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The role of an Agile Coach
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The role of an Agile Coach

Abstract

The popularity of using Agile processes is increasing. Agile methodologies are based on Agile manifesto which provides guidelines, that every Agile Framework should follow. There are different frameworks, that have their own sets of rules, but follow the principles introduced in Agile Manifesto. Often companies don't implement one specific framework but combine many in order to make it work for their specific case and environment. In order to make the transformation to Agile, an Agile Coach could be hired to help to implement the changes.

There are many benefits of using Agile Coaching e.g. improvements in teamwork [1], quality of the work, lower costs [2], etc.. The goal of Agile Coaching is to show teams different options how to implement and improve their Agile processes and help them to see, what to do next and also guide them how to take responsibility [3] via [4].

The purpose of the thesis is to examine the role of an Agile Coach, what are the competencies needed in that profession, how does he or she create value, what are the challenges he or she faces while coaching and how are these tackled? The goal of this thesis is to produce a practical overview of the role of an Agile Coach, from different perspectives and gather the findings from coaches working in different environment combined with the knowledge from literature. The outcome of the thesis could be beneficial for people who are interested in that role and want to understand what is needed in order to succeed in this role. For that purpose, a Case study method was used.

The main findings are that, the role includes many roles inside of one role and it is hard for one person to master them all. Every coach is a little bit different from others. In order to succeed in this role, one has to know a little about everything, but master some parts of the role. It is important to be self-aware and know what you know and what you don't know. Since it is a helping role, it is hard to measure the value, since it is a mutual responsibility shared with the coachee, but it is valued more by people who have had personal experiences with coaching.

Keywords: Agile Coach, Agile Coaching, Agile development, Agile Frameworks

CERCS: P170 (Computer science, numerical analysis, systems, control)

Agile Coach 'i roll

Lühikokkuvõte

Välearenduse metoodikate kasutamise populaarsus on tõusuteel. Välearenduse metoodikad põhinevad agiilse tarkvaraarenduse manifestil, milles on kirjas põhimõtted, mida iga välearenduse raamistik peaks järgima. Erinevatel raamistikel on erinevad reeglid, kuid nad kõik järgivad põhimõtteid, mis on kirjeldatud agiilse arenduse manifestis. Tihti ei implimenteeritud ettevõtte mitte ühte konkreetset raamistikku vaid kombineerib mitmeid raamistikke omavahel, nii et see sobiks spetsiaalselt sellesse keskkonda. Selleks, et välearendusele üle minna, võib palgata *Agile Coach* 'i, kes aitab muutust läbi viia.

Agiilse *coachingu* kasutamine on toonud kaasa kasu mitmes erinevas aspektis, näiteks on paranenud meeskonnatöö [1], tõusnud on töö kvaliteet ning langenud kulud [2] jne. Agiilse *coachingu* eesmärk on näidata tiimile erinevaid võimalusi, kuidas nende välearenduse protsessi paranendada ja aidata märgata, mida on vaja järgmisena ette võtta ning juhendada, kuidas võtta vastustust [3] via [4].

Magistritöö eesmärk on uurida *Agile Coach* 'i rolli, millised kompetentsid on selles ametis vajalikud, kuidas antud roll väärtust loob, millised on selles rollis esinevad katsumused ja kuidas nendega hakkama saadakse. Eesmärk on luua praktiline ülevaade *Agile Coach* 'i rollist, vaadeldes seda erinevatest vaatenurkadest ning kogudes infot erinevatelt *coach* 'idelt, kes töötavad erinevates keskkondades ning kõrvutades seda varasemas kirjanduses leituga. Kuna roll on uus, ei ole seda väga palju uuritud ning enamustes olemasolevates uurimustes on keskendunud ühe ettevõtte kogemusele, mistõttu peegeldavad tulemused ühte keskkonda. Töö tulemus võib olla kasulik inimestele, kes on sellest rollist huvitatud ning tahavad teada saada, mis on vajalik selleks, et olla selles rollis edukas. Et neid eesmärke saavutada, kasutati juhtimianalüüsi meetodit.

