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**Procurement contract practices in construction
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TIIVISTELMÄ:

Sopimuskäytännöt ovat yksi tärkeä tekijä yrityksissä, joiden liiketoiminta on kansainvälistä. Tämä tutkimus käsittelee sopimusten roolia projekti liiketoiminnassa. Tavoite on tutkia sopimuskäytäntöjä rakennusalan yrityksessä, jonka liiketoiminta on projektiperusteista. Tässä tutkimuksessa parhaita sopimuskäytäntöjä tutkitaan kirjallisuuden- ja muun datan analysoinnilla, sekä alan henkilöiden haastatteluilla.

Erimielisyydet liiketoimintaan liittyen hoidetaan oikeudessa, elleivät sopimusosapuolet muulla tavoin pääse yhteisymmärrykseen. Henkilön, joka laatii sopimukset on hyvä tuntee maan oikeuskäytännöt. Sopimuksessa voi olla ehtoja, jotka eivät oikeudessa pidä. Nämä ovat ehtoja, joita ei ole syytä sopimukseen kirjoittaa, sillä niiden pitävyyteen riitatilanteessa ei voi luottaa.

Yksi tutkimuksen tuloksista sopimuskäytäntöihin liittyen, on sopimuksen kirjallinen muoto. Sopimuksen kuuluu olla mahdollisimman selkeä, ja riittävän hyvin määritelty. Ehtojen riittävän selkeä ja tarkka määrittely vähentää osapuolten väärinymmärryksiä, ja näin ehkäisee riitatilanteita. Sopimusta laatiessa on myös hyvä varmistua siitä, että molemmat osapuolet ymmärtävät velvollisuutensa ja oikeutensa. Yksi päätavoite sopimusta laatiessa on minimoida väärinymmärryksen mahdollisuus, ja minimoida informaationaalinen epätasapaino osapuolten välillä. Selkeän sopimuksen tärkeys korostuu kansainvälisessä liiketoiminnassa. Kansainvälisessä liiketoiminnassa molemmat osapuolet joutuvat mahdollisesti toimimaan vieraalla kielellä, jolloin kielen aiheuttaman väärinymmärryksen riski kasvaa.

Tutkimuksen tulokset myös korostavat yksityiskohtien merkitystä sopimuksissa. Yksityiskohtat ja lauseen muotoilut ovat tärkeitä, sillä lauseen muotoilu voi vaikuttaa lauseen merkitykseen, ja näin vaikuttaa myös osapuolten velvollisuuksiin ja oikeuksiin sopimusehdoissa. Sopimuksen tulisi aina olla laadittuna selkokielellä niin, että molemmat osapuolet ymmärtävät toistensa oikeudet ja velvollisuudet. Sopimuksen tavoitteena tulisi myös olla riitatilanteiden ennaltaehkäiseminen.

Keywords: Contract practices, contract law, sourcing contracts, subcontracting

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1 Introduction

1.1 Objectives and limitations

The aim of this research is to analyze contract practices in project-based business and find best practices in it. Main aim is construction business, as case company is from this industry, but this research and its results are not limited to only benefit construction industry. Main research questions are “What are best contract practices in project-based business?” and “How to make good contracts in construction business?”. Aim is to investigate and analyze researches, books and other literature which are related to this topic. Topics related to these questions, and presented in literature review are contract law, construction production, supply chain and risk management with contracts. Based on literature and interviews, this research also tries to find answer to questions “Is it possible to use same contract practices between different market areas?”, “What is effect of local law, can contract have terms which are in conflict with governing law?”, “What is contracts’ role in inventory management and material timing?” and “What is contract’s role in project-based supply chain?”. With main focus in contracts and procurement, this study can be seen as research of impactful topic. According to (Xianbo et. Al.2014) construction projects involved in their research had highest level of frequency in contractual risks, with procurement risk frequency being second highest.

Aim of this research is to focus only on project-based construction business and to structure production related to it. Focus is especially on sourcing. This research does not include other industries. Aim is to analyze special needs of construction business and projects in it.

This study is limited to following market areas which are most important for case company. These market areas are Lithuania, Poland, Czech republic and Nordic countries

excluding Denmark. Nordic countries have stonger focus to Finland, but as nordic country practices suggest, there are lots of similiarities between nordic countries.

1.2 Structure of the study

Structure of this study is following:

1. Introduction

This section has short description about background and contents of study. It describes main objectives and limitations of this study.

2. Literature review

Literature review is section where earlier studies and other material i.e. books related to topic are analyzed. Everything handled in this section is related to objectives of this study.

3. Research methods and data

Research methods and data section describes methods used to gather data for this study, and how it is analyzed. It describes tools, methods and processes used in this study.

4. Empirical findings

Empirical findings is section which is section which includes answers to research questions. This section has large description about answers and resolutions to research questions.

5. Conclusions

Conclusions part concludes whole study. In this section findings of this study are concluded and compared to literature review

2 Literature review

Literature review of this study is mainly focused on research which is maximum 10 years old, journals and articles which are peer reviewed as well as books related to research subjects. However, there are some situations where fresh information was not found, and therefore in some cases also information which is older than 10 years is used. Main database used in this study is Finna. Other databases used in this study are Ebook Central, EBSCO Host, Emerald Journals, Emerald Ebooks, ScienceDirect. In addition to online databases, hardcopy books loaned from various libraries are also used.

2.1 Contract basics

Contract in construction business is basically agreement between supplier and customer. Contract can have many kind forms. It can be short letter, document made for one specific case or agreement made in negotiations between both parties. However, in large projects contracts are usually more specific and made by lawyer. Basically, there are always some negotiations between parties before contract is made. Contract is overcome of negotiations. It usually contains specific information about agreed quality, schedule, possible drawings, pricing, and of course exact subject of contract. (Bielefeld, 2018, p. 9-11.) Contract doesn't need to be written contract. Binding contract can be formed without any written documents, if contract is not in written form, it might be hard to provide evidence about agreed matters in case of dispute. Contract can also be offer from supplier which purchaser has accepted. (McGuinness, 2007, p.10)

2.1.1 Different types of contracts

As described above, contract may have many forms. In this section there are different contract types listed and explained which are related to topic of this research.

2.1.2 Framework agreement

Framework agreement is agreement which is intended to be used as a long-term cooperation agreement. It is often used when one supplier supplies products which are similar to each other. It is not intended to be used in situations where supplier only supplies single set of items or services. (Glover, 2008) Framework agreement is an umbrella agreement which can be referred when making call-offs or enquiries. Framework agreement should not be in conflict with possible underlying contract. (Glover, 2008)

2.1.3 Unit price contract

Unit price contract, in other words measurement contract are contracts where sum of that contract is based on units delivered. Sometimes this quantity can be estimated in order, and then invoiced based on actual quantity of delivered units. (Bielefeld, 2018,p.18) If contract between contractor and client is based on estimated amount of units, and payment is based on actual delivered units, final price of that contract's subject might change. This however requires contract to have mention that payment is made based on actual supplied units. Contract itself can still have estimation of quantity, though this quantity might change. This leaves quantity risk of contract to client. (Bielefeld, 2018,p.18)

2.1.4 Lump sum contract

In comparison to unit price contract, lump sum contract is type of contract which leaves quantity risk to contractor instead of leaving it to client like unit price contract (Bielefeld, 2018,p.20). In lump sum contracts client pays lump sum which reduces risk for client, but also means that client cant benefit from situations, where actual cost of subject agreed on has lower costs than initially estimated. (Bielefeld, 2018,p.20) Lump sum contracts can also have payment plan. This means that the sum of that agreement is paid in parts according to payment plan. Payment plan is based on schedule of contract's subject, and therefore payments will follow completion and schedule of that subject. (Bielefeld, 2018,p.21)

2.1.5 Hourly rated contract

In hourly rated contract payment is made based on work hours used to complete subject of contract. According to Bielefeld (2018, p.22) this contract type is suitable especially to small jobs or jobs which can't be described or estimated properly. It is also contract type which is suitable for projects which consist mainly of labor work. In hourly rated contracts materials and used equipment is invoiced separately. (Bielefeld, 2018,p.22)

2.1.6 Preliminary contract

Preliminary contract is one type of contract used in project business. (Kiiras et. Al., 2019,p.77) Preliminary contract is often used in situations where planning of construction project details are not ready, and in too early stage to define exact target. For preliminary contract it is common that target price will be defined during the project as a financial motivator. (Kiiras, et. Al. 2019,p.77) Contract about the project itself can be

agreed with appendix to preliminary contract. Preliminary contract can have definitions which state required conditions for project contracts formation. Example of one of this kind of condition is building permit or agreement of target price. If project cant get a building permit, or contract parties cant get to agreement about target price, preliminary contract will be terminated (Kiiras et. Al. 2019, p.77) Based on this, preliminary contract can be seen as contract where parties agree to start planning the project together.

2.2 Contracts in construction business

Construction industry is relatively large industry. Construction industry is basically involved with all the other industries. Industries like television manufacturer, medicine developers, health care, power plants and as basic thing as roads are all involved with construction industry, because they need factories, hospitals, development laboratories, warehouses, roads and other infrastructure. (Klee, 2018,p.1-5.) This is why construction business itself is very diverse industry because different projects have different aspects. Because of this diversity construction business needs different kinds of contracts to apply for its diverse processes. (Klee, 2018,p.1-5.) (Sears, et al., 2015, p.3)

Construction projects usually include lots of workers from different fields. In one construction project there can be lawyers, banks, bond issuers, construction workers, engineers involved. Construction projects are usually also subject to many different kind of factors. Changing factors for one construction project can be weather, availability of materials, availability of workers, possible transportation problems and many others. (Sears, et al., 2015, p.3)Construction projects are individual large processes, which include lots of smaller processes. As Klee (2018, p.2-3) describes: *“A construction project is specific process or, rather, a sum of many processes. Mostly, it is an individual process.”* This sentence describes complexity of most of the construction projects. Construction projects have their individual needs which may sometimes be completely different from the other one. This also means that there are lots of different materials needed in

construction site. Some of those materials are simple to purchase, and some which are more complex are safer to purchase with agreement. (Klee, 2018,p.1-5.) Therefore, each construction project can be described as unique. (Sears, et al., 2015, p.3) (Olsson, 1998, p.3) Uniqueness of construction projects are described by Sears et. Al.(2015,p3.), construction projects have their own individual factors, which are tailored especially for one individual project, like structures.

As example model of contract formation for construction project Bielefeld (2018,p.23) presents following figure:

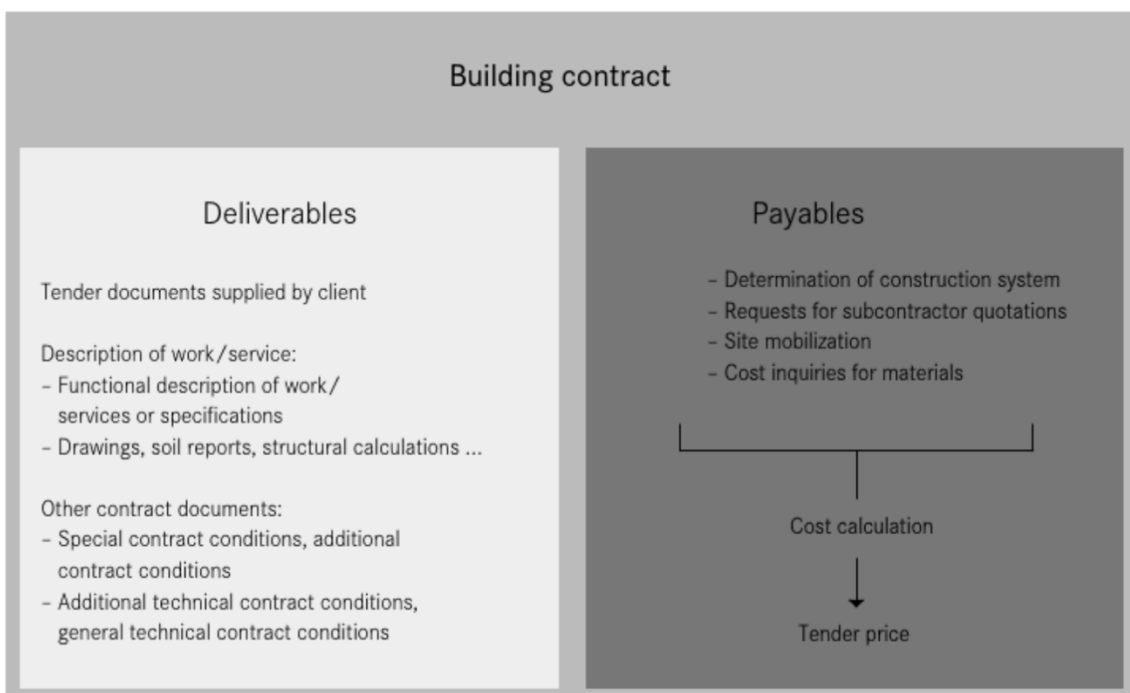


Figure 1, Building contract (Bielefeld,2018,p.23)

This figure divides structure of contract to two different sections, deliverables and payables. Things in this figure are basic components of contract. Basic things in contract are description of subject, definitions of subject and requirements of subject. (Bielefeld,2018, p.23) As presented in figure 1. by Bielefeld (2018, p.23) these can be further described in contract itself or with other documents which are related to contract. These appendices can have detailed description of technical requirements, detailed drawings, calculations or any other document which is relevant and related to subject of contract. Other part of the contract, payables, is section which describes conditions for payment

based on delivered subject. This is about price paid for competition of subjects described in deliverables side. This price is based on deliverables side, and it can also have special conditions which contract parties have agreed. (Bielefeld,2018, p.23)

2.2.1 Procurement contracts in construction business

Procurement in construction industry is one of the key factors in terms of efficiency. Industry has been lately stagnating with hardly any increase in efficiency. According to Van Lith et. Al. (2015, p. 1033-1034) contractors in construction business spend *“up to 90 per cent of project turnover on buying goods or services”*. Therefore, with such substantial volume suppliers are important factor regarding project performance. In this same article Van Lith et.al. (2015, p.1034) conclude that main impending factors are poor communication and lack of proper documentation and formalization. They also state that companies are not properly benefitting from integrating suppliers to processes and partnerships with them. This is because most of purchases in construction industry is done project by project. Reason for this is flexibility which project-based purchasing grants. (Van Lith. Et.al. 2015, p.1049)

Contract in sourcing usually means contract between two parties where supplier commits to deliver agreed items to purchaser. These items can be materials or services. Methods for completing purchase and making contract can vary. Procurement contract can be individual document, which tells responsibilities of each party and items which are agreed to be delivered. (Aarto et. Al., 2009, p.13) In construction business sourcing can contain mainly services or material. In Finnish law these two are dealt differently. Procurement contracts for material purchasing are dealt with Trade act 1988/355 unless agreed otherwise. However, this trade act is relatively free formal law between two companies. When both parties are companies they can negotiate terms for their contract as they wish, with some exceptions considered. In Finnish law this trade act is

not binding completely, and companies may negotiate terms which are different from the trade act 1988/355. (Liuksiala & Stoor, 2014, p. 283-284.)

