned to regulators. Participant additionally said that their XBRL software vendor has been through hard times because EBA has updated COREP related XBRL taxonomy so often. As a specific example, participant mentioned that within five quarters, starting from January 2014, EBA has updated COREP taxonomy three times and in July 2015, there will be a new update available. Every update means lots of work for XBRL software providers, as they need to synchronize their XBRL conversion tools always with newest taxonomy.

To sum up, this study reveals the XBRL adaption methods for European banks for submitting COREP to local FSAs. Furthermore, this paper has developed a useful framework for examination of technology adaption methods, transitions in technology adaption methods and patterns in technology adaption methods’ transitions. This way the thesis has contributed on

earlier XBRL research as well as in technology adaption research, opening a new gate for further studies on technology adaption, transitions and patterns.

6.3. Limitations and Suggestions for Future Research

Although the research has achieved its goal to answer to the research questions that was placed in the beginning of the paper, it still has its limitations. These limitations are presented in this chapter as well as the suggestions for future research.

The research is limited in COREP reporting within European banks. The link to the online tool was probably not distributed in each bank inside Europe, only those who have been at Eurofiling distribution list on February 2015.

The research is exploring mainly the XBRL adoption methods, transitions and patterns in them on the surface, not the causalities affecting on them and it does not take into account how the adoption process actually goes through in an organization. Additional effort is given to the XBRL attributes, which were compared to earlier literature. The nature of the research is exploratory and qualitative, even though the online tool question set was distributed, the results can only have limited generalizability. Besides, the low number of responses and in-depth interview justifies the qualitative aspect of this research. Obvious limitation for propositions 1 and 3 came from non-matured XBRL usage in European banking sector.

The participants answering to the online tool's questions are considered to be experts in XBRL as they are either responsible for COREP reporting or members in their bank's COREP reporting team. For the sake of finding causalities in their decisions on adaption methods, it would be appropriate for interviewing all the participants or their teams in person. However, all of the evaluations about the importance of each component of the framework are based on participants' points of view on certain components.

There are numerous good future research possibilities in XBRL literature. Firstly, this study concerns only XBRL providers, the ones who make the reports for someone, in this case to local FSAs. It would be interesting to know how other continents' banks have adopted XBRL into use,

and if they have witnessed any field wide standard transitions or patterns in XBRL adoption methods. Secondly, it would be interesting to do a similar study, as present is, to Europe in the future as soon as the XBRL has matured ideally and practically in provider organizations, and use this research's results as a basis for the research. Maybe then, the research would find transition or even patterns in XBRL adoption methods. Thirdly, to explore the organizations reasons for making transitions from one XBRL adoption method to another, with this information other fields could learn how the implementation process has been done in XBRL pioneer industries. Lastly, XBRL's adoption methods in other industries should be studied more to increase the academic knowledge on practical side of XBRL adoption as soon as it is possible. In Europe, publicly listed companies start XBRL filing in 2020.

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APPENDICES

APPENDIX A: COREP REPORTING METHODS FOR BANKING FIELD IN EU, CASE XBRL

Aalto University
School of Business

COREP reporting methods for banking field in EU, case XBRL

In 2006, Committee of European Banking Supervisors (CEBS), currently European Banking Authority (EBA), developed guidelines for Common Reporting (COREP). COREP is a standardized reporting framework following EU wide Capital Requirement Directive (CRD) and Capital Requirement Regulation (CRR). CRD IV and CRR have been created to serve global BASEL III agreement. Outcome of the COREP was to deliver a prudential reporting scheme for institutions to communicate their results in a standardized way. The COREP reporting covers credit risk, market risk, operational risk, capital adequacy and large exposures (own funds) based on the Directives 2006/48/EC and 2006/49/EC. Almost 30 countries in Europe are using COREP reporting and around 8.000 banks, building societies and investment firms report it to their local Financial Supervisory Authority (FSA) quarterly. Currently, EBA demands local FSAs to send COREP reports they receive in XBRL format. However, local FSAs do not need to collect COREP reports in XBRL format.

XBRL (eXtensible Business Reporting Language) is the open international standard for digital business reporting, managed by a global non-profit consortium, XBRL International. An XML-based computer language enables data to be tagged and later stored as well as retrieved from a financial database. The XBRL is a standards-based way to communicate and exchange business information between business systems. Moreover, XBRL tags make the data understandable, readable, and searchable for both computer, and human. One use of XBRL is to define and exchange financial information, such as a COREP (Common Reporting) report.

The objective of this questionnaire is to collect information about the ways banks in Europe creates COREP report to local FSA and have they changed the way they create COREP report over time.

Disclosure: The questionnaire is used only for research purposes. Responsible for the research is the department of Information and Service Management at Aalto University School of Business. Persons answering to this questionnaire keeps full anonymity and confidentiality.