Peamisteks tulemusteks olid, et antud rolli kätkeb endas erinevad rolle ning ühel inimesel on võimatu neid kõiki täies mahus omandada. Iga *coach* on natukene erinev. Selleks, et rollis edukas olla, peab teadma natukene kõikidest rolli tahkudest, aga olema tugev vähemalt paaris *Agile Coach* 'i töövaldkonnas. Oluline on ennast tunda ja olla teadlik sellest, mida sa tead ja mida sa ei tea. Kuna see on teiste aitamisega seotud roll, siis on selle rolli väärtust keeruline hinnata, kuna tulemus sõltub alati ka vastaspoole valmidusest pühenduda. Rohkem väärtustavad seda rolli inimesed, kellel on isiklik kogemus.

Võtmesõnad: *Agile Coach*, *Agile Coaching*, agiilne arendus, agiilsed raamistikud, välearendus

CERCS: P170 Arvutiteadus, arvutusmeetodid, süsteemid, juhtimine (automaatjuhtimisteooria)

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1. Introduction and problem statement

Software development is part of our society for already longer than 50 years [5]. In the very beginning there was no specific methodology that was used and followed. When the systems got bigger and more complex, it was needed to organize the development processes and therefore methodologies were introduced [5]. According to Awad: “*Methodologies impose a disciplined process upon software development with the aim of making software development more predictable and more efficient*“ [5].

Agile development methodologies are based on Agile Manifesto that was introduced as a reaction to traditional software development [6] which is most known by Waterfall [7] and Spiral [8] models. Under Agile methodologies, there are different Frameworks that use Agile Principles, but are still somewhat different e.g. SCRUM [9], Kanban [10], Extreme Programming [11] or a combination of them [12]. Agile development is a human centric approach and the transformation to Agile could be challenging for a company because it requires a change in a mindset and a cooperation of very different stakeholders. In order to make the transition to Agile smoother, external help could be asked from somebody with a good knowledge of Agile. Therefore, Agile Coaches could be hired, to help with the transition to Agile.

It is found that coaching improves teams ability to understand Agile practices and how to work [13], it enhances the teamwork [1], helps to make the product quality better, lowers costs [2], helps to create better solutions and makes projects in general more successful [14]. There is also information about for example how Scrum raises the productivity [15].

Although a good team coach tries to make himself or herself unemployed as soon as possible by helping teams to become independent, it is found that coaches who coach the organization, should be available for them also after the transition period. Since it is beneficial to have somebody in the organization who would help to stay on course with the practices [14].

The goal of Agile Coaching is to show teams different options how to improve their Agile processes and help them to see, what to do next and also guide them, how to take responsibility for their doings [3] via [4]. Although the benefits of Agile Coaches have been shown [16], only few studies are conducted on the practical aspects of the role of an Agile Coach.

The aim of the thesis is to explore the role of an Agile Coach by investigating literature and interviewing acting practitioners who conduct Agile Coaching. Although there are case studies made, which focuses on different topics and specific angles of the experience of coaches [13], [14], [17] most of them represent one specific environment (one company).

It is important to explore the role further by combining the experience from different coaches working in different places and with different teams and find common themes in order to understand the role more fully by answering following questions:

- a) What is required to be an Agile Coach?
- b) What challenges do Agile Coaches encounter in their work?
- c) How do they address challenges in their work?
- d) What value do Agile Coaches perceive themselves to have for companies they work with?

The goal is to explore the background of Agile Coaches by finding out about what is needed in order to be successful in this role (e.g. background, skills, methods that one must master); which are the challenges that coaches encounter while helping to implement Agile ways of working and helping the teams or the organizations in general; which are the methods they use in their work and how valuable they feel to be in the company they work with.

In order to get a comprehensive overview, it is important to combine literature with knowledge from practitioners. For that reason, a Case study method will be used, a questionnaire will be created, and semi-structured interviews will be conducted with practitioners. Thematic text analysis will be applied to the transcripts which will be analyzed according to the guidelines provided by Braun and Clarke [18].

The thesis will have following chapters: first background (chapter 2) where the background of software development processes will be discussed, different methodologies will be presented and compared with each other. Chapter 3 is about “State of Art” where the current state of Agile Coaching will be presented according to the findings in the literature. In Chapter 4 case study will be presented with describing the method, design of the study followed by execution. In Chapter 5 the results will be presented and described. Discussion of the results is found in Chapter 6 together with threats to validity and finally Conclusion in Chapter 7.

2. Background

2.1. History of software development processes

In classical software development, the process is plan-driven, requirements are defined and documented in the very beginning of the process [6]. A well-known examples of classical processes are Waterfall model [7] and Spiral model [8]. These methodologies are also often referred as heavy-weight methodologies [6]. Since e.g. in Waterfall model it is important to complete one step before another one starts (e.g. final requirements are documented before development and testing), it has some limitations. For example, it is hard to define requirements in the very beginning of the project, since there might be a need to do changes those during the project, also, customer is not participating in the development process and only sees the final product [19].

As a reaction to classical software development, light-weight methodologies, also known as Agile methodologies, were introduced [6]. Agile development is based on Agile Manifesto, which was written by seventeen software practitioners in 2001 and stated four core values of software development: *“individuals and interactions over processes and tools, working software over comprehensive documentation, customer collaboration over contract negotiation, responding to change over following a plan.”* [20]. Agile Manifesto also stated 12 principles which indicated the importance of delivering working software to the customer as early as possible which meant short intervals of development followed by delivery as a contrast to waterfall method where client only saw the finished product. They also emphasized the importance of tight cooperation between businesspeople and development, the importance of communication and reflection. They highlighted, that the best work results come from self-organizing team which consists of motivated people [20]. The main differences between classical and Agile software development process gathered by Nerur et al. and shown in Table 1 [21].

Table 1. Traditional versus Agile software development by Nerur et al. [21].

	Traditional	Agile
Fundamental Assumptions	Systems are fully specifiable, predictable, and can be built through meticulous and extensive planning	High-quality, adaptive software can be developed by small teams using the principles of continuous design improvement and testing based on rapid feedback and change
Control	Process centric	People centric
Management style	Command-and-control	Leadership-and-collaboration
Knowledge Management	Explicit	Tacit
Role assignment	Individual-favors specialization	Self-organizing teams– encourages role interchangeability
Communication	Formal	Informal
Customer’s Role	Important	Critical
Development Model	Life cycle model (Waterfall, Spiral, or some variation)	The evolutionary-delivery model
Desired Organizational Form/Structure	Mechanistic (bureaucratic with high formalization)	Organic (flexible and participative encouraging cooperative social action)
Technology	No restriction	Favors object-oriented technology

The Manifesto expressed principles, that one should keep in mind when doing software development, but these are not specific guidelines or methods, but propose a mindset that any chosen Agile approach should follow [22]. There are different Frameworks that are based on Agile Manifesto, but have some differences how detailly they define the engineering processes and how specific rules they have. The most popular Framework is Scrum [12]. Followed by is Kanban [12], and Extreme Programming [10, 23]. There are also others, not so widely used practices, like Dynamic Software Development Method (DSDM) [24] and others. As Sampietro’s shows [12] in his study, Scrum, Kanban and versions of XP are the most popular Agile practices in use (Figure 1).

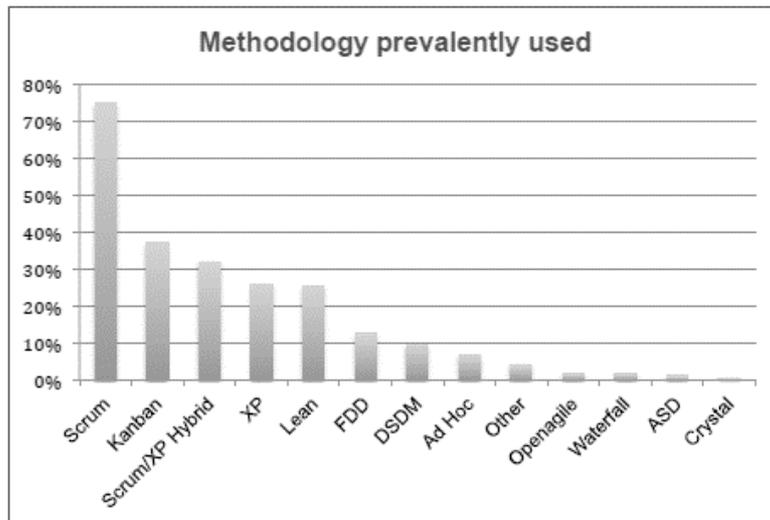


Figure 1. Usage of Agile Methodologies [12].

In recent years, the trend to use one specific Software Development Model has decreased, because they didn't give the results that were expected [12]. Companies and teams customize and merge different Models in order to make them work for their specific company or project [12]. Next there will be short overview of the most used Agile Frameworks.

1.1. Scrum

Scrum is one of the Frameworks under Agile development. It gives a concrete frame and guidelines to the development team on how the working process should look like and which are the benefits that are to be gained from that. Scrum teams are usually small, self-organized and working in an iterative manner which enables them to work hand-in-hand with the customer by reacting to changing needs faster and effectively [25]. They manage their own work, the team itself decides who will contribute in what way so that the goals are met ([17] via [26]). Every member of the team participates in decision making process regarding the team ([17] via [26]). The process is shown on Figure 2.

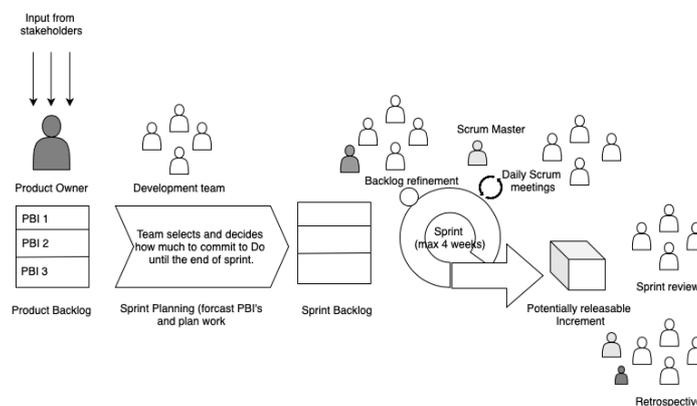


Figure 2. Scrum Framework inspired by [27] and [28].

Scrum consists of three pillars which make it possible to uphold the empirical process control. These are “*transparency, inspection and adoption*” [9]. There are four formal events, that help to practice inspection and adoption: sprint planning, daily Scrum, sprint review and sprint retrospective (Figure 2).

How successful the team becomes with Scrum, depends on different things, among others it depends on how proficiently is the team living Scrum values which are commitment, courage, focus, openness and respect [9].

Scrum Team consists of three parties: product owner, the development team and a Scrum Master [9]. Product owner is responsible and accountable for the Product Backlog, by making sure the items are clearly described and understood by the team. He is responsible for optimizing the value of the work that has to be done by the development team and has to make sure the items are ordered according to importance [9].

Development team consists of professionals that altogether build a cross-functional team, that has all the skills needed to deliver potentially releasable Increment on their own [9]. The key-element is that the team is self-organized and cross-functional. They are deciding how much work they will finish by the end of the sprint and they as a team are also responsible for the outcome. Cross-functional means, that the team is capable of producing potentially releasable increment by the end of the sprint on their own, without depending on others outside of the team [9].

The main responsibility of a Scrum Master is to serve the Scrum team by getting rid of the impediments and making sure that the processes are in place and running smoothly [9]. According to Scrum Guide, Scrum Master provides different services to the Product Owner, Development team and the organization. Among these services is “hands-on” help e.g. removing impediments, facilitating events, but there are also teaching and coaching related services that he or she offers [9].

1.1. Kanban

Kanban’s main idea is to have an up to date overview and possibility to tell what work needs to be done and when it needs to be done [10]. In that process it is important to explicitly present the most important tasks that needs to be done first and at the same time increase flexibility amongst other tasks, making so sure, that the most important work gets done considering the skills that are represented among the developers [10].

Kanban and Scrum are similar because they both break bigger packages of work into smaller pieces and they both have self-organized teams who focus on delivering releasable software early and adopting to changes as quickly as possible and they both value transparency [29]. The main differences are that Kanban doesn’t use Sprints, instead of Velocity it uses Lead time as metric for planning and improvements [29]. When using Kanban, the team doesn’t have to be cross-functional and it is allowed to add new items to the workflow, whenever the manpower for that is available. The model also doesn’t prescribe any roles, like it does in Scrum [29].

1.2. Extreme Programming

Extreme Programming is developed by Kent Beck in 1996 and focuses on best practices. It tries to answer a question: “*What is the simplest set of practices I could possibly need and what do I need to do to limit my needs to those practices?*” [11]. It has six phases: exploration, planning, iteration to release, productionizing, maintenance and death [23].

Comparing to Scrum, XP defines twelve principles that give concrete guidelines about the development process, Scrum only defines a Framework and the team decides which development practices to use [23]. Comparing to Scrum, XP focuses more on engineering related topics, whereas Scrum also covers management related issues [23].

2. State of the art

In this chapter, studies on the matter of Agile Coaching will be analyzed and presented. First about different types of coaches. Then about the skills that are needed for the job and their daily responsibilities as coaches. After that possible processes for Agile Coaching will be presented followed by typical challenges coaches encounter in their work.

2.1. Types of coaches

According to Adkins an Agile Coach is “*A ScrumMaster who takes teams beyond getting Agile practices up and running in to their deliberate and joyful pursuit of high performance*” [30]. The roles of Scrum Masters and Agile Coaches are sometimes different, but in many cases the responsibilities of the person these roles are similar and somewhat overlapping depending on the goals the practitioner has like stated by Adkins [30]. The aim of this thesis is to find out the common challenges’ Agile Coaches face and discover ways how to help the team to become better through Agile Coaching. Since practitioners with both titles (Scrum Masters and Agile Coaches) are conducting at least in some part coaching [30], [9], both titles are included in the literature overview and among the interviewees, but the focus of the thesis is on Agile Coaching and on the role of an Agile Coach.

The job of an Agile Coach is to show teams different options, how to improve their processes and help them to see, what to do next and also guide them on how to take responsibility for their doings [3] via [4].

Although Agile Coach is quite new profession, it is already possible to divide the role based on the coach’s mission. It is possible to differentiate between coaches who work with teams, who are in the middle of Agile transformation or with teams, that already work with Agile processes but need some help [31]. It is also possible to distinguish between external counsellor and an in-house coach [31], [14]. Sometimes the combination of them is used [14]. Another way to differentiate the coaches is according to their approach – is it directive approach, where coach is an expert or nondirective approach, where the goal of his work is to help the team to learn and solve not just a specific problem in hands but also problems in future [32] via [4].

2.2. Responsibilities and skills

Like stated earlier by Adkins, Agile Coach is a Scrum Master who guides and helps teams to become always better [30] then, in order to cover the responsibilities of an Agile Coach, the process starts with covering the role of a Scrum Master, special attention will be on his/her responsibilities regarding Agile Coaching activities which is the focus of the thesis.

According to Scrum guidelines, Scrum Master is a servant-leader with the goal to help the Scrum team in eliminating the impediments in order to help the team to maximize the value the team creates [9]. According to the Guide that means, that Scrum Master is responsible among other things for the goals, scope and product domain to be understood by the Scrum Team, for finding techniques, that will help to manage the Backlog in the most effective way, coaching the team in self-organization and cross-functionality, for helping the team to create high-value products and facilitating Scrum events when needed [9].

Scrum Master also serves the organization by coaching and leading them in its Scrum adoption and also working with other Scrum Masters to increase the effectiveness of adopting Scrum Framework [9].

Sometimes, Scrum Master role is a part-time job and they have other roles at the same time like e.g. project lead, developer, team leader, test lead, head of department architect [33]. Although project managers should usually use more command and control style where Scrum Masters use more leading and coaching, since they are not supposed to assign work to their team-members [34]. John Noll et al. [33] found that there were 10 activities that Scrum Master performs: process facilitation, ceremony facilitation (including Scrum of Scrum), impediment removal, prioritization, sprint planning, sprint reviewing, estimation, travelling, project management. Out of these only three (process facilitation, ceremony facilitation and impediment removal), are so called traditional Scrum Master activities. They found that in many cases Scrum Masters also managed the activities in contrast of facilitating the meetings, which gave Scrum Master a sort of power and took away the balance of power in the team. When facilitating the meeting, the person doesn't have a power over what is decided or done, if done otherwise, it might happen that the goal of stand-up is not to share information among the team in order to help them, but it transforms into status meeting where everybody is reporting to Scrum Master [35].

The skillset needed for the Agile Coach is quite versatile, and it is hard to write down the exact responsibilities, that are part of the job description in every given company. According to Sam Althoff, the four main roles that Agile Coach take, are planner, motivator, reflector and process supervisor [36]. According to Lyssa Adkins [30] Agile Coach the role of a teacher, facilitator, coach-mentor, conflict navigator, collaboration conductor, problem solver etc. All these are there, in order to help the team to adopt and improve their use of Agile methodologies. She also noted that sometimes, Agile Coach also has to take the role of "life-coaching" [30]. According to Agile Coaching Institute there are eight Agile Coaching competencies in Competency Framework for Agile Coaches: Professional Coaching, Facilitating, domain mastery (Transformation Mastery, Business Mastery, Technical Mastery), Mentoring, Teaching and Agile-Lean Practitioner [37].

Overview of different responsibilities, tied to this role according to different literature findings stated above, are listed below in Table 2.

Table 2: Overview of responsibilities.

Role/responsibilities	Name and author or the article					
	Coaching Agile teams: a companion for ScrumMasters, Agile Coaches, and Project Managers in Transition by Adkins [30]	Scrum Guide by Schwaber and Sutherland [9]	Scrum Master Activities: Process Tailoring in Large Enterprise Projects by Bass [34]	A study of the Scrum Mater's Role by Noll, Bass, Beecham [33]	Qualitative interview-based research: An exploratory study on the role of the Agile Coach and how the coach influences the development of Agile teams by Althoff [36]	Developing Great Agile Coaches by Spayd and Adkins [37]
Facilitator	X	X	X	X		X
Problem solver	X	X	X	X		
Coaching and reflecting	X	X			X	X
Teacher	X	X				X
Mentor	X		X			X
Leader		X	X			X
Process anchor			X	X	X	
Collaboration conductor	X	X				
Change management agent		X				X
Sprint planner			X	X		
Integration Anchor			X	X		
Conflict Navigator	X					
Sprint reviewing				X		
Prioritization				X		
Estimation				X		
Travelling				X		
Project management				X		
Planner					X	
Motivator					X	
Life coaching	X					
Agile-Lean practitioner	X					X

Coaches themselves see, that it's important to have experience with different Agile methods, to have both IT related and soft skills [31], knowledge on team dynamics [31], [17] and on change management [31]. According to Bäcklander different coaches have different styles and focus areas, depending on their own preferences, background and team needs [17].

Companies, who hire a Coach, see that it is important, that the Coach has experience with Agile implementations, strong knowledge of Agile, good cultural fit, ability to address matters in front of senior management, great interpersonal skills and software development background [31].

To summarize it up, in order to be a good practitioner, one needs to have both knowledge in IT and he or she also needs to master the soft skills [31], but since there are many different skills and responsibilities needed for the role, every coach is different and have their own style [17]. It is important to make sure that the Coach or a Scrum Master is there to serve the team as a servant-leader and not acting as a manager of the team [9], because only then it is possible to keep the balance of powers in the team right and help them be independent and self-organized [35] which is one of the principles of Agile [20].

2.3. Coaching process

There are different frameworks and guidelines for Agile Coaching process, e.g. according to Sidky, Arthur and Bohner [38] it has following steps: identification of discontinuing factors, identifying Agile practices to adopt in particular project (project level adoption), organizational readiness assessment, choosing a method and practices to adopt (reconciliation). At the same time the framework helps to assess the Agile maturity level of the project and organization [38]. Yet in another study it is brought out, that the above-mentioned framework doesn't take a strategic perspective linking business goals to the Agile practices [39].

In Paasivaara and Lassenius study a process of 4 phases was proposed [14]. When starting with a new project, the first phase is mapping, where the coach identifies stakeholders and establishes relationships with them. Executive support is crucial for the coaching to succeed. Then they list the needs of the stakeholders and have a workshop to discuss the needs, make a roadmap and make agreements. Second phase is a set-up, where all the meetings and improvement backlog are set up. Usually also a short training about the processes is held to the team in order to unify the terminology and roles [14]. It is important to educate the employees, to understand how confident they feel about the new methods and based on this, find a way how to fit the Agile methods to the team and company [16]. Set-up phase is followed by mentoring, where coaches support the team daily by facilitating the meetings and also support the team when they have problems [14]. The last phase is independent phase, where coaches leave the team and the team continues with continues improvements on their own. There are still some follow-up meetings with key personnel, where they can ask questions and coaches can check if the project is still on track. The simplified process is illustrated on the Figure 3.



Figure 3: The Coaching Process according to Paasivaara and Lassenius [14].

Pavlič and M. Heričko also emphasize that before implementing a new approach, it is important to analyze the current situation: the level of knowledge among employees, the current satisfaction level and number of obstacles they have. The coach also has to study about the development processes currently in use, in order to understand the advantages, it offers [16].

Teams expect from an Agile Coach to start to work as effectively and as quickly as possible after what a coach can step aside one step at the time and eventually leave the team. On the organizational level, the partnership with Agile Coach should be more or less indefinite in order to support and reinforce the use of Agile practices [14].

In many cases and also in the case study conducted by Paasivaara and Lassenius [14], it was brought out that the services of Agile Coaches were not marketed in the company, but people heard about it from their colleagues and asked the coaches for a little bit of help, but usually it meant, that the team was already in some crises and needed a lot of help.

In the same case study [14], it was mentioned that as much as possible, the coaches are encouraged to work in pairs. The benefits of that are the possibility to discuss the challenges and solutions of the cases together. It is beneficial, because every case is unique with no standard solutions. If there is more than one coach in the company, the team of coaches used the same processes as delivery teams (e.g. planning and retrospective).

Coaches feel that they were most successful at their job, when they succeeded in bringing attention to situations, spending a lot of time with the team and responding to things during the very moment they were happening, encourage and help to enable opportunities for reflection and dialogue [17]. The participants of another study emphasized that having an on-site coach with them during the transition to Agile processes is very helpful [40].

In Summary before starting to implement any changes regarding Agile transformation, it is important to evaluate the current situation and assess the readiness of the company for a change [16]. For the adoption to be successful, it is crucial to have the support from management [14]. Regarding the process and the workload of an Agile Coach – it should be decreasing as the adaption process evolves. In the end, the team should continue improving themselves on their own, but the separation from the coach should be done little by little [14], so that the coach is sure, that the team has accomplished the level needed for the next step. On the organization level the cooperation with a coach should be longer, it might even be indefinite, in order to keep an eye on the practices and provide help if needed [14].

2.4. Typical challenges

Although Agile Manifesto states clear goals, the transition to Agile is not that easy and has many layers. As Agile development processes gave people a central role in development process, it also created new challenges for companies [41]. Mostly because in order for it to be successful, it is important to address people's mindset and change it [40]. Most of the challenges are tied to people's behaviors, their mindsets and roles [40]. It requires the attention and collaboration of different stakeholders like developers, business experts, different managers, customers, etc.

Typical problems the companies or teams had before they contacted a coach were quality problems, problems with fixed price and schedule for delivery and problems with projects, where there was more than one site and people were working remotely [14]. With the help of a coach it is possible to avoid problems e.g. how to make it work with other (non-development) processes, avoid outcomes, where one is adopting Agile but not getting rid of useless things [31]. They also