In addition to material purchases, there is contracting, which is one form of service purchasing. Contracting is widely used service used in construction business. When negotiating contract with contractors or sub-contractors law is different from material purchases. Even though in construction project itself or sub-project there are usually both, materials and services included, same laws cannot be applied completely. (Liuksiala & Stoor, 2014, p. 283-284.) In Finnish law YSE 1998, law of general terms and conditions for constructing is usually applied to construction projects. (Liuksiala & Stoor, 2014, p. 85.) This is mainly because of differences in these two categories. When purchasing materials, items can usually be returned if necessary, but when purchasing construction services from contractors situation is different. Service provided by contractor cannot be returned like materials can. Differences between these two laws needs to be taken into consideration, because contracting contracts usually contain both, services and materials. Contracting contract itself can't be in conflict between these two. (Liuksiala & Stoor, 2014, p.283-285.)

2.3 Risk management in projects

According to Xiang et. Al. (2012,p.1303), construction projects face a lot of different kind of risks. Effect of these risks vary. Some risks don't have as significant effect than others, but many of these risks that construction business faces have significant financial impact if subject of risk happens. In their study (Xiang et. Al., 2012, p.1303) risk is described as following: "*Risk is an uncertain event, which, if it occurs, has an effect (positive or negative) on one or more project objective*". Therefore, it is important for projects to manage these risks.

2.3.1 Contractual risk

One, but not the only one of those risks is contractual risk. (Xianbo et. Al., 2014,p.27) In research made by Xianbo et. Al. (2014) they made finding that contractual risk is risk with highest level of frequency in companies they interviewed and surveyed, with procurement risk being second one. This finding highlights importance of risk management, especially in these two categories, since according to their study, these can be found two most impactful risk categories.

According to survey made in their research by Xianbo et. Al. (2014), answers state that there are two principles regarding project risk management which rise above others. They made survey where respondent had to tell their level of agreement with statements presented in their survey. These two statements with highest level of agreement were *“There is no one-size-fit-all risk management program for construction projects”* and *“Risk management should be able to interoperate with other management theories and systems such as Total Quality Management.”* (Xianbo et. Al.2014,p.34) These findings suggest that each project has its individual needs and risks. Therefore, when considering right way to manage risks in one project, nature of that individual project needs to be taken into consideration. This finding in their survey is in line with statements made by Klee (2018,p.1-5.) and Sears, et al. (2015, p.3). Their statements are discussed further in section 2.2.

Another finding in their survey, which had second highest level of agreement suggests that project risk management should be involved in management of other areas in company. (Xianbo et. Al.2014,p.34) In their study (Xianbo et. Al.2014,p.34) it is also suggested that project risk management is significant factor in project, and it should be integrated in company's management as overall and should not be left only to concern of each individual project.

In their book Kiiras et. Al. (2019, p.77-81) they present contract practices to help prevent disputes in construction projects. According to them, most of the time reason for dispute is one of these: 1. Lack of guidance and unfinished planning 2. Failure to cooperate 3. Failure in dividing of the project 4. Contractual mistakes or lack of proper contract practices

Main reasons in disputes caused by unfinished planning are related to more specific details added when planning is made further. If planning is unfinished at the beginning, there might be additional costs added to project later when planning is made further. (Kiiras et. Al.2019,p.77)

Disputes related to failure of cooperation are mainly caused by lack of proper informative flow. In their book Kiiras et. Al. (2019) present a case where client organization was not fully informed about projects situation. In this case project was over budget, and management of client party found out that project was over budget, they terminated contract. They present this as example where contract parties could not trust to each other anymore, and reason for this was lack of proper informative flow.

Kiiras et. Al. (2019) wont provide example about situations where disputes are caused by failed project dividing, but they do present example about dispute caused by lack of proper contract practices. In this case disputes were caused by different opinions on how to apply laws and terms to project.

As a practices which help to prevent these disputes they have made two figures. Following figures is made by using their figures as reference. First figure will suggest actions for preventing disputes through contract, and second figure suggests actions executed during project.

Reason for dispute	Method	Suggested actions
Cooperation	Evaluating client, subject and processes	Evaluating uncertainty in project
		Finding out possible risks and problems related to project
		Finding out competence level of clients different organizational levels
		Clients methods for information and decision making
	Project personnel evaluating	Competence of project personnel
		Involving personnel from different fields into negotiations
Project's target inspection	Are targets reasonable?	
	Schedule and budget flexibility?	
	Possible conflict between project parties regarding project's targets	
Planning and guidance	Use of master plan method	Master plan inspection between parties
		Define plans which will be added later and details which will be defined later
		Defining planning responsibilities and management of planning
Contract practices	Details to be defined later, or added to contract	Define terms "will be defined later" and "will be added later" with examples
		Instead of word "is inclined", use clause "acknowledges and is inclined in terms of this contract"
		Definition of meeting methods
		General terms used in contract needs to be added as appendix
		Define which are reasons for changing or updating project plans

Figure 2., Preventing contractual risks before signing contract (Kiiras et. al.,2019,p.80)

Reason for dispute	Method	Suggested actions
Cooperation	Start-up meetings	Presentation of execution methods of project
		Presentation of project plan
		Division of responsibilities
		Agreeing on work and meeting methods
	Communication systems	Communication between key project parties needs to be planned
		Making sure that information flow about project's state is in order
	Project audition and maintenance	Audits
		All changes and updates to plan must be handled by project's management team
	Maintaining and building trust	Access to project plan must be provided to everyone working with project
		Reporting and processing of problems
Project start-up event		
Unfinished planning	Planning practices	Clear meeting methods
		Phasing of planning
		Dividing projects to simple phases and complex phases
		Planning schedule
		Procurement strategy
		Tender stage planning

Figure 3., Managing contractual risks during execution of project. (Kiiras et. Al.,2019,p.81)

In their book Kiiras et. Al. (2019) highlight the importance of preventing disputes with contracts before the actual project starts. They analyzed disputes in Finnish construction projects, and based on that analysis they concluded two figures, which are similar to figures 2. and 3. presented above, but with some differences. As a result of their analysis, most important factors in prevention of disputes is communication, cooperation and mutual understanding of project's plans and goals.

2.3.2 Informational risk

In their study where they research informational risks (Xiang et. Al. 2012) describe information as a factor, which reduces level of uncertainty and therefore, overall amount of risk will be reduced. They state that if project has complete information about everything, there is no risk, and if they have no information at all, risk is in its highest level. This describes the role of information as risk forming factor.

Xiang et. Al. (2012) analyze asymmetric information in their study. Generally everyone is exposed to asymmetric information, because of different information flows and distribution of information. Incomplete information as a risk formation factor they divide to symmetric and asymmetric information. Asymmetric information is related to behavioral risk, where decision making parties have different level of information and therefore more susceptible for risk created by behavior of decision makers. Symmetric information is more prone to objective risk, because with symmetric information parties don't have informational advantage over each other. However, this doesn't equal complete information. (Xiang et. Al. 2012, p.1305.) Below is a figure from their study, which describes relationship of incomplete information and its symmetric to project risk.

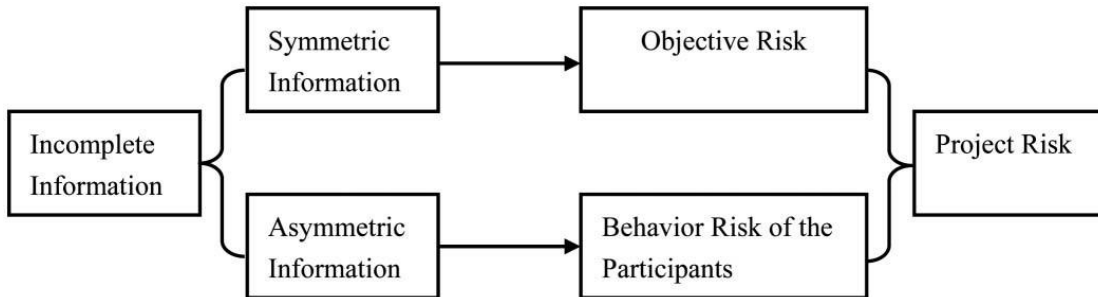


Figure 4., Information asymmetries and project risk, Xiang et. Al. (2012,p.1305)

In their article which studies information in projects they (Xiang et. Al. 2012, p.1306.) divide parties of construction project to three main categories, the client, the contractor and the supervisors. Client, also known as owner of project is the one who orders the project and pays for it. Contractor is the one who sells the project, designs it. Supervisor is the party which supervise, manage or provide advisory services during the project. Supervisor party is party which is commissioned by the client. According to Xiang et. Al. (2012, p.1306) asymmetries in information between these parties affect to project in multiple ways, starting from bidding stage. In bidding stage contractor has informational advantage about their own situation, the competence, quality, financial situation and other things related to contractor itself. Client has less complete information about these compared to contractor. However, client has informational advantage in knowledge about projects requirements, clients own financial situation and purpose of construction. Therefore, they both have some fields where they have informational advantage over each other. (Xiang et. Al. 2012, p.1306.) These informational advantages and symmetries can be tried to mitigate with obtainin as much information from other party as possible, and negotiating an agreement with other party. (Xiang et. Al. 2012, p.1306.) In figures 2. And 3. Kiiras et. Al. (2019) also suggest that informational things need to be agreed when making contract with other party. Figure below presents some of the informational asymmetries between client and contractor.

Participant	Bidding stage		Performance stage	
	Information dominance	Information inferiority	Information dominance	Information inferiority
Owner	Construction purpose, financial strength, construction project procedures	Contractor's qualifications, technology and management ability, performance, business reputation	Financial payment capacity, management ability, business reputation	Contractor's management ability, employee talent, business reputation, construction technology, equipment
Contractor	Own quality, technology, equipment, management, and service	Owner's construction purpose, financial payment capacity, business reputation	Employee talent, construction method and technology, management ability and instruments, material quality	Owner's business reputation, financial payment capacity

Figure 5., Information asymmetries between owner and contractor, (Xiang et. Al. 2012, p.1307)

Asymmetric information also occurs between supervisors and two other sides. Owner is the one who chooses supervisors for the project, which creates asymmetry between owner and contractor. Owner knows more about supervisor party's competence level and quality of work. (Xiang et. Al. 2012,p.1307) Supervisor-contractor relationship is also formed between main contractor and subcontractors. (Talvitie & Hytönen, 2000) During the project itself supervisors and contractors have more detailed information about projects current state and performance, which creates informational advantage to them over the owner. (Xiang et. Al. 2012, p.1307) Between supervisors and contractor there is informational asymmetry in knowledge about contractors own capacity, competence and overall performance. This asymmetry can cause problems in relationship between these two. Their relationship is being supervisor and other party being supervised. Supervisors are familiar with construction project processes in general but does not have as much information about contractor. (Xiang et. Al. 2012, p.1307) Figure below presents some of the informational asymmetries between owner and supervisors.

Participant	Before signing the contract		After signing the contract	
	Information dominance	Information inferiority	Information dominance	Information inferiority
Owner	Construction standard and purpose, financial strength, construction project procedures	Supervisor's skill level, management ability, service quality, goodwill	Financial payment capacity, management ability, contract control ability, technology quality, goodwill	Supervisor's service quality, goodwill, management ability, effort degree
Supervisor	Own quality, technology level, management ability, service quality, goodwill	Owner's construction standard and purpose, financial payment capacity, goodwill	Technical design and construction criteria, quality control, site conditions, construction process, own service quality, effort degree	Owners' business reputation, financial payment capacity, technical quality control, contract control ability

Figure 6., Information asymmetries between owner and supervisors, (Xiang et. Al. 2012, p.1307)

Xiang et. Al. (2012) highlight the role of information asymmetries in project's risk management. According to them, information asymmetries have significant role as a factor causing risks for construction project. Xiang et. Al. (2012) suggests that this incomplete information like information asymmetry needs to be taken in to consideration when making agreements. He suggests that agreements are one important countermeasure in risk management for these risks. This suggestion is in line with Kiiras et. Al. (2019) whom also suggest that informational flow should be considered when making contracts.

2.3.3 Delays

Construction projects also face risk of delays from the schedule. Delay in construction projects mean that project is behind its schedule and that completed project is delivered later than initially agreed with the client. Delays in project can be handled by either extending the schedule of the project or accelerating it. (Zidane & Andersen, 2018,p.650-652) It is supposed, that many construction projects are frequently behind the schedule (Zidane & Andersen 2018). These delays can have significant impact for the project. It is important for construction company to identify delay factors and effects of them in order to be successful with construction projects. These delays can cause increased costs for company and its individual construction projects. Costs caused by delays in construction projects are not limited only to contracting company. Delays in project can also cause financial losses or additional costs to client too. (Zidane & Andersen, 2018,p.650-652) These costs can be for example loss of revenue, lack of production capacity and higher material and labor costs. Delays can also cause costs through disputes between project parties caused by delay. (Zidane & Andersen, 2018,p.650-652)

Zidane & Andersen (2018) study reasons behind these delays in their research. They studied factors which cause delays in three different areas. They made survey to identify delay factors in major Norwegian construction projects. Those results from that survey

are represented in figure 7. Based on findings in their survey, and data analyzed from studies from all over the world, they calculated ranking for 33 delay factor they found. This ranking is represented in figure 8.