General questions concerning the COREP reporting in your organization

1. How does your company create COREP report that is sent to the local Financial Supervisory Authority (FSA)? *

- I send the COREP report to the local FSA in paper format
- I go to FSA web portal and insert the data manually
- I fill manually the data in a word/excel template provided by local FSA
- I fill some data manually and some automatically from our software in a word/excel template provided by local FSA
- I have a mapping tool (XBRL software) that converts our data into XBRL, afterwards I send the XBRL file to local FSA
- I use accounting system that have XBRL functionalities built-in, reporting in XBRL format is totally automated also to local FSA
- I don't know
- Something else

2. When did your company started using this method for COREP reporting (year)? *

3. If your company produces XBRL document with some software for the local FSA, please enter the software provider's name you are using currently.

Previous methods for delivering COREP to local FSA

4. Has your company changed COREP reporting method to FSA over time? *

- No
- Once
- Twice
- Three times
- More than three times

5. If your company's COREP reporting method to FSA have changed over time, how did your company created COREP report earlier to local FSA? Sort your company's previous reporting methods to the list by starting from previous (max 5 strategies) and insert the year your company started using that method. *

	1. (previous)	2.	3.	4.	5.		
I sent the COREP report to the local FSA in paper format							Year
I went to FSA web portal and inserted the data manually							Year
I filled manually the data in a word/excel template provided by local FSA							Year
I filled some data manually and some automatically from our software in a word/excel template provided by local FSA							Year
I had a mapping tool (XBRL software) that converted our data into XBRL, afterwards I sent the XBRL file to local FSA							Year
I used accounting system that had XBRL functionalities built-in, reporting in XBRL format was totally automated also to local FSA							Year
Something else							Year

6. If you answered something else in to previous question? Please describe what else?

7. What was the name of previous XBRL software providers? (start from previous...)

1.

2.

3.

4.

5.

Additional information

8. Who is responsible in your company to make the decision how COREP report is made for the local FSA? *

- CEO
- CIO
- CFO
- Director responsible for regulatory reporting
- Someone else?

9. Please evaluate have the following accounting attributes improved through the use of current COREP reporting method in your company? *

	1 (strongly disagree)	2 (disagree)	3 (slightly disagree)	4 (neutral)	5 (slightly agree)	6 (agree)	7 (strongly agree)
Accessibility (accounting management and accounting data of my company is more accessible to me, independent of my location, software or devices I use)							
Accuracy (less errors in the accounting process)							
Comparability (easier to compare the data from different sources and periods)							
Relevance (easier to find and retrieve relevant accounting data and/or process when needed)							
Transparency (the accounting process has become more transparent, making it easy to observe and track all the steps in the process)							
Understandability (acconting data has beocme easier to understand and manipulate to the stakeholders not involved in the accounting process directly, for example higher management, or owners)							
Usability (easier to process, compare and use accounting data for the work purposes)							

10. I think that... *

	1 (strongly disagree)	2 (disagree)	3 (slightly disagree)	4 (neutral)	5 (slightly agree)	6 (agree)	7 (strongly agree)
I have enough information about XBRL							
XBRL brings value in our regulative reporting							
XBRL brings value in our internal reporting							
XBRL brings value in our stakeholder reporting							

11. If your company uses XBRL, you use it to/for... *

	1 (strongly disagree)	2 (disagree)	3 (slightly disagree)	4 (neutral)	5 (slightly agree)	6 (agree)	7 (strongly agree)
Mandatorily for regulatory purposes (COREP)							
Voluntarily for other external purposes (trading partners)							
Voluntarily for internal purposes							

12. If your company uses XBRL, you use it internally to/for... *

	1 (strongly disagree)	2 (disagree)	3 (slightly disagree)	4 (neutral)	5 (slightly agree)	6 (agree)	7 (strongly agree)
Archive our financial data							
Facilitate data transfer between different systems							
Consolidation purposes							
Provide an audit trail							
Facilitate continuous auditing							
Generate information for our tax filings							
Prepare financial reports in multiple languages							

13. Is your company interested in taking XBRL into use in other parts of business reporting? If YES, in which business reporting areas? If NO, why? *

- Yes
- No
- I don't know

Amount of employees and days used in finalizing COREP reporting for FSA (discluding data formation from data warehouses)

14. How many full-time employees are finalizing the COREP reporting for local FSA in your company? And how many days they are using for finalizing the COREP reporting. *

Number of FTE

Number of days

Background information

15. How many foreign country positions did your company had in previous COREP?

- 1-20
- 21-40
- 61-80
- 81-100
- 100-

16. Please select country your company locates: *

Austria

17. What is your company's operating profit (Million euros) 31.12.2013? *

<1

18. What is the size of your company in terms of employees on payroll 31.12.2013? *

<1000

19. What is your company's balance sheet value (Million euros) 31.12.2013? *

20. In order for the research to give qualitative results we will make ten to twenty telephone interviews. If you are willing to give us max 30 minutes telephone interview, insert your email address below. We will then contact you and arrange time for the interview.