Ranking	Major delay factors (Grouping)	Frequency	Delay factors in the Norwegian construction industry
1	Poor planning and scheduling	189	Poor project planning Last minute tasks Poor project management performance Unclear demands from project manager Lack of or no delegation
2	Slow/poor decision-making process	123	Late decisions Wrong decisions Re-play on decisions
3	Internal administrative procedures and bureaucracy within project organisations	109	Administrative demands – hour list – file list- accountability Unnecessary or unclear reporting Search after documents for archives Annual budgeting – political management agendas Administrative systems – access –filing system
4	Resources shortage (human resources, machinery, equipment)	107	Lack of tools or equipment Lack of personnel Lack of structured subcontractors Too many projects Work load – project management level Work load – engineering level Shortage of human resources Lack of senior/key players Absence and sickness
5	Poor communication and coordination between parties	103	Poor interdisciplinary communication Bad or wrong communication (by e-mail, phone, etc.) Unstructured colleagues Unstructured meetings/too many and useless meetings/irrelevant meetings
6	Slow quality inspection process of the completed work	85	Slow control of production Slow quality check Slow internal QA Slow external QA
7	Design changes during construction/ change orders	60	Unnecessary changes and many change orders
8	Sponsor/owner/client lack of commitment and/or clear demands (goals and objectives)	51	Unclear demands from client Lack of delegation from owner Unclear demands from sponsor/owner
9	Office issues	41	Software troubles Working conditions Office noise and disruption Too much travelling
10	Late/slow/incomplete/improper design	29	Poor/incomplete documentation (designs, engineering documents) Missing information or errors in documentation during construction Error and mistakes in engineering part causing changes Poor quality in designs and materials causing changes
11	User issues	13	Short questions from users Late/new demands from users

Figure 7., The major delay factors in Norwegian construction projects (Zidane & Andersen, 2018, p.659)

Delay factors	Frequency	Overall ranking index	Overall ranking
8 – design changes during construction/change orders	77	17.7593	1
6 – delays in payment of contractors	62	15.09632	2
16 – poor planning and scheduling	64	12.57883	3
17 – poor site management and supervision	61	9.352581	4
9 – incomplete or improper design	58	9.03697	5
13 – inadequate contractor experience/building methods and approaches	52	7.171937	6
14 – contractors' financial difficulties	46	7.030791	7
1 – sponsor/owner/client's financial difficulties	37	6.76337648	8
22 – resources shortage (human resources, machinery, and equipment)	50	6.18566	9
18 – poor labour productivity and shortage of skills	47	5.416879	10
11 – poor contract management/bidding process	44	5.130621	11
21 – shortage of materials	39	4.453988	12
4 – optimism (unrealistic estimation of project duration and cost)	38	3.548336	13
10 – slow quality inspection process of the completed work	41	3.507651	14
15 – poor communication and coordination between parties	37	3.208349	15
5 – slow decision-making process	32	3.044044	16
26 – economic problems (e.g. inflation, fluctuation)	29	2.979215	17
24 – weather condition	30	2.236362	18
7 – late/slow delivery of materials	28	1.814455	19
25 – difficulties in obtaining permits and excessive bureaucracy	21	1.28835	20
20 – problems related to subcontractors	26	1.133318	21
19 – equipment failure/equipment less productive than estimations	22	0.985406	22
23 – unforeseen geological conditions	21	0.8661	23
29 – security and/or unstable political situation	12	0.849653	24
27 – external stakeholders	13	0.52008	25
12 – slow progress/underestimating of deadlines/many projects	15	0.458738	26
3 – site handover/site change	6	0.09473	27
2 – interference by sponsor/owner/client	7	0.093069	28
28 – corruption/fraudulent practices	5	0.082524	29
30 – major forces/Acts of God	4	0.034951	30
33 – sponsor/owner/client lack of commitment/clear demands (goals and objectives)	2	0.012136	31
31 – internal bureaucracy within project organisations	2	0.008414	32
32 – office issues (IT troubles, noise and disruption, many useless trips, etc.)	1	0.000971	33

Figure 8., Ranking of the universal delay factors, (Zidane & Andersen, 2018, p.662)

As seen from figures 7 and 8, reasons for delay can vary. Their findings (Zidane & Andersen, 2018) indicate that reasons for delays have differences between developing countries and developed countries. However, financial, technological, management and skill related problems in projects are similar delay factors usually occurring in both developing countries and developed countries. Both figures also state that most usual reason for delay is design and planning related issues. (Zidane & Andersen, 2018)

Acts to prevent delays should be made when making contract. According to Khoiry, et. Al. (2018) there are several methods to try to prevent delays or to prepare handling them. Many of these methods Khoiry et. Al. (2018) represents are related to delay factors

represented by Zidane & Andersen. This relation highlights role of contracts in handling and preventing delays. Many of delay factors represented by Zidane & Andersen (2018) are also mentioned by Kiiras et. Al. (2019). See section 2.3.1.1.

2.4 Supply Chain Management

As global competition has increased, it has also created pressure for companies to search for more efficient solutions in their logistics and purchasing processes. (Morana, 2013,p.1) One purpose of supply chain is to integrate suppliers in to value chain processes of the buyer company. (Prajogo et. Al. 2016,p.220) According to Morana (2013, p.3) one way to define supply chain or supply chain management is:

“Supply chain management is a network of organizations that are involved through upstream and downstream linkages in the different processes and activities that produce value in the form of products and services in the hands of the ultimate customer. “

Supply chain theory is large framework which includes external and internal factors, which both have impact on company’s overall performance. Sourcing, production and logistics are all key factors of supply chain process and supply chain management. (Prajogo et. Al. 2016,p.220-221)

One key factor in external supply chain management is suppliers. With production being of component of internal supply chain, it is also very often related to lean thinking. (Prajogo et. Al. 2016,p.220-224) According to Prajogo et. Al. (2016,p.224) good supplier base and good long-term cooperation with suppliers is one key factor in achieving success with lean production and effective supply chain. One aim of the lean production is to produce smaller batches frequently. This means that supply chain also needs to be adapted to lean thinking. Efficient supply chain tries to minimize warehousing and

inventory, and smoothen the material flow (Prajogo et. Al. 2016,p. 224-226) For smooth material flow with minimal level of inspection to be achieved, suppliers needs to be reliable partners in terms of quality and delivery accuracy. This means that suppliers need to be monitored and assessed as suppliers, but it also highlights relationship between total quality management and supply chain management. It is important for total quality management to understand its impact on supply chain management. (Prajogo et. Al. 2016,p.224-225) According to Prajogo et. Al. (2016,p.226) failure to understand that impact is one factor which helps to understand adequacies in existing supply chain models.

Another supplier related problem might be amount of suppliers. According to Dubey et. Al. (2018,p.246), having only one supplier is risky, but they also note that with single-sourcing being risky, benefits are greater than risks. Reason for this is, that relationship between supplier and buyer tends to form deep long-term relationship when there are not so many suppliers. Dubey et. Al. (2018,p.247-248) present network quantity concentration index (NQCI) as tool to measure right amount of suppliers based on accepted risk level. It is a tool which measures diversification of supplier base and level of potential loss risk caused by failure in supplier network. One factor affecting to this tool is contract policies. (Dubey et. Al. 2018,p.247-248) In their study Dubey et. Al. (2018) use four different contract policies when measuring NQCI index. These policies are :

1. Quote based contract (nominal or naïve): This policy allocates total quantity required to chosen suppliers. These suppliers are chosen by common rules of thumb, quoted costs.
2. Minimum cost policy: Simply lowest cost solution is chosen. From received quotes, one with lowest quote is chosen.
3. Minimum quantity policy: Supplier only must provide given minimum amount of product for strategic relationship to be maintained. This given amount is also maximum amount wanted to be bought by that supplier. Aim is to purchase minimal amount required by strategic relationship.

4. Min-Max policy: Minimum and maximum amount of supplied items determined for supplier.

Contracts have important role in supply chain. Contracts are one of the main factors which determine efficiency of supply chain. This efficiency is often related to relationship and depth of cooperation between contract parties. (Saithong & Luong, 2013, p. 85-94) Low level of supply chain efficiency is often caused by situation where level of cooperation between buyer and supplier is low, and therefore leading to maximization of both parties' individual profit where items are sold with wholesale price. Supply chains with low efficiency, or low level of cooperation usually don't apply any kind of framework agreements. (Saithong & Luong, 2013, p. 85-94) According to Glover (2008) from UK's largest construction law firm Fenwick Elliott (Fenwick Elliott) framework agreement can achieve benefits like reduced transaction costs and continuous improvement in long-term relationships.

2.4.1 Sustainability in sourcing and sustainable supply chain management

Sustainability is a factor which needs to be taken into consideration in supply chain management. Term sustainability can be referred to social, economic or environmental factors which affect to supplier relationship. (Dubey et. Al. 2018,p.240) Sustainable supply chain management (SSCM) is based on SCM with sustainability factors being taken in to consideration too. (Jiangtao et. Al. 2018, p.3509) SSCM aims to achieve supply chain which lowers waste, unreasonable use of resources and lower the environmental impact. It also aims to achieve economic and social stability. (Jiangtao et. Al. 2018,p.3509) According to Jiangtao et. Al. (2018,p.3509) SSCM can be defined as SCM which has more focus on factors mentioned before.

2.4.2 Supply chain quality management

Quality is important factor in construction projects. According to Androwis et. Al. (2018,3180) quality in project can be defined as factor meeting all the requirements without any faults. Quality can also mean staying on schedule. Total quality management (TQM) is a system used to manage and achieve required quality in various industries. TQM has important role as a success factor of company in the long run. (Androwis et. Al. 2018) As mentioned before, quality management is also an important factor of supply chain, and quality management should be integrated to supply chain management strategy as suggested by several studies. (Prajogo et. Al. 2016,p.224-225) (Bastas & Liyange, 2018)

Supplier management and supplier selection is one major part of supply chain quality management. (Androwis et. Al. 2018,p.3185) One tool in quality management in supply chain is to use certified suppliers. Example of these certificates are ISO9001, which is quality management certificate. This certificate also has variable industry specific applications. (ISO, n.d.) It is also stated by Bastas & Liyange (2018,p.739) that ISO9001 standard is one key principle in quality management.

2.4.3 Service sourcing

One type of sourcing is service sourcing. Services in service sourcing can be for example travelling, consulting, marketing or renting equipment required in company's processes. It is however, not limited to only these examples. Services is a large category. (Bals & Hartmann, 2008) Compared to material sourcing service sourcing has some special features in it. Materials are first produced, then sold, possibly stored in to warehouse and then consumed, whereas services are are produced at same time they are consumed.

Services are also something which can't be stored in to warehouse. (Bals & Hartmann, 2008,p.5)

As a difference when comparing these two, Bals and Hartmann (2008,p.5-6) also mention perishability and variability. By perishability they mean that since services can't be stored, and they are consumed at same time when they are produced. This means that companies can't produce and store services in to warehouse when facing uncertainty. This makes it hard to estimate right level of production to meet the demand. With variability, they (Bals & Hartmann, 2008, p.5-6) mean that quality of service can vary for purchaser of service. It is hard to create strict production standards to prevent variability for services. Service procurement is increasingly increased its role and importance in companies, and for purchasing party they highlight importance of supply chain management to help with managing service spend. (Bals & Hartmann, 2008, p.3,

2.4.4 Material sourcing

Materials have notable share of costs in construction projects. Approximately 60% of costs in construction project are materials and other equipment. (Akintoye, 1995, p.105) Materials costs are also concern for management in companies, therefore increasing importance of purchasing. (Benton W. C., 2010, p.119) Construction projects have a wide range of different materials needs. Materials can be wood-based materials such as plywood and timber, steel products such as screws, nails, beams, columns or anything else needed in construction project. (Benton & Mchenry, 2009, p.46-47) Construction projects are individual projects, which means they also have individual needs. Materials needed in each project can vary between higher technology products to basic materials a lot in each project. (Klee, 2018) Many of these materials required in construction project have their own specifications. These specifications need to be considered when purchasing certain materials. Written specifications for each material should be made for each product category. These specification documents are important factor in material

purchases. Specifications help project to evaluate costs and working methods. These specifications should be included in purchase order, which is binding contract between supplier and purchaser. (Benton & Mchenry, 2009, p. 46-47,39) These purchases can be made through different types of contracts, from lump-sum contracts to unit price contracts. (Benton & Mchenry, 2009, p.90-91) Contract types are explained in section 2.1.1. of this literature review.

As a part of material purchasing inventory management also needs to be taken into consideration. When thinking about inventory management it is important to point out few key points. What are required inventory levels for each material? What is acceptable level of capital bound to inventory? What is the level of stockout protection? These are crucial factors for inventory's efficiency. (Benton W. C., 2010, p.83) In inventory management and demand planning there are two types of demand. Independent demand and dependent demand, which affects to inventory management policy with each item in inventory. Difference between these two is items dependency on other items. Item which is specified as item of dependent demand, is item which demand is linked to other item or items. Independent demand is item which can be forecasted independently, and is not related to demand of other items. (Benton W. C., 2010, p.83) Benton (2010) uses example from automobile industry in this. In his example he describes that single automotive is specified as independent item, and can be forecasted and purchased/sold alone. As example of dependent demand item he describes that in automobile factory wheels are dependent demand. Demand of wheels are linked to demand of final items demand, in this case automobile. This is because automobile cant be sold without wheels, so when planning demand and forecasting demand of wheels, demand of automobile as final item also needs to be taken into consideration.

2.4.5 Sub-contracting

In large construction projects there might be multiple companies working at same site at same time. This is situation where main contractor has outsourced some parts of its project to sub-contractors. (Olin & Kortene, 2015, p.73-74) Subcontracting is widely used method, and its effective use can be vital to projects profit. Subcontractors can be significant factor for project when it comes to costs. Competition in contracting is tight, and sometimes projects are won with low or near zero profit margin. In these kind of situations role of sourcing team and planning team is vital. (Van Weele & Van Der Puil, 2013,p.87) This is because efficiency of project can be improved with proper planning, and sourcing. Van Weele & Van Der Puil (2013,p.87) state that sourcing team has important role in cost reduction and projects marginal securing. Sourcing team can try to secure project's margin or even improve it by squeezing suppliers and subcontractors to lower projects costs. (Van Weele & Van Der Puil, 2013, p.87.)

According to Assid et. Al. (2020, p.3571) subcontracting is valid option to increase capacity, flexibility and customer satisfaction. Subcontracting can sometimes be more expensive method, but higher cost is usually reasoned with lower amount of lost sales and enabling lower inventory level to be used. Term lower amount of lost sales is referred to situation where company can still sell its products even when its own capacity is full, because company still has option to use subcontractors capacity. (Rivera-Gome et. Al., 2016,p.134) In research made by Rivera-Gomez et. Al. (2016,p.142-145,148) they present subcontracting as one option to prevent manufacturing backlog. If situations where backlog is heavily penalized it is affecting to production costs through backlog costs. As backlog costs rise it is reasoned to use subcontracting even more, as long as subcontracting costs lower than production costs with backlog costs included. Therefore backlog cost is one factor to be considered to affect in to subcontracting policy and use of it.

As a part of project management, when using subcontractors, risk management also need to be taken into consideration. (Van Weele & Van Der Puil, 2013, p.164) Individual construction project can be large network of main contractor and multiple sub-contractors, where subcontractors have their own sub-contractors too. In this kind of situations main contractor is still responsible for all work done in the site, including work done by sub-contractors, unless otherwise agreed. Main contractor is always responsible for client, but sub-contractors also possess responsibility to main contractor. (Olin & Kortene, 2015, p.73-74) However, some risks can also be transferred to subcontractors. Risks transferrability through contract depends on risks nature itself. (Van Weele & Van Der Puil, 2013,p.164)

Responsibilities for each party are usually agreed within project contract. This contract can be project contract between sub-contractor and main contractor, or between client and main contractor. Therefore, construction project is also network of different contracts between project participants. (Olin & Kortene, 2015, p.73-74)

Involvement of sub-contractors also means that main contractor needs to take risk management into consideration. These risks can be significantly reduced by right kind of contract. According to Smith & Hinze (2010, p.407-420) common issues to take into consideration with sub-contractors are:

1. Liability insurance

Project manager should check insurances of sub-contractors always in construction projects. Incidents which happen in construction site which are not covered by insurance might cause substantial financial costs which might even lead to bankruptcy. Insurances should be checked even in small tasks given to small companies. Propability of accident to happen is small in short jobs, but if accident happens, it can cause significantly negative outcome for project, company and project manager's career. It is also important that project manager verifies that insurance company used by subcontractor is reliable. Qualification

of insurance company can also be included to offer request. (Smith & Hinze, 2010, p.407)

2. Sub-contractors financial status

One way to be sure about sub-contractors financial situation is to request bond from subcontractor. Bond is one of the most basic risk management tool, and it should be requested from subcontractors in general. Subcontractor that can provide bond is financially reliable company, because having able to provide bond means that bonding company trusts to financial situation of subcontractor. If subcontractor cannot provide bond, that means that company issuing bonds does not trust to subcontractors financial situation enough. This is also a warning sign of subcontractors financial issues. (Smith & Hinze, 2010, p.407-408)

3. Agreements

Its is important to negotiate and write agreements between subcontractor before they start to work. This ensures that subcontractor is agreed to comply every term which is mentioned in agreement. Schedule is one example of these, by signing the agreement subcontractor agrees to do their work in schedule given in agreement. (Smith & Hinze, 2010, p.408)

4. Possible restrictions

Construction sites which are located in large cities or in similar kind of environment are subject to different restrictions. These restrictions need to be described to subcontractor when negotiating about project. Restrictions for the project could be for example noise restrictions, parking and space. These are restrictions, which affect to costs of subcontractor. (Smith & Hinze, 2010, p.409-411)

5. Changes

Additional work caused by changes is involved in many projects. This is factor which should be agreed in original agreement. Rate for extra work and other additional costs. (Smith & Hinze, 2010, p.411)

There are also many other issues related to subcontractors mentioned in Smith & Hinze's (2010) book.

In addition to site operations subcontracting, there can also be subcontracting of frame manufacturing. For example in steel construction, manufacturing of steel structures can be outsourced to subcontractor. (Aalto, et al., 1994,p.78-81) Outsourcing has increased its role as tool for competitive success. Outsourcing helps companies to focus on their main competence area. When discussing about outsourcing, question "make or buy?" usually erupts. Some companies manufacture products themselves, some rely on heavy outsourcing and some companies use balanced combination of these. (Benton W. C., 2010,p.157-158) Benton (2010) describes decision whether to make or buy to be important strategic decision. As a common mistakes made when making this decision Benton (2010) lists following ones:

1. Companies tend to not identify all their core capabilities
2. Companies hesitate too long to use help of strategic partners or consultants
3. They do not recognize maturity of product, and possible new competitors and new innovations

As a factors which are success factors in make or buy decisions Benton (2010) lists following ones:

1. Performing analysis about company's personnel competence. Is there persons who are hard to replace?
2. Assessing strategic partnerships and selecting right partner
3. Information sharing

Key thing in outsourcing is selecting right partner to supply outsourced product. By selecting right partner and outsourcing some parts of the production, company wont need to try to do everything itself, because it can rely on other companies' competences, and focus on real value adding factors. (Benton W. C., 2010,p.158-159) Selection of right partner is a matter which should be carefully assessed, and selected partner must have required level of competence and performance. (Benton W. C., 2010,p.159)

2.4.6 JIT methodology in construction projects

JIT is LEAN based philosophy, which is used as a tool to achieve better management in flow of materials. It aims to minimize waste and therefore improve overall efficiency. One of its main goals is to reduce inventory levels. (Benton W. C., 2010,p.112) JIT purchasing relies heavily on working supply chain and reliable suppliers. As a demand driven methodology it makes companies more depended on their suppliers. This is because JIT methodology aims to minimize inventory, and only deliver materials when they are actually needed. (Jie et. Al. 2021, p.1-2) This causes stock-out risk to be higher, and therefore requires company to forecast its demand and inform supplier about forecast and possible changes in it. (Jie et. Al. 2021, p.1) In JIT purchasing higher level of communication with suppliers is often considered as key factor to success. Efficient implementation of JIT purchasing requires alliances and partnerships, and through it JIT has potential to improve efficiency. Alliances and partnerships are key factor in forming a efficient supply chain. (Jie et. Al. 2021, p.3)

Materials are usually bought well before actual need in project. This leads to higher inventory costs and if kept in construction site, they also reserve lot of space. JIT is method which tries to minimize inventory and optimize delivery of different materials. (Akintoye, 1995, p.105-107) In article " The Application of the Just-in-Time Philosophy in the Chinese Construction Industry" Pheng & Shang (2011, p.91) state that construction industry can benefit from JIT methodology in example through cost reductions with

lower inventory and materialwise better organized sites. However they also state that implementing JIT methodology to construction business requires more skilled employees which will cause higher training costs. Article also acknowledges that JIT implementation might have industry related and human related problems. (Pheng & Shang, 2011, p.92-94)

2.5 Aspects of sourcing contract

As noted in section 2.1., contract can be in many forms. Contracts are subjects based on contract law. Most of this law is created by courts. (Monaghan et. Al. 2013,p.3) One of its base principles is freedom of contract. It means that contract parties are free to negotiate contract in a way they want to. Law aims not to interfere with this principle if it is not absolutely necessary. (Monaghan et. Al. 2013,p.3) Contract is a subject which applies legal obligations to contract parties according to agreement between them. (Monaghan et. Al. 2013,p.28) Process of contract formation is described in figure made by Monaghan et. Al. (2013, p.28)



Figure 9., Formation of contract (Monaghan et. Al. 2013. P. 28. Beginning contract law [eBook])

Different aspects and elements of contracts are described in following chapters.

2.5.1 Laws

Contracts are related to different laws. When dealing with international contracts, where contract parties are from different countries, and therefore it is important to take governing law into consideration when making contract. Depending on governing law, some of them contain binding mandatory clauses. (Klee, 2018, p.55) As a general rule, contract parties need to agree which governing law they are going to use. This is important matter in terms of conflict. Without clause that defines governing law used in contract there can be dispute and law issues between contract parties. Therefore, it is important to define governing law applied in contract. (Klee, 2018, p.55)

In international contracts there are also some notable differences between European civil law and American common law. Main differences between these two law systems are their approach. European civil law is mainly based on Roman law and legislation. It consists civil codes and highlights importance of written law. (Klee, 2018,p.55-56) On the other hand, American common law is more based on precedents, customs and highlights freedom of contract. (Klee, 2018,p.55-56) One of the main differences is relationship of law and courts. In common law legislators form acts and volumes that binds the court, and in the other hand new civil law clauses and volumes are created based on courts decisions. (Klee, 2018,p.55-56) According to Klee (2018,p.56) large international projects usually apply common law to their project, and civil law is mostly used by EMEA countries. From Europe's point of view he especially notes that countries from Central and Eastern Europe use civil law, but there is not mention about western Europe. This study aims mainly to describe matters regarding European civil law, with some mentions of American common law.

In addition to these matters noted above, CISG is also a thing to be considered in international business and in its contracts. CISG is convention which aims to harmonize trade

law practices between countries who have signed it. As mentioned above, governing laws between different countries can have differences in them. CISG is a tool which tries to solve this problem. (Sandvik & Sisula-Tulokas, 2013,p.15-20) According to article 3, CISG shall not be applied to contracts, where subject of contract consists mainly on services or other similar work. So, it is convention focusing mainly on items and material. (United Nations, 2010,article 3, p. 2) However, this law is not binding. Contract parties can add clause to their contract which claims that CISG shall not be applied to this contract. (Sandvik & Sisula-Tulokas, 2013,p.46-50) As a non binding law contract parties can also apply CISG to their contract, but add clauses which are stricter or looser than mentioned in CISG. So, if contract parties want to, they can apply only some parts of CISG. Since CISG is not binding, parties can negotiate terms which are not according to CISG, because CISG terms will only be used if not agreed otherwise. So, according to article 6, even if parties are applying CISG, they can have terms which deviate from CISG itself. (United Nations, 2010, article 6,p.3)

CISG is convention which have been signed by 94 different countries. (United Nations, 2020). There are however different ways to apply this convention to each countrys trade law. As an example Nordic countries have stated that in trade between Nordic countries, CISG shall not be applied. This statement is made according to article 92 and 94, which give each country freedom to denounce some part of CISG when signing it, or that CISG shall not be applied in situations where laws between contract parties are similar enough. (United Nations, 2020, article 92,94,p.28-29) Nordic countries are one example of case like this, their trade laws are close enough to each other. (Sandvik & Sisula-Tulokas, 2013,p.25-26)

CISG is also a thing which should be considered even if other party is not from country who has signed CISG. This is because if contract has mention that it shall apply finnish laws in it, this also means that CISG shall be applied to it, unless otherwise mentioned or terms which are otherwise agreed. (Sandvik & Sisula-Tulokas, 2013,p.48-49) In their book Sandvik & Sisula-Tulokas (2013, p.50-51) present example of a case where finnish

company had sold steel sheets to company from United Arab Emirates. This case had disputes which were handled by administrative court of Helsinki. Parties had agreed to deliver these steel sheets with FOB delivery term. In this case Court stated that according to article 9(2) of CISG buyer should provide possibility for supplier to attend to inspection of shipments material. Company from UAE did admit that it is suppliers right to attend to inspection, but still they did not provide possibility for supplier to attend to inspection. Because of these, court stated that it was unclear if inspection had been executed properly, and deemed that there were no faults in delivered items.

2.5.2 Common practices

In contracts of wide subject and with use of general terms might end up in discrepancies. These discrepancies can be dealt with giving priority to main agreement and its appendices, or by clause which requires supplier to request instructions from client in situation where contracts and documents are in discrepancy. (McGuinness, 2007, p.17)

Freedom of contract is also one commonly known practice in contracts. It basically means that contract parties can agree liabilities themselves, and agree on things they choose to. (Bix, 2012, p.129) However, as already mentioned before, contract should not be in conflict with governing law, and there are differences in governing law between different countries.

According to Bix (2012, p.133) modern contracts are not anymore focusing on strict promises, but instead focusing on legally bound intent. This does not however mean that contract is not binding. Contract itself is a promise of some level, but there are some difficulties in legal systems to enforce contracts as promises. (Bix, 2012, p.133)

2.5.3 Penalties

When negotiating an agreement between parties, they can include penalty clause in their contract. Penalty clause which specifies amount of lump sum to be paid is considered as liquidated damages clause. (Monaghan et. Al.2013,p.165) In civil law countries, these liquidated damage clauses can be in conflict with governing law. In civil law system there are limitations which are binding in certain environments. Two matters which might cause this kind of conflict are liability limitation and issue of contractual penalty. (Klee, 2018, p.59)

Contractual penalty is lump sum amount meant to compensate for damages. In civil law system it is a sanction which aims to prevent damages from happening, and it must be included and specified in contract. However when defining this penalty to contract, governing law needs to be taken into consideration. (Klee, 2018, p.59) If this penalty is in conflict with governing law applied in contract, it might be seen as invalid by judges. Another important factor affecting to penalty clauses validity is its amount. If the penalty is judged to be unreasonably high, whole clause might be judged as invalid penalty clause. (Klee, 2018, p.59)

2.5.4 Force majeure

Force majeure is term often used as clause which consists unseen excusable risks. It is meant to exclude liabilities in situations where unpredictable events cause delay or other harm to project or any other subject of contract. (Alshammari et. Al. 2017) Alshammari et. Al. (2017) describe it as *"Exceptional event or circumstance, beyond the party's control, and something that it could not have reasonably been provided against before entering into the contract"*. This event can't be event, which could have been prevented or otherwise overcome easily. Force majeure clause is factor, which creates excusable

delay to project, but does not give right for monetary claims to either party. (Alshammari et. Al. 2017)

3 Methodology

This research is a study about contract practices. Aim is to analyze current contracts in use, and interview personnel related to contracts. Data is gathered and interviews are made in various market areas, with Nordic countries being the main source. Interviews are also done for personnel working in eastern Europe.

This study is case study, which is method that combines different kind of data collection. These data can be for example interviews, surveys, qualitative data, quantitative data. Case study is study which aims to answer research questions with data gathered from case of the study. (Eisenhardt, 1989) Data analysis is crucial part of case study. Case study is heavily focused on analysis of case data. (Eisenhardt, 1989)

Main research method of this study is analyzing case company. Data is gathered mainly by interviews and analyzing case company's documents related to topic of this research. Case company wishes to stay anonymous. Data and analysis of the data is presented in the table 1. below.

Table 1. Data and analysis methods

Data	Analysis
Earlier research and studies	Research and studies made earlier was used in literature review of this study.
Interviews	Interviews were gathered from 11 personnel working in various fields related to topic of this study. Length of interviews varied. Average length of one interview was 40 minutes, with range of 15minutes to 1 hour and 15 minutes. Interviews were analyzed alone and concluded in each market areas summary section.
Unpublished documents	Content analysis and comparison to other relevant documents. These unpublished documents consist on purchase orders, frame agreements and other related contracts. These documents were compared between each other and with literature review and interviews.
Observations	Each market area was handled in its own section. Each section includes summary section, which is summary made by researcher based on literature review, unpublished documents and interviews.

This research as case study was made mainly by interviewing key personnel involved with contracts in case company. This involves project managers, subcontracting and quality engineers and managers, business area managers, purchasing managers and director and company lawyers. Questions asked in interview varied based on field of interviewee. Interviews were held during February-April. Some of the interviews have different point of view, which means that also questions can differ between interviews. Main structure and main points are still same in every interview. Interview questions can be seen as appendix. There were different questions for different fields of expertise. With some interviewees questions were mixed based on background and experience of interviewee.

In addition to interviews, this study also uses many unpublished documents, which are involved in company's procedures. Most of these documents are purchase orders or other related documents. These documents are left unpublished because they can contain confidential information.

4 Empirical findings

4.1 Structure of contracts

As first part of empirical section, structure of contracts used by case company is described in general level.

4.1.1 Purchase order

Purchase order is order specific document which describes the actual order. It can contain only basic simple information, or wide description about ordered items. Here is example of SAP purchase order document. Purchase order documents contain confidential information, so these example pictures are empty. However, they describe things which are described in actual purchase order document. Purchase order can have more information in it, but this is simple version of purchase order. (Unpublished document a , 2021)

Purchase Order

No:
Date:

Vendor Address		Buyer Address		
Delivery Address		Invoicing Address		
Vendor Contact Details	Delivery and Payment Details	Buyer Contact Details		
Sales Person	Delivery Term	Buyer Responsible		
Telephone	Terms of Payment	Handled by		
On the invoice our purchase order number needs to be mentioned. We require an order acknowledgment.	Currency	TEL.		
General Conditions of purchase apply to this order. The conditions are available through your contact person. We require an order acknowledgement.		Fax		
		E-mail Buyer Reference		
		Project number		
		Contract Reference		
		Production Planner		
Header information text				
Item	Material/Description	Quantity	Unit Price	Net Amount
				Net Value _____

Figure 10., SAP standard purchase order page 1, (Unpublished document a , 2021)

Purchase Order

Page 2 of 2

No:

Date:

Item	Material/Description	Quantity	Unit Price	Net Amount
			Total Quantity	

Figure 11., SAP standard purchase order page 2, (Unpublished document a , 2021)

4.1.2 Sub-contracting contracts

Sub-contracting contracts in this study mean framework agreements or yearly agreements used in different market areas. These are contracts which have same basic idea, and follow similar structure. However, there are differences between each country. Different countries have different kind of culture and laws, which affects to some parts of framework agreement too. Basic idea of framework agreements is to agree about factors which are similar between every project, or which are general things which should be agreed when cooperating with other company. When studying framework contracts in every country, basic things in framework can be concluded in its most simple form as following (Unpublished document B, 2021):

1. Contract parties

Contract parties is the section where is information about both companies involved in contract. It also has notification about terms which are referred to buyer or supplier. In example, “(buyer company name) hereinafter referred as buyer” or “(supplying company) hereinafter referred as supplier.

2. Subject of contract

This is the section where subject of contract is described. In framework agreement this section does not have to include specific description about subject. In this section it can be described as types of deliverable objects, it can be for example described that “Supplier agrees to deliver metal structures according to individual purchase orders” usually this section can also have clause “Other manufacturing requirements are given in the working drawings/design and the manufacturing plan.”

3. Possible appendices which are included to framework

This is section which defines possible other documents which are included to framework agreement.

4. Pricing and payment terms

This section is mostly about payment terms, because actual price is usually not agreed with framework in project specific business. However, pricing methods can be described here.

5. Quality requirements

Quality requirements are described with framework in general. In framework agreement this section does not include every required quality standard or requirement, because these requirements can vary between different projects. It includes standards which are applied with every project.

6. Delivery

Delivery section can include packaging instructions, delivery methods or other delivery related issues. This section can also include definition about party which is responsible for possible damages caused by transportation.

7. Penalties and sanctions

Penalties and sanctions are usually described in framework agreement. These penalties can be penalties from late deliveries, penalties for failing with safety, penalties from late payments or other damages or penalties that can occur with projects.

8. Other conditions

Other conditions is section which can include lots of different kind of things. Other conditions are requirements or terms which are not included in any other section of agreement.

9. Terminating the contract

Terminating the contract section defines situations when contract can be terminated. These can be situations where either of party fails to abide terms agreed in agreement. There can also be clause that agreement can be terminated with mutual agreement, or some kind of other termination term.

4.2 Comparing contracts between different countries

4.2.1 Nordic countries

In Nordic countries case company has wide range of different contract templates. Any specific example that would apply to every contract can't be given, because there are so many differences. Structure of contract documents differ, but most of the contents is still same. Contracts in Nordic countries aim to cover subject of contract widely, and different kind of purchases have different kind of contract template. However, there is also reusable contract templates which can be used in several kind of purchases in every project with some project specific modifications. Many of these reusable contracts are templates, which include general terms and most common terms which are same in every purchase. Project specific factors are handled with referring to appendices. (Unpublished document C, 2021)

Standard purchase order used in Nordic countries is SAP order document as seen in section 5.1.1.

4.2.2 Interview with project managers working in Sweden and Finland

This interview was started with question about most usual reasons for disputes. According to interviewee, reason for dispute is related to product and situation. Most of the times dispute is related to time and schedule. If one of the subcontractor or material

suppliers is late, it affects to other project participants too, i.e., other subcontractors. Other reason mentioned by interviewee is quality related. In some situations, there might be dispute about party who is responsible for faults or damages. One typical situation is items which are damaged during transportation. Most of the time, damages which come during transportation, it is related to surface treatment and painting. Sometimes it can also be related to design and understanding drawings. If drawings are not clear enough, it might cause misunderstandings. (Project manager A, 2021)

There are also differences ways to handle delays. If delays are not caused by case company, there can be penalties or cost of warehousing to other party. Warehousing cost for example can be invoiced in situations where other supplier has supplied materials to the site, but because of other supplier, these materials can't be used yet. In these cases, supplier might have to cover warehousing costs for case company. These are factors which should be defined in contract to avoid disputes regarding delays. (Project manager A, 2021)

Contracts should also define other possible required documents. As example situation project manager explains situation where subcontractor could not do any work in construction site because they did not have all documents required by country's labor regulation. In this situation this caused problems for project, because one subcontractor could not start when originally planned. Therefore, contract should define all required documents, certificates and other important documents and qualifications required from subcontractor to complete the work. (Project Manager B, 2021)

When asking about length and complexity of contract templates, interviewee answers that if contract template is long and complex, there is risk that some of old information might be left accidentally to new contract, because new contracts are usually modified from earlier contracts instead of having blank template. Long contracts also take more time to negotiate. Simple contract templates are faster to use, but there is also risk that some of the things are not covered in contract. Contract template should be simple with

simple purchases and rely on general terms referred in local law. If product or subproject is complex, there should be better and wider contract used. Simple materials should have simple standard contract template, and more complex purchases should have project specific factors in it. It is also important for purchaser to be familiar with project's main contract with client, so purchaser knows which are terms that should be transferred to subcontractors and other suppliers. These can be for example environmental requirements, penalty clauses or quality requirements. In simple contract templates there is risk that some of these requirements will not be transferred to contracts with subcontractors and suppliers. Usually if something is not agreed with contract, general terms shall be applied, it can benefit either party more than other. Coverage might be lower with damages. (Project manager A, 2021) (Project Manager B, 2021)

It is important to assure financial situation and other country specific factors of subcontractor. In Sweden for example it is important that subcontractor is member of employer union. Without membership it is prohibited to work in Swedish construction sites. This is important because if this is not checked before subcontractor starts to work, their work can be halted after starting. This causes delays for case company too if they lose one subcontractor because of missing membership. Delay penalties for project can be usually between 1,5%-3% per starting week. In some cases, it can be much higher than that. (Project manager A, 2021)

Interviewee highlights that purchaser should be familiar with main contract and know all clauses and requirements which should be transferred from main contract to purchases. Clearly defined contracts are important factor too. Clearly defined contracts lower risk of sudden risks. (Project manager A, 2021) (Project Manager B, 2021)

4.2.3 Interview with purchasing manager working with Swedish and Finnish projects

First interviewee describes differences between service purchasing and material purchasing. When thinking about service purchasing, it is more complicated compared to material purchasing. In service purchasing you must be more exact and define requirements more carefully. Materials are easier, because it is often products, in this case building materials which are often products of supplier company, and they can be defined easier. With material purchases it is also easier to compare suppliers and their products, but services are harder to compare. (Purchasing manager, 2021)

Number of suppliers should be small according to interviewee. It is not recommended to use many suppliers for same items. When using few suppliers' prices are better, and purchases are easier to manage. It is also easier to cooperate with few suppliers, because in long term relationships suppliers know better what we want. Therefore, I also prefer to have long term relationships over short term relationships. Cooperation is important and it gives us better prices and service compared to situation where we only make couple of purchases per supplier in year. With simple products only one supplier can be enough in one project. (Purchasing manager, 2021)

When asking about framework agreements, interviewee prefers to have framework agreements. Framework agreements make cooperation easier, and it is always good to have framework contracts made with chosen suppliers. Framework agreement is recommended always if there is larger cooperation and for example over 10 purchases per year. Even in situations where number of orders is smaller, but value of purchases is significant. Framework agreements make purchasing more efficient and faster. Sometimes there can also be project specific contracts which are kind of a template, but with every order project specific things are changed according to project. Some materials are more critical than others, and with critical materials it is more important to have framework agreement made. Number of possible suppliers in market also affects to this. (Purchasing manager, 2021)

Interviewee prefers to use large orders with call-offs and multiple deliveries, therefore it is faster to get materials to site, compared to situations when you have to negotiate prices and other terms every time again. (Purchasing manager, 2021)

Delivery penalties are things that should be defined in orders too, depending about project. If you already know that supplier might have difficulties with delivery times, it is more important to pay attention to delivery terms. There should always be delivery time penalty agreed, but with some suppliers it is more important than with others. It is related to how critical materials it is that you are purchasing. It is usually some percent amount per week. If material is critical, but value of order is small, penalty should be bigger to cover costs caused by delay, because costs caused by delay can be much bigger than some small percentage if value of purchase is small. Same applies with quality matters. (Purchasing manager, 2021)

When making contracts and purchases it is also important to be familiar with general terms of Sweden, Norway, and Finland. In general, these general terms in material purchases are quite similar between Nordic countries. In Finland it is RYHT, in Sweden it is ABM07 and in Norway it is NL09. (Purchasing manager, 2021)

4.2.4 Interview with business area manager

Business area manager interviewed for this study sees limitations of contracts as one main reason for disputes. Limitations and terms of offers and contracts should be defined clearly to prevent misunderstandings and disputes regarding to them. (Business area manager, 2021)

Delays are factor which is usually handled with penalties or other penalty kind of payments. Penalty is a punishment, sometimes it would also be good to negotiate reward if project is ready ahead of schedule. Interviewee sees that bonus reward from being able

to finish project earlier than agreed might be good. This would lead to better cooperation between project parties, and overall results might be better. This includes that subcontractors would also be rewarded. (Business area manager, 2021)

Risks in projects can be lowered and managed with different ways. One way is to check financial situation of new customers. If risk is caused by delay, actions in these situations should be agreed with contract. Delay can be caused by client, case company or its subcontractor. In every situation party who is responsible of delay should be the one who must pay possible penalties. If delay is caused by client, it should be clear that schedule can also be lengthened by amount of delay caused by client. Contracts should also define which law will be applied to contract. Interviewee also recommends that situations when there is only one supplier used should be avoided. One supplier causes risk, and it is recommended to find balance with number of suppliers and risk. (Business area manager, 2021)

Interviewee also adds that too complex contract templates in every situation are problematic and can even cause higher risk. If contract template is long and complex, there is higher threshold to use it. Because of this, there is a risk that contract is not used at all. This also makes negotiations with suppliers long. Contract templates should be simple, and in simplest purchases it should only be order document from ERP or other simple purchasing document. Having framework agreements would help this situation. If there is framework agreement already negotiated, it lowers risk already, and simple contracts can be used better. As an example, contract could be template, which just refers to project specific appendices or general terms. (Business area manager, 2021)

4.2.5 Interview with Finnish lawyer

Interview with Finnish lawyer starts with question about lawyer's opinion of factors which should be improved in contracts. Lawyer sees that one important thing in contract

is, that both contract parties really understand meaning of contract, and what they are agreeing with it. Purchasing contract is other party's sales contract at same time, and this can cause different way to see things. He also points that if contract is about items or services, that are not often purchased by purchasing party, knowledge about between contract parties is different. Items or services purchased with contract can be core business for supplier, and therefore there is information asymmetry. Usually it is not in balance, but it can be helped with right information and asking right questions. (Lawyer A, 2021)

Interviewee suggests that framework agreements should be done, if relationship between parties is going to be long. Framework agreement should be made to benefit both parties' best way. This means that processes of both parties should be thought, and aim is to find most beneficial methods for both parties. If possible, some processes could be integrated to some point. (Lawyer A, 2021)

Law in Nordic countries does not have many binding rules. Binding rules and regulations in Nordic countries are often related to safety, competition, taxes, or labor legislation. Freedom of contract principle is large in Nordic countries. Other than topics listed before, terms can be agreed between contract parties quite freely. Of course, there is also principle of reasonableness, principle of loyalty obligation, the principle of damage minimizing or other common practices which can limit contract terms. Penalties are also related to these. If other party can prevent or minimize damages caused by other party, principle of damage minimizing obliges that party to act so. Same applies to principle of loyalty obligation, other party must notify interests of other party as well, and they cannot cause harm intentionally to other party. In Nordic countries there are common principles with law, and there can also be reflections about common law country system which is that cases solved before are referred when solving new cases. (Lawyer A, 2021)

With penalties it is common legal principle that if there is penalty amount agreed in contract, it should be intended to cover all evaluated costs that action under penalty causes.

There should not be any other compensation in addition to penalty agreed with contract. This is common practice, and this practice should be applied also when there is no clause which says, "Other party has no right to any other compensation claims than penalty amount agreed with contract". Interviewee suggests that penalties agreed in contract should also be seen as limitation. He describes situation when sometimes person negotiating contract is happy that there were not any penalty amounts written in contract but does not understand that it also means that there is no limit agreed for penalties or other claims. Penalties are also limitation of liability. In project business especially it should also be understood that there can be delays inside project, like delays with milestones or other processes, which can cause penalty claims, even if actual project in overall will not be finished late. (Lawyer A, 2021)

When defining law which shall be applied to contract there is some factors that interviewee sees important to acknowledge. For example, in situations where law applied for contract is not defined at all, there is practice that law will be chosen according to country where work is done. There is also some number of binding regulations in every country which must be abided by contract parties even if some other law is chosen for contract. These regulations can be for example safety, environmental, labor or taxes, and these regulations cannot be agreed differently with contract. (Lawyer A, 2021)

According to interviewee, CISG is often excluded from contracts. Interviewee sees CISG as good legislation to apply especially in situations when person who drafts contract is not law professional. At least it should be kept as reference for comparing terms which are written to contract draft. Sometimes CISG can be excluded because other party wants to add its own terms to contract, and CISG can be seen as common level when comparing terms. Interviewee does not see any particular reason to exclude CISG from contracts. (Lawyer A, 2021)

Question: Do you think this clause would be valid, and good clause in general?

Clause: "If contract parties are not from the same country, CISG will be applied, otherwise if contract parties are from same country, contract shall apply local law"

Interviewee: Yes. (Lawyer A, 2021)

When asking about risk transference and minimizing, interviewee answers that risk should always be carried by party which can affect to it. Risk should also be in relation to delivery. Example: "Company supplies other company with bearings. This supplying company does not always know where this bearing will be used. Supplying company can't be responsible of all damages that bearing breakup causes if it is used in large machines for example. If that bearing used in large machine breaks, and that follows to situation where that causes large damages to machine itself or something else surrounded by that machine, supplying company can't be responsible of all these possible damages caused by 100€ part breaking." Risks can also be lowered with good cooperation. Checking, monitoring, informing, and observing situations will lower risks. There is also informational obligation, that other party must inform other party about possible problems. Informational obligation means, that one party might be part responsible of damages if it does not inform other participants about problems, even if problems are not caused by this particular party. (Lawyer A, 2021)

Regarding contract templates, interviewee sees that there is not one specific way to do contracts for every country. There are always some differences between countries, and same contract template can be hard to use in every market area. In Nordic countries practices with general terms are similar, but when dealing with companies from other countries, this can be different. (Lawyer A, 2021)

4.2.6 Summary about Nordic contract practices

In Nordic countries it is common practice to refer to general terms like RYHT, ABM or NL. These general terms apply many limitations to contracts, for purchasing party and

supplying party both. Contracts used in Nordic countries are long and widely defined. Coverage of contracts in Nordic countries is large. This also adds some complexity to contracts, and it can lengthen negotiations between contract parties. However, in legal point of view, contracts used in Nordic countries are good.

Some of the interviewees suggested that contract templates should be simpler, and that there are too many different templates for every situation. According to them, one template should be used for many different purchases. This is probably key thing which comes out from interviews. However, length and coverage of contract had mixed opinions. Some of the interviewees had opinion that it should be as simple as possible, and some of interviewees would use template which covers more risks and terms. One important thing was also highlighted by interviewed lawyer, penalties in contract are not risk and bad thing only, penalties defined in contract are also limitation of penalty. Another important thing was highlighted by several interviewees which is related to human nature. If contract template is too complex and hard to understand all of its content, there is possibility that contract template will not be used at all.

In general contracts used in Nordic countries can be seen as good contracts, but they are too complex. By adding more simplicity, they could be improved. All of them should also be mention about CISG or applying law and court that handles disputes.

4.2.7 Lithuania

Structure of contracts used in Lithuania is following:

This example is contract of single purchase. (Unpublished document D, 2021)

1. Contract parties:

Contract parties is the section where is information about both companies involved in contract. It also has notification about terms which are referred to

buyer or supplier. In example, “(buyer company name) hereinafter referred as buyer” or “(supplying company) hereinafter referred as supplier.

2. Description of the subject:

This is the section where subject of contract is described. In one of example contracts subject is metal structures. This section describes required material, surface treatment, and determines specific factory where structures need to be manufactured. This section ideally has all required information required by supplier or has clause which describes where required information can be found. This contract has clause “Other manufacturing requirements are given in the working drawings/design and the manufacturing plan.” This contract includes purchase, preparation, assembly, welding, surface preparation for painting - abrasive flow, painting, packaging, storage, and loading. Contract also claims that supplier is inclined to handle all necessary documentation and quality control.

3. Price and payment terms:

In contract used as example here, there is table figure describing prices and pricing.

Pos.		Name	Unit	Amount	Price per unit Eur	Cost price total Eur	Notes
1	Raw materials	Steel/ metalo medžiagos	tn				
2		Steel waste/ Metalo atliekos	tn				10,0%
3	HDG	Cinkavimas HDG	tn				Cinkavimo paslauga apmoka
4	Processing	Gamyba, suvirinimo medžiagos	tn				
	Cost per tn	Įkainis, Eur be PVM					
	Cost total	Suma, Eur be PVM					
		PVM 21%					
		Viso, Eur su PVM					

Figure 12., Pricing chart, (Unpublished document D, 2021)

It has own row for each item. Raw materials, waste, HDG (Hot dip galvanizing) treatment and processing materials. Each row has its price and pricing principles. Row 3, HDG has note about party which pays this HDG treatment. Clause “Cinkavimo paslauga apmoka” translates as “Payer of galvanizing service”.

In this same pricing section, there is description about all services and items which are included in this contract, and which are included in this price. In example items and services mentioned here can be grinding, milling, quality control, packaging, and welding. These can be anything required by buyer, these examples are not only matters to be mentioned here.

4. Scope of production

This section contains description about products or refers to document or other section where products are described in detail. It also has a clause that by signing this order, supplier confirms that he has received all necessary drawings and details for the production.

5. Time limits

This section contains information about time schedule. There is exact date of delivery detailed here, as well as date for loading the items. It also has acknowledgement to customer about time for possible treatments for items, for example time required for galvanizing. There are also acknowledgements like "The Supplier shall start the acquisition of the necessary materials and, as appropriate, the manufacturing work immediately after the signing of the contract." or description about number of trucks to be used with transportation of this order.

6. Other conditions

This section is basically for everything else that needs to be described in this order. This section contains requirements of standards (like ISO), EXC requirement, tolerance, welding class and quality control. These requirements are described for each procedure involved in production. For example, there is requirements

described for thermal cutting, surface preparation and for every each procedure involved with this order.

This section also contains possible mention about bank guarantees and packaging instructions. Mark-up and packaging instructions are described in detail here. Mark-up locations, mark-up must be invisible after installation, and it has to be waterproof. It contains description about how to pack them in such way that products are not damaged during transport (packaging materials, angles etc.).

Framework agreement structure in Lithuania:

Framework agreement in Lithuania is large, with 28 different topics included. Framework is used to agree about things which are similar with all projects. Topics included in Lithuanian framework agreement are (Unpublished document E, 2021) :

1. Subject and scope of contract
2. Contract documents
3. Supplier guarantees and targets
4. Volume of supply and ordering procedure
5. Prices, invoicing, and payment terms
6. Measures supplied by buyer
7. Instructions, amendments, and additional works
8. Quality control of the suppliers work and audits carried out by buyer
9. Reporting
10. Subcontracting
11. Product labelling and documentation
12. Packaging, loading and transportation
13. Terms of delivery
14. Delivery schedules
15. Interest on delays

16. Warranty period and liability for defects
17. Contact persons
18. Insurance
19. Liability and indemnity
20. Force majeure circumstances
21. Confidentiality provisions
22. Validity of the contract
23. Immediate termination of contract and cancellation of orders
24. Safety at work
25. Principles of ethics and the environment
26. Applicable law and dispute resolution
27. Transfer of agreed liabilities
28. Signatures

There is large list of things agreed in framework. Framework agreement is a frame. It has clause that “unless otherwise agreed” terms in framework will be applied. This means that purchase order documents are the documents which are to be followed first. (Unpublished document E, 2021)

4.2.8 Interview about Lithuanian contracts

First question interviewee answered was question about number of suppliers. Interviewee prefers to use few suppliers. These suppliers are subcontractors which have been checked, and they are subcontractors with framework agreement. Framework agreement is made with suppliers that are used most often, which are already checked and used before. This means that company knows these suppliers and what to expect from them. Suppliers that company knows can be trusted. (Production engineer A, 2021)

Interviewee recalled that 2% delay penalty is maximum penalty that can have according to Lithuanian law but was not completely sure about that. This penalty is penalty about delay, but there are other possible costs for subcontractor too. In situations when company's project is delayed because of the subcontractor, subcontractor is inclined to cover all extra costs it creates to company. For example, if company has rented cranes to the site, and cranes are being unused because supplier is late with structure deliveries, subcontractor must pay percentage penalty, and cover all extra costs these rented cranes caused when being unused. Same full coverage applies to all damages and faults in structures subcontractor has delivered. (Production engineer A, 2021)

Order size is thing which is dependable on situation. Big projects can lower price, if whole project is given to one supplier, but this also means higher risk. Usually, it is preferred to use more than one supplier, to lower the risk. (Production engineer A, 2021)

Risk about cost of changes is minimized with order contract and framework contract. Extra cost caused by changes is related to schedule. If changes are requested when some parts of order have already been produced, cost is higher. However, if changes are requested before start of production, it does not cause extra costs. Preferably party who pays is not the company, but instead it is either design company or client. Sometimes if design is in company's own responsibility, then cost about these is for the company itself. (Production engineer A, 2021)

Subcontractors are monitored constantly. Interviewee is visiting subcontractors constantly and having meetings with them. During these meetings situation of orders and production is discussed, and interviewee checks produced structures. In framework agreement it is agreed that subcontractor must monitor and check their quality of welding, painting, and loading etc., but interviewee checks structures too to avoid any difficulties with deliveries. Some subcontractors need to be checked and visited more often by interviewee than others. During these visits' interviewee can also see overall situation

of subcontractor, which helps him to know financial situation of subcontractor too. This can be seen from many different factors. (Production engineer A, 2021)

When asking about other requirements from client, interviewee answers that all basic things which are similar with every project are agreed in framework contract. However, things that are project specific are agreed with order contract. Some basic standard requirements like some of the ISO requirements are in framework agreement, but project specific requirements are defined in order contract. (Production engineer A, 2021)

4.2.9 Interview of Lithuanian legal consult

In Lithuania, first thing that interviewee tells regarding important factors in Lithuania and Lithuanian contracts is transfer of the ownership. It is crucial to write down ownership of result of work. This is important thing in Lithuanian contracts. It is suggested that contract should define how and when ownership of result is transferred, preferably it is done after payment. This means that before payment, subcontractor still owns actual result of the work. Transfer of ownership is regulation coming from local governing law. Lithuania has detailed contract regulation. This means that most of the contract comes from regulation. There can still be some additional terms added by either party, but mostly it is practice that contract is constructed according to regulation. This regulation is so large that after everything handled in regulation, you have solid contract. (Legal consult A, 2021)

When asking about penalty practices in Lithuania, interviewee describes Lithuanian practice, which is different compared to practices in Nordic countries. In Lithuania, there is penalty called "late interest". This interest is used for late delivery and late payment both, you cannot define own penalty for late payment and own penalty for late delivery. This interest also cannot be just any percentage. Minimum used late interest is 0,02%/day. This penalty can be higher, for example 0,1% or 0,2%/day. Interest rate is not

limited in law, but court practices are limiting it in practice. Key point in court practices is that higher the interest rates require stronger arguments. This means that after certain point interest rates must be backed with good reason. If court sees that there is too high interest agreed in contract, it will decrease it. Therefore, interest rates above 0,06% should have solid argumentation backing them. These arguments can be costs which are caused by late delivery or late payment. These costs can be for example costs which are incurred from lost capacity, cranes which are rented to construction site and because of late delivery they are unused or penalties which are defined in original main contract with client. Another kind of penalty which can be used in contracts is penalty from termination of contract. This, however, is not related to late interest. (Legal consult A, 2021)

CISG is also a factor which is not mentioned in framework agreements. Interviewee tells probable reason for it. These framework agreements used in Lithuania, are mainly used in situations where both contract parties are local. This means that law applied to contract relations is local law, whereas CISG is more intended for international contract relations. This same reason applies for the fact that framework also does not define which law will be applied to contract, because local law is chosen automatically unless otherwise agreed, and both contract parties are from same country. Interviewee suggests that CISG should be used in international contracts. Regarding use of CISG in contract, following question was asked:

Question: Do you think this clause would be valid, and good clause in general?

Clause: "If contract parties are not from the same country, CISG will be applied, otherwise if contract parties are from same country, contract shall apply local law"

Interviewee: Yes. (Legal consult A, 2021)

Interviewee sees administration of obligations as a good practice to handle and prevent risks. Contract should oblige parties to keep terms of contract and inform other party right away in situations where they are missing some key information, or they are having problems. So pre-emptive information and reacting to that information is important.

This informing and reacting is part of contract implementation. This applies to changes in financial situation, changes in production plan or any other changes that might affect to other contract party. (Legal consult A, 2021)

4.2.10 Summary about Lithuanian contract practices

Lithuanian contracts, especially framework contract is document which covers a lot of things. It is precise and topics and terms are described and defined widely and precisely. Practice is to use framework agreement as agreement which handles all basic things which are similar with every project. However, framework agreement is prioritized as agreement which will be used in case that nothing else has been agreed with actual order contract. This means that order contract is prioritized first.

In Lithuania it is also a good practice to use suppliers which are already known to company, and which are suppliers that have been used before. This means that long-term relationships are preferred. Cooperation is better in long-term relationships, and both companies know more what to expect from cooperation. Especially quality wise this is important, because it means less need for monitoring and checking if it is known that subcontractor has high quality. Cooperation is also good way to implement contract. With communication and cooperation inform can be changes, and possible problems can be prevented before they occur. For example, in financial problem situations other party can purchase raw materials for subcontractor, and only pay for labor. This helps subcontractor with cash management.

Compared to Nordic country practices, especially penalty practice in Lithuania can be weird. Lithuanian practice with same penalty for late delivery and late payment is not same practice used in Nordic countries. In Nordic countries it is more known practice to define its own interest for late payment, and own penalty for late delivery. However, in Lithuania this is different. You can only define one interest rate, which applies to both

late payment and late delivery. In Lithuania, according to interview it can be said that court approves transferring penalties from main contract to contract with subcontractors. However, defining this interest rate to contract can be challenging. When writing the contract, possible costs caused by late delivery need to be estimated. This also means that interest rate is project specific because late deliveries can have different impact in project where main contract has high penalty for schedule failures, than impact in projects which does not have high penalty for schedule failures.

When dealing with international contract relations, contract should always define law which will be applied, and court which will handle disputes. Use of CISG is also recommended in international contracts according to interviewee.

Key point in Lithuanian contract practices is implementation of contract. With obligation to inform other party, many problems can be prevented and therefore also extra costs can be prevented. Informing is not enough as its own, but it is also important to react to given information. This reacting can be preventative actions or preparations for coming situation.

Another important factor is definition and reason for amount of late interest and defining applying law to international contracts.

4.2.11 Poland

Structure of Polish purchase contract:

Polish purchase order in this case is form which will be filled according to each order needs. It is a template document, which has its own "box" for every topic. Every section is divided for its own box. (Unpublished document F, 2021) Below is an example about these boxes.

1.	Postanowienia Umowy Provisions of the agreement	Dotyczy Projektu: Applies to the Project:	z dnia.... of the date:	
2.	§ 1 ust./clause 1	Rodzaj usług (wybrać) services	- towar odbiorcy - towar własny (podwykonawcy) - towar odbiorcy i własny - z dostawą - bez dostawy - z zabezpieczeniem antykorozyjnym - bez zabezpieczenia antykorozyjnego -	- recipient's goods - own goods (subcontractors) - recipient's Client and own good - with delivery - without delivery - with corrosion protection - without corrosion protection -
3.	§ 2 ust. /clause 1	Terminy dostaw/odbioru Towaru: Dates of delivery / receipt of the Good:		
4.	§ 3 ust. /clause 2	Warunki dostawy, Incoterms Delivery Terms, Incoterms		

Figure 13., Example structure, (Unpublished document F, 2021)

Whole document is following same structure. This kind of structure makes document itself not too long, and this form is clear and simple. This document includes most of details related to project, and rest of the details not defined here are defined in manufacturing plan or drawings, which are usually included as attachment when making order. (Unpublished document F, 2021)

Polish frame agreement structure:

Polish frame agreement has 16 different sections. (Unpublished document G, 2021)

These sections are:

1. The subject matter of agreement
2. Dates of delivery
3. Terms of delivery
4. Obligations of the supplier
5. Price
6. Payment terms
7. Acceptances
8. Guarantee

9. Warranty
10. Contractual penalties
11. Withdrawal from the agreement
12. Additional deliveries
13. Liability of the supplier
14. Ethical principles and environmental protection
15. Notifications
16. Final provisions

These sections include all required basic information which is similar between each project. Project specific factors are handled mainly with mention about attachments. Project specific factors like drawings or manufacturing plan are always referred as attachment that specifies all project specific details. (Unpublished document G, 2021)

4.2.12 Interview about Polish contract practices:

According to Polish interviewee, number of suppliers is depending on several factors. There should always be opportunity to choose, so it's not optimal to only have one supplier available. He is currently using mainly 4-5 suppliers for structure subcontracting. He aims to keep similar kind of relationship with each supplier and divide projects between these suppliers. In Interviewees practices, there has been shift towards framework agreements. Earlier framework agreements have not been used as much as now. According to interviewee it is inefficient to make large individual contracts every time, without having framework agreement to support with basic terms and matters. Most of interviewees suppliers are suppliers which have been used and cooperated with for a long time. He recommends that long-term relationships should be enforced with framework agreements, and in general recommends framework agreements always when possible. (Production engineer B, 2021)

Penalties are handled in framework agreement. Amount of these penalties can differ, but as example interviewee gives penalty which will be paid if there is delay more than 10 days. In this case there is percentage defined to act as delay penalty. However, delays are rare with interviewees suppliers. Delays are rare because of constant communication between suppliers. Interviewee visits suppliers often and helps them with their production coordinating. He describes relationship with suppliers as being business partners. (Production engineer B, 2021)

Situations where supplier must pay penalty is often related to mistakes made in production. Sometimes these mistakes are mistakes which are not noticed in supplier's factory, but installation team in construction site notices them. In these situations, workers at site fix these mistakes if possible, and inform supplier about these mistakes. After that supplier usually pays for this work required to fix these structures. Sometimes there can be some discussion about amount of this penalty or reimbursement, but most of the time suppliers agree with initial reimbursement price. (Production engineer B, 2021)

When asking about order size and number of orders in one project, interviewee sees that these are situational things. In price point of view, it is better to use only one supplier and make one large order to one supplier. However, using only one supplier especially in large projects is riskier. When using more than one supplier, and more than one order, this risk is lowered, and it is usually more flexible in schedule point of view. Downside of this is that total price is usually higher. Interviewee recommends that it is always best to find balance between these two ways. It is situational, and best practice is to have risk balanced to price. In simple projects it is less risky to use one supplier and one order than in difficult complex projects. (Production engineer B, 2021)

Changes in projects are also situational. Most of suppliers that interviewee uses are small, so all the risk from changes cannot be transferred to suppliers. As an example, he gives example about order where quantity of required material changes. At first, he orders 50 tons of some certain structure, but after revision coming from designers or client, only

25 tons is required. In this example supplier has already purchased material for 50 tons of structures and can't deal with this kind of situation with having double the amount of raw material for these structures. In this example supplier produces 25 tons of structures and sells rest of raw material to interviewee. This excess raw material is not problem for interviewee, because he can use it easily in another project. However, for supplier this could be big problem because supplier's business is much smaller. This is an example about deep cooperation. This is just one example, and this kind of situation can be handled with different ways. Sometimes these materials can be used in later phases of the project. Instead of this kind of situation, revisions and changes can also mean extra work for supplier. In these cases, most of the time party responsible for changes is the one who is paying for extra costs. Usually, it is client or designers. According to interviewee, these are not factors which can be easily handled with contract. This is because each time situation is different. Cause of changes and its impact is different each time. Sometimes it means more work, sometimes less work. Sometimes it means more required material, and sometimes less. All of these are factors which have different impact in different situations, depending on projects schedule and supplier's production capacity currently available. These are factors which are agreed every time they occur, and interviewee highlights communication, especially in these situations. (Production engineer B, 2021)

Communication in general is the thing that interviewee wants to highlight. He visits suppliers often and communicates with them constantly. These visits are way to monitor and check them, but also negotiate about possible changes or problems. By visits and constant communication interviewee also has better knowledge about financial situation of suppliers. Financial situation is factor which affects to way how things are handled with supplier. Along with financial situation, these visits also help interviewee to make sure that quality of structures is high enough. Quality is a factor which is defined in contracts, both framework and actual order contract, but it is still a thing which is checked sometimes. Every supplier is audited at some point before ordering but checking occasionally is preventative method. (Production engineer B, 2021)

Another factor which is also related to financial situation is insurances. Insurances are always required from suppliers, and even the amount of insurance coverage is sometimes defined in framework agreement. Having insurance lowers risk of bankruptcy in situations when supplier makes a mistake or must pay some other penalty. (Production engineer B, 2021)

4.2.13 Summary about Polish contract practices

Polish contract practices in this case are mix between use of framework agreement and order contracts. As interviewee himself recommended, it is preferred to have framework agreement with every key supplier. Polish methods also have quite a lot of situational flexibility. Lots of things are handled with negotiations and communication situationally, instead of having all the things agreed in contracts. Suppliers are ones that have been used for a long time, and interviewee has good relationship with them. Interviewee has good knowledge about suppliers and their production, and there is not mention about reserved capacity in framework agreement. Polish practices can be described as flexible, based on relationship between people, and as some level of partnering.

4.2.14 Czech republic

Structure of Czech Republic purchase contract:

Czech purchase contracts are simple. However, there is also a yearly contract behind which makes it possible to use simpler purchasing contract. Purchasing document in Czech is basically SAP purchase order template, with some additional documents if required. Prices and amounts are described in SAP purchase order template. Order contract is based on SAP purchase order document, but it can have other documents

attached to it too. These other documents describe project specific requirements which are not described in actual SAP purchase order. However, most of requirements seems to be described in SAP order document, requirements like EXC class and ISO standards required. (Unpublished document H, 2021)

Yearly contract structure:

Yearly contract, in other words framework agreement is contract where contract parties agree about things that are same or similar between every project. If for some reason project has needs which are in conflict with framework agreement, there is clause “unless otherwise agreed in individual purchase contract”. If nothing else agreed, terms agreed with framework agreement shall be applied. Framework contract in Czech consists of following sections (Unpublished document I, 2021):

1. Contract parties
2. Representatives/contact persons for each company
3. Initial documents which are included to frameworks scope.
4. Object of contract
5. Price and payment terms
6. Delivery terms
7. Contractual penalties and sanctions
8. Withdrawal from the contract

4.2.15 Interview about Czech contracts

Interview started with question about number of suppliers used in sourcing. Interviewee described that number of suppliers used in project is related to size of the project and type of materials/items. With smaller projects it is easier to use only fewer suppliers because size of order is smaller. Regarding raw material sourcing interviewee tries to use minimally two or three suppliers. Reason for this is price variance between suppliers.

Some suppliers can sometimes offer lower price for example for profiles, and other supplier can sometimes have lower price for hollow sections. Same applies for subcontractors, especially in larger projects. In large projects guideline for dividing project between subcontractors is type of product/structure. Same kind of products/structures are made with one subcontractor if possible. For example, if project has 10 tons of beams, and 10 tons of other structures, 10 tons of beams are made with one subcontractor, and 10 tons of other structures are made with another subcontractor. Basic idea is to make similar parts in one place with same welders. (Production engineer C, 2021)

When asking about relationship and cooperation with subcontractors, interviewee prefers to use same suppliers. This means that relationship with suppliers is long-term relationship, rather than using lots of suppliers without deeper long-term relationship. These long-term relationships are enforced with yearly contracts between company and subcontractor. Orders and projects are handled with individual purchase orders, but yearly contract acts as framework contract. Yearly contract contains general non-project specific terms like penalties, delivery terms, and it also has agreement about capacity that subcontractor reserves for company. (Production engineer C, 2021)

Interviewee sees yearly contracts as best method to cooperate, so basic things are already agreed, and only price needs to be negotiated in each order. Interviewee sees that long-term cooperation also provides more flexibility. This cooperation with subcontractors is deep. Interviewee highlights communication with and subcontractor. With having constant communication with subcontractors both parties know forecasts and upcoming situations early and can prepare better for changing situations. This is important especially if project is postponed for some reason. With early notice subcontractor can make changes to their production plan, and impact to production is smaller. Interviewee uses weekly meetings as one method to communicate with key subcontractors. In these meetings possible schedule changes are discussed. These meetings are also way to monitor subcontractor. As interviewee highlights communication and trust to each other is important here. In terms of price there are two factors. Price that subcontractor gives

consists of labor, and possible materials. In some cases, company purchases materials to subcontractor, so that company only pays for labor. In these cases, price stays the same even if project is postponed, but if supplier purchases raw materials, price might change based on possible raw material price changes. So, schedule changes will not affect so much to price, but revisions or changes that client wants to be done might affect to price. Changes made by client cause extra cost, which is paid by client. So, company itself only carries risk about design mistakes, but not risk about new requirements of client. (Production engineer C, 2021)

When asking about governing law, interviewee told that most of penalty clauses are done by lawyer, so penalty amounts are not defined by interviewee. Amounts in Czech contracts are mainly penalties which are percentage-based amounts. These penalty percentages can vary between different factors. For example, penalty of late payment and late delivery can be different. There is also penalty for mistakes, but it is limited to maximum of 10% of the order. Mistake penalty also has option that in some cases supplier can come to site and repair their mistakes, but this can be problematic if time schedule is tight and there are no people currently available to repair this. In addition to these there can also be daily penalties, which follow the original contract between company and client. This means that daily penalty is different in each project. (Production engineer C, 2021)

When asking about financial situation and required insurances, interviewee told that liability insurance is always required especially from designers. Subcontractors also have it, but situation is easier with them because they can repair their mistakes with their own people. As baseline, interviewee never cooperates with company without insurances. (Production engineer C, 2021)

Interviewee also sees JIT production possible, and he applies JIT production. JIT production is again about communication with every party, including project manager, site manager and subcontractor. Sometimes with more challenging projects some parts might

take more time than originally planned, so this needs to be communicated to project people too. This helps project to prepare for the situation where some items are coming later than originally expected. (Production engineer C, 2021)

4.2.16 Interview with Czech legal consult

As first good practice Czech legal consult points out that contract should be drafted by someone who is familiar with area of contracts industry. Someone with some level of practical experience, and not only theoretical background. It can make difference is contract is made by lawyer who has practical experience from related field or not. (Legal consult C, 2021)

Czech legal consult also recommends use of framework contracts for enforcement of cooperation. Complexity of framework contract can differ between different parties. Simple frameworks are good for smaller scale projects or with entities which are already cooperating and have already formed relationship. (Legal consult C, 2021)

In Czech there is no maximum amount of penalty stated in law and freedom of contract has increased since 2014. However, penalty for subcontractors should not be more than penalty for case company from client's side. Penalty amounts should be in line with client and subcontractors and subcontractors subcontractors. In Czech there is not same kind of court practice regarding penalty amount as Lithuania has. Czech can be seen as more similar to Nordic countries than Lithuania. Czech contracts apply different interest rate for late payments and different penalty amount for example late deliveries. (Legal consult C, 2021)

Czech law allows use of other countries law without much limitation if there is international element. Law of other country can be used as governing law in contract, but it is advised to use local law if both parties are local entities. It is also recommended for Czech

entity to try to enforce Czech law in international contracts. According to legal consult, it is crucial that governing law and ruling court are same in the contract. *“If this issue is underestimated, you can have a dispute here before CZ courts governing by law of India. And such dispute can last for ages.”* (Legal consult C, 2021)

Czech legal consult sees use of CISG as dependent on situation. When representing stronger party, it is advisable to stipulate own terms to contract. CISG is crucial treaty in international contract relationships, but according to interviewee it is advisable to specify and tailor contract to suit both parties best possible way. (Legal consult C, 2021)

As a best way to manage and prevent risks, interviewee suggests that legal consults or company lawyers should be consulted before making the contract, not after signing the contract and facing problems. Preventative action in this case is the key. (Legal consult C, 2021)

4.2.17 Summary about Czech contract practices

As a summary there is one thing to be highlighted. In Czech according to interviewee best practice is to use framework agreements and long-term relationship with subcontractors and suppliers. Constant communication is also important. Meetings which occur in weekly basis are efficient way to monitor subcontractor, prepare for possible challenges or changes and to know situation of both parties through forecasts which are also discussed in weekly meetings. In Czech it is also seen as good practice to agree some capacity that subcontractor agrees to reserve for purchasing company. This capacity section can be seen as section, which is agreed in good mutual understanding, and with trust to each other. In these long-term relationships it is easier to negotiate and find a solution in situations when purchaser cannot meet this reserved capacity. However, these situations are rare, and usually capacity can be met.

Legally Czech most common practices are to some point similar to Nordic countries. Czech has different penalties for late payments and late deliveries like Nordic countries. In Czech there is contractual fine and interest for late payments, which are separate from each other.

4.3 Comparing contracts with literature review

This section is about comparing different practices and structures of contracts between different countries and literature review. Aim is to study basic practices and structure in each country and find possible practices which are used in one country and can be applied to some other country too.

4.3.1 Contracts used in nordic countries

Contract templates used in Nordic countries are quite wide in range. Contract template base in Nordic countries is by far most wide compared to other countries. There are lots of different templates for different materials and different projects. It is suggested to combine some of the contracts and use fewer number of different contract templates. Contract template base as large as these is hard to manage and update. There are lots of similar things between contracts, and it is suggested to use fewer number of templates and only change case specific factors in contract.

Otherwise, structure of contracts is in line with literature review. Contracts in Nordic countries are well defined, but there are differences between them. All contracts don't have mention about CISG or applying law. Some of contracts refer to general terms used in each country, but not every contract. It is suggested to use contract templates which apply same logic and are drafted similarly. In Nordic countries some of templates use

same kind of structure that is used in Polish contracts. Some contracts are written in two languages.

4.3.2 Contracts used in Lithuania

In general contracts used by case company in Lithuania are in line with literature review. As already mentioned in interviews, contracts in Lithuania are mostly created according to local regulations. However, contract templates used as source here have one fault in them. In case of international contract relationship there should be definition about law which will be applied to contract, and mention if CISG shall be applied or not.

Many of these contracts are reusable. This means that basic subjects in contracts are made as template, and order specific subjects are handled with annexes. This template-based practice seems to be widely used in case company.

One important factor in literature review was penalties, delays, and damages. These factors are similar and related to each other. Penalties are mentioned here, but as noted in interviews, amount of penalty can differ between projects. According to literature review, some linguistic improvements are suggested. See figures 2. and 3.

4.3.3 Czech contracts

Overall structure of Czech framework contract is similar compared to Lithuania and Nordic countries. One most notable difference is that Czech contract template is shortest one by far compared to templates used in other countries. This, however, does not mean that template is bad. In interview section there was mixed opinions about length of contract template. Some interviewees suggested using simple and short contracts, and

some of interviewees suggested using wide contract which covers more factors. Compared to literature review of this study, most of the key things are included in contract. However, as suggested in literature review and in interviews, there should be mention about CISG, applying law and chosen court. It is reusable template, which can be modified for each case. According to literature review, some lingual improvements are suggested. See figures 2. and 3.

Purchase order contract used in Czech is simple, but it has all necessary terms and information included.

4.3.4 Contracts used in Poland

Contract template used in Poland I probably best from templates used in Lithuania, Czech and Poland. Polish contract is contract, which is written in both, English and Polish language. Whole contract is divided in two parts, which are same but only language is different. This is clearest way to make contract if there is any possibility that other party does not have native polish people. By using both languages, there is less room for misunderstandings. This is biggest difference between polish contract templates and Czech and Lithuanian templates. Polish template is also longest template used in these three countries. As pointed out in interviews, this is not necessarily good or bad. However, literature review suggests that contract should be longer with more terms and definitions in it.

Contentually structure is similar. Polish contract has most of things which are suggested in literature review, but same lingual improvements are suggested according to figures 2. and 3.

5 Conclusions

As conclusion, implementation of contract, informing, monitoring and mutual understanding are most important factors in good contract. Implementation of contract was pointed out several times in interviews and in literature review. Without proper implementation of contract, benefits of good contract are not utilized completely. Implementation of contract can have significant impact to outcome of relationship and result of cooperation. Informing and monitoring are part of implementation, and therefore are in important role. With communication and monitoring problems can be prevented. If other party notices incoming problems, it is important to inform other party about them. With early enough informing both parties can prepare for problems, or even prevent them completely. Therefore, informing is important, especially things that might affect to schedule of project are important. This way project can prepare for coming situation and outcome is better than in situation where problems, for example delays are not coming as a surprise and therefore impact is not as bad.

Good contract is well and clearly defined, and both parties understand liabilities and obligations of contract. Both contract parties should understand contents of contract, and in optimal situations knowledge about contents is at same level with both contract parties. However, in some cases it is hard to completely eliminate informational asymmetry between contract parties. Good contract can still lower this asymmetry. Good contract also takes care of implementation of contract. Implementation is factor which should be considered when drafting contract. Good contract also acknowledges changing situations and different environment of each project and takes care of these factors. Good contract should also be easy and understandable for everyone to use. This means that also personnel who are not familiar with legal matters can understand it and is not too troubled to use it. These first columns can be seen as an answer to research questions “What are best contract practices in project-based business?” and “How to make good contracts?” These columns also answer to question “Is it possible to use same contract practices between different market areas?” As an answer to that question concerning the possibility to use same contract practices between different market areas, we

suppose, that it is not possible. However, there can be similarities and some certain market areas can apply same practices, but same practices cannot be used in every country of this research.

When using penalty clauses in contract, governing law should be taken into consideration. In interviews it was pointed out that different laws handle penalties differently. In Nordic countries there is common legal principles related to these, and in some countries, there is limiting court practices. In Nordic countries these common legal practices like principle of reasonableness and loyalty principle are principles that must be taken into consideration when drafting a contract. Penalty should also be seen as limitation. When figuring out right amount of penalty, it should be set on the level that it covers all expected costs caused by subject of penalty i.e., delay. Penalty in these cases also limits possible reimbursements, and therefore there can't be any other claims than penalty agreed in contract. There are some cases when penalty agreed can be exceeded, but these situations often require other party to cause intentional damage.

In some of the countries there is court practices limiting amount of penalty. Often penalty in these countries is not called penalty, but instead it is called interest. This interest is one interest rate agreed in contract, and it applies to delays and payments both. There are no different penalties for delays, and own interest rate for delayed payments. This interest rate also needs to have reasoning behind it. If court sees interest level unreasonably high, interest is often lowered. According to interviews 0,05%-0,06% is at level of highest penalty without good reason behind it. This can differ based on country and courts rule. However, it is recommended to have reasoning and proof for higher interest, if there is higher interest rate agreed in contract.

This means that penalty should always be in line with governing law. Lithuania for example uses interest rate method, when they only have one interest for both late deliveries and late payments. In Czech this practice is more like practice used in Nordic countries, when you have different penalty for delays and different penalty for late payments.

One important thing pointed out by every lawyer is that contract should always define law applied to it, and court that handles all disputes. These two should always be the same, i.e., if contract has Finnish law as governing law, court which handles disputes should also be Finnish court. If contract has Czech law as governing law, disputes should be handled by Czech court etc. CISG should also be mentioned in contracts, mainly defined if it will be excluded or included to contract. According to some interviewees you get more benefits if you exclude CISG as stronger party, and put your own terms in to contract, but otherwise as weaker party it is advisable to use it. CISG is crucial treaty in international contracts.

As one improvement idea, as researcher I would suggest using contract template base which has similar structure and similar logic in every country. Templates cannot be exactly same because of differences in each country, but structure and logic should be more similar between these countries. Two language contracts used in some of the Nordic contracts and polish contracts could be used a referral point when combining structure and logic of contracts. Using two languages in contract can be seen as good practice. Other language is local language and other language is preferably English. This way contract is not only usable for personnel whose native language is local language. Companies have employees in different countries and nationalities, and two language contract with other language being international contract can be used by more employees with different nationalities. Also, if contract base is more similar in structure, it is easier for other country party to understand and use contracts in other countries too.

For research question "Can contract have terms which are in conflict with local laws?" there is no simple answer. There are binding and non-binding laws and regulations in every country, and contract cannot be in conflict with binding laws and regulations. Example of these binding laws are labor law and tax laws. Contract cannot be in conflict with binding local laws and regulations even if law applied to contract itself is different than contract where actual work happens. I.e., contract which applies Lithuanian law

and actual work is done in Finland, this contract cannot be in conflict with Finnish binding laws and regulations.

Contracts have important role in business. Their role is important in inventory management, material timing and supply chains in general. Contracts lower risk and uncertainty in supply chain which is important especially in project-based business. Contracts can be seen as guideline for business cooperation.

The results of this study can be only partially generalized, because this study is case study and findings and statements made in this study fully apply only to case company. However, this does not mean that some parts of this study can't be partially applied in every organization. Especially results which are strongly related to law can be applied in other organizations, because law is the same for every organization.

When evaluating reliability of this study, it can be considered as reliable study. This study uses data from several sources, and interviews are done with personnel who are professional in their field. Critical thinking was applied by researcher when making this study.

5.1.1 Further research

Further studies could be made from one of the following topics:

1. Role of general terms in construction business (RYHT, YSE, ABM & NL)
2. In depth analysis of each country's contract practices alone
3. Differences in contract practices between project based business and manufacturing business
4. In depth analysis of project business risk management

References

- Aalto, T., Anttila, E. J., Aromaa, P., Hassinen, P., Hirsimäki, H., Huhdankoski, E., . . . Ålander, C. (1994). *Teräsrakentaminen*. Helsinki: Rakennustieto.
- Aarto, M., Aho, T., Regelin, J., Uotila, J., & Vatanen, T. (2009). *Hankintasopimus*. Helsinki: Edita Prima Oy.
- Akintoye, A. (1995). Just-In-Time application and implementation for building material management. *Construction Management and Economics*(13).
- Alshammari, S.;Al-Gahtani, K.;Alhammad, I.;& Braimah, N. (2017). A Systematic Method to Analyze Force Majeure in Construction Claims. *Buildings*, 4(7).
- Androwis, N.;Sweis, R. J.;Tarhini, A.;Moarefi, A.;& Mahmood, H. A. (2018). Total quality management practices and organizational performance in the construction chemicals companies in Jordan. *Benchmarking : An international journal*, 8(25), ss. 3180-3205.
- Assid, M.;Gharbi, A.;& Hajji, A. (2020). Production and subcontracting control for an unreliable manufacturing system with setups. *International journal of production research*, 12(58).
- Bals, L.;& Hartmann, E. (2008). *Sourcing of services*. New York: Nova Science Publishers.
- Bastas, A.;& Liyange, K. (2018). Sustainable supply chain quality management: A systematic review. *Journal of Cleaner production*(181), ss. 726-744.
- Benton, W. C. (2010). *Purchasing and supply chain management*. New York: Mc Graw-Hill.
- Benton, W. C.;& Mchenry, L. F. (2009). *Construction purchasing & Supply chain management*. McGraw-Hill Companies .
- Bielefeld, B. (2018). *Basics Building Contract*. Walter de Gruyter GmbH.
- Bix, B. H. (2012). *Contract law: rules, theory, and context*. Cambridge university press.
- (2021). Business area manager.
- Dubey, K.;Chavas, J.-P.;& Veeramani, D. (2018). Analytical framework for sustainable supply chain contract management. *International Journal of Production economics*(200), ss. 240-261.

- Fenwick Elliott. (ei pvm). *About us*. Noudettu osoitteesta Fenwickelliott:
<https://www.fenwickelliott.com/about>
- Glover, J. (2008). *Framework Agreements: Practice and Pitfalls*. Retrieved from Fenwick Elliott:
<https://www.fenwickelliott.com/sites/default/files/Practice%20and%20Pitfalls.pdf>
- ISO. (n.d.). *ISO 9000 family*. Retrieved from ISO: <https://www.iso.org/iso-9001-quality-management.html>
- Jiangtao, H.;Yibin, Z.;& Minqiu, D. (2018). Sustainable supply chain management practices, supply chain dynamic capabilities, and enterprise performance. *Journal of Cleaner Production*(172), ss. 3508-3519.
- Jie, Y.;Hongming, X.;Guangsheng, Y.;& Mingyu, L. (2021). Achieving a just-in-time supply chain: The role of supply chain intelligence. *International journal of production economics*(231).
- Khoiry, M. A., Kalaisilven, S., & Abdullah, A. (2018). A Review of Minimizing Delay in Construction Industries. *International Conference on Civil and Environmental Engineering*. 65. International Conference on Civil and Environmental Engineering: E3S Web of Conferences.
- Kiiras, J.;Peltonen, T.;Kruus, M.;& Sivunen, M. (2019). *Projektinjohtorakentaminen ja muita palvelumuotoja*. Helsinki: Rakennustieto.
- Klee, L. (2018). *International Construction Contract Law*. John Wiley & Sons, Incorporated.
- (2021). Lawyer A.
- (2021). Legal consult A.
- (2021). Legal consult C.
- Liuksiala, A.;& Stoor, P. (2014). *Rakennussopimukset*. Helsinki: Rakennustieto Oy.
- McGuinness. (2007). *The Law and Management of Building Subcontracts*. John Wiley & Sons, Incorporated.
- Monaghan, N., Monaghan, C., & Stevenson, N. (2013). *Beginning contract law*. Taylor & Francis Group.

- Morana, J. (2013). *Sustainable supply chain management*. London: John Wiley & Sons Inc.
- Olin, T.;& Kortene, M. (2015). *Infrarakentajan sopimusopas*. Helsinki: Rakennustieto Oy.
- Olsson, R. (1998). Subcontract coordination in construction. *International journal of production economics*.
- Pheng, L. S.;& Shang, G. (2011). The Application of the Just-in-Time Philosophy in the Chinese Construction Industry. *Journal of construction in Developing countries*, 1(16), ss. 91-111.
- Prajogo, D.;Oke, A.;& Olhager, J. (2016). Supply chain processes. *International Journal of Operations & Production Management*, 2(36), ss. 220-238.
- (2021). Production engineer A.
- (2021). Production engineer B.
- (2021). Production engineer C.
- (2021). Project manager A.
- (2021). Project Manager B.
- (2021). Purchasing manager.
- Rivera-Gomez, H.;Gharbi, A.;Kenne, J.-P.;Montano-Arango, O.;& Hernandez-Gress, E. S. (2016). Production control problem integrating overhaul and subcontracting strategies for a quality deteriorating manufacturing system. *International journal of production economics*(171), ss. 134-150.
- Saithong, C.;& Luong, H. T. (2013). Supply Chain Contract with Put and Call Option: The Case of Non-Linear Option Premium Price. *Industrial Engineering & Management Systems*, 2(12), ss. 85-94.
- Sandvik, B.;& Sisula-Tulokas, L. (2013). *Kansainvälinen Kauppalaki*. Helsinki: Helsingin Seudun Kauppakamari.
- Sears, S. K., Clough, R. H., Clough, R. H., Rounds, J. L., Sears, G. A., & Segner, R. O. (2015). *Construction Project Management*. New Jersey: John Wiley & Sons, Incorporated.
- Smith, J. G.;& Hinze, J. (2010). *Construction Management: Subcontractor Scopes Of Work*. Boca Raton, Florida: Taylor & Francis Group.

- Talvitie, J. K.; & Hytönen, A. (2000). *Englanti-Suomi Tekniikan ja kaupan sanakirja*. Helsinki: WSOY.
- Tritonia LibGuides. (7. February 2020). *Vaasan yliopiston kirjoitusohjeet: Lähteet ja viitteidenhallinta*. Haettu 7. February 2020 osoitteesta <https://uva.libguides.com/kirjoitusohjeet/lahteet-viitteidenhallinta>
- United Nations. (2010). *United Nations Convention on Contracts for the International Sale of Goods*. New York: United Nations.
- United Nations. (2020). *Commission on international trade law*. Retrieved from United Nations:
https://uncitral.un.org/en/texts/salegoods/conventions/sale_of_goods/cisg/status
- Unpublished document . (2021).
- Unpublished document B. (2021).
- Unpublished document C. (2021).
- Unpublished document D. (2021).
- Unpublished document E. (2021).
- Unpublished document F. (2021).
- Unpublished document G. (2021).
- Unpublished document H. (2021).
- Unpublished document I. (2021).
- Van Lith, J., Voordijk, H., Matos Castano, J., & Vos, B. (2015). Accessing maturity development of purchasing management in construction. *Purchasing management in construction*, 22(6).
- Van Weele, A., & Van Der Puij, J. (2013). *International Contracting: Contract Management In Complex Construction Projects*. World Scientific Publishing Company.
- Xianbo, Z., Bon-Gang, H., & Weisheng, P. (2014). Construction Project Risk Management in Singapore: Resources, Effectiveness, Impact, and Understanding. *KSCE Journal of Civil Engineering*, 1(18), pp. 27-36.

- Xiang, P.;Jin, Z.;Xiaoyu, Z.;& Kunhui, Y. (2012). Construction Project Risk Management Based on the View of Asymmetric Information. *Journal Of Construction Engineering And Management*, 11(138), ss. 1303-1311.
- Zidane, Y. J.-T.;& Andersen, B. (2018). The top 10 universal delay factors in construction projects. *International Journal of Managing Projects in Business*, 3(11), ss. 650-672.

Appendix

Interviews and discussions

Project Manager A

Project Manager B

Lawyer A

Legal consult A

Legal consult B

Legal consult C

Business area manager

Purchasing manager

Production engineer A

Production engineer B

Production engineer C

Legal:

Based in your experience, do you have some practices in your mind regarding contracts which you think are exceptionally good or would need improvement? What are practices you think are good?

What is your opinion about framework agreements, and what are good practices with them? Do you prefer to have framework agreement made, or to make different contract every time something is purchased?

How strictly you think that (country) law restricts freedom of contract?

What do you think about differences in governing law between different countries? Do you know if contract can have for example higher penalty than what it is recommended in governing law? Is there maximum penalty defined in your country's governing law? Can contract be in conflict with your country's governing law?

Does the (country) legislation allow the use of some other country's law when dealing with international contracts?

How important do you think that governing law applied in each contract is defined in contract itself?

Are you familiar with United Nations Convention on Contracts for the International Sale of Goods (CISG)? When thinking about international contracts, how would you describe role of CISG in them?

Which are best ways to manage and prevent risks with contract based on your experience?

Does your country have any common practices which are generally used in contracts which you see as exceptionally good? (free word question)

Project:

Based on your experience, what is main thing causing problems in a project, which could be handled with a better contract?

Based on your experience, what is best way to handle delays with a contract?

If delay in the project is not caused by case company, is there a clause in contract which protects case company? If supplier delays project with late deliveries, is there mention in contract how damages/costs are transferred to supplier?

How do you see changes in project? How are changes in project handled in contract with client and in contract with subcontractor? Who carries main risk about changes and possible delays and increased costs?

What are most usual practices to transfer risk and customer specific needs and requirements to supplier?

How have you taken into account partnering model in supplier contracts? How is confidentiality taken care of if need to go offers through with end customer as well?

When using subcontractor, do you require following things from the subcontractor:

Do you always require liability insurance?

Do you require proof of subcontractors financial situation with bond etc.?

Sourcing:

When thinking about contract practices, what are main differences you see when purchasing materials and services?

When purchasing materials/services to project, do you prefer to use few suppliers or many different suppliers for same items?

What is your opinion about framework agreements, and what are good practices with them? Do you prefer to have framework agreement made, or to make different contract every time something is purchased?

Do you prefer to use multiple individual orders/contracts or to order in large quantity/frame contract with call-offs using pre-agreed conditions?

Do you prefer to have deeper long-term relationship probably enforced with cooperation contracts?

Sub-contracting:

When sourcing materials/services to project, do you prefer to use few suppliers or many different suppliers for same items?

Do you prefer to have deeper long term relationship probably enforced with cooperation contracts?

What do you think about differences in governing law between different countries? Do you know if contract can have for example higher penalty than what it is recommended in governing law? Is there maximum penalty defined in your country's governing law?

What is your opinion about framework agreements, and what are good practices with them? Do you prefer to have framework agreement made, or to make different contract every time something is purchased?

Do you prefer to use multiple individual orders or to order in large quantity with call-offs?

How do you see changes in project? How are changes in project handled in contract with client and in contract with subcontractor? Who carries main risk about changes and possible delays and increased costs?

What kind of practices you use to transfer risk to supplier or sub-contractor with contract?

Have you had any difficulties with delays? If drawings are sent to supplier too late, have they requested more money or time? How do you agree that usually?