Email

Questionnaire has ended. Thank you for your answers! Remember to send your answers by pressing SUBMIT -button.

APPENDIX B: CONTACT LETTER FOR FSA

Sent:
16.-17.2.2015
To:
Straight FSA contacts around the Europe
Subject:
Online survey: COREP reporting methods for banking field in EU, case XBRL
Text:

Hello xxxx,

yyy yyyyy (Federation of Finnish Financial Services) gave me your email, as I am doing academic study (Master's thesis) on COREP reporting. She told me that you might help me distributing my online survey to local banks in your country?

I am investigating banks' XBRL implementation methods in COREP reporting. It is very important to study XBRL implementation methods in European banking field as they are pioneering XBRL usage in Europe. Understanding the ways banks have implemented XBRL into their organizations will help other fields to take advantage of the existing XBRL knowledge.

Survey contains questions about the XBRL implementation methods and XBRL usage in general level. Answering will take approximately 10 minutes. Survey link is available until 13.3.2015. Survey should be addressed to persons responsible for COREP reporting in banks. Survey should be distributed as soon as possible.

As soon as the study is ready, it will be available at http://epub.lib.aalto.fi/fi/ethesis/. If you are interested to get summary of the results, please contact me. Please find attached message to recipients, containing the link to online survey.

If you have any questions, don't hesitate to ask. Thank you in advance for your help!

Best regards,
Teemu Kettula
Aalto University School of Business
Information and Service Management

APPENDIX C: CONTACT LETTER FOR BANKS & EUROFILING LIST

Sent:
2.3.2015 (16.-17.2.2015)
To:
Eurofiling distribution list (Straight bank contacts around the Europe)
Subject:
Online survey: COREP reporting methods for banking field in EU, case XBRL
Text:

Dear recipient,

I am doing research on the COREP reporting methods in banking industry inside EU area. Questionnaire is made only for banking field, so if you are not working in bank, please do not answer to this questionnaire. Thus, if you are not the correct person in your bank to answer COREP reporting related questions, could you please send this email to the person who is responsible for COREP in your organization? Thank you.

XBRL (eXtensible Business Reporting Language) has been taken into use in Europe first by regulators in banking field through the Common Reporting (COREP), solvency reporting. Therefore, XBRL reflects to European banks, driving the field to take XBRL into use at least in their regulative reporting. This study investigates banks' XBRL implementation methods in COREP reporting. It is very important to study XBRL implementation methods in European banking field as they are pioneering XBRL usage in Europe. Understanding the ways banks have implemented XBRL into their organizations will help other fields to take advantage of the existing XBRL knowledge.

Survey contains questions about the XBRL implementation methods and XBRL usage in general level. Answering will take approximately 10 minutes. Survey link is available until 13.3.2015. As soon as the study is ready, it will be available at http://epub.lib.aalto.fi/fi/ethesis/. If you are interested to get summary of the results, please contact me by email.

Please find attached online survey link: https://www.webropolsurveys.com/S/8792D9D4F1CBE38B.par

The questionnaire is used only for research purposes. Responsible for the research is the department of Information and Service Management at Aalto University School of Business. Persons answering to this questionnaire keeps full anonymity and confidentiality. Recipient or organization cannot be connected to the statistical analysis. If you have any questions concerning the study, I will gladly answer in them. Contact: teemu.kettula@aalto.fi.

Your answers are very important to the success of the study. Thank you for your valuable answers to the survey in advance!

Best regards,
Teemu Kettula
Aalto University School of Business
Information and Service Management

APPENDIX D: REMINDER CONTACT LETTER TO BANKS AND EUROFILING LIST

Sent:
9.3.2015
To:
Eurofiling distribution list + other relevant contacts
Subject:
REMINDER: Online survey: COREP reporting methods for banking field in EU, case XBRL
Text:

Dear recipient,

This email is a reminder for online survey participation for those bank representatives who have not yet answered to COREP reporting methods for banking field in EU, case XBRL -online survey. **DEADLINE for answering to the online survey is 13.3.2015.** Answering will take approximately 10 minutes.

I am doing a research on the COREP reporting methods in banking industry inside EU area. If you are not the correct person in your bank to answer COREP reporting related questions, could you please send this email to the person who is responsible for COREP in your organization? Thank you.

Please find attached online survey link: https://www.webropolsurveys.com/S/8792D9D4F1CBE38B.par

The questionnaire is used only for research purposes. Responsible for the research is the department of Information and Service Management at Aalto University School of Business. Persons answering to this questionnaire keeps full anonymity and confidentiality. Recipient or organization cannot be connected to the statistical analysis. If you have any questions concerning the study, I will gladly answer in them. Contact: teemu.kettula@aalto.fi.

Your answers are very important to the success of the study. Thank you for your valuable answers to the survey in advance!

Best regards,
Teemu Kettula

Aalto University School of Business

Information and Service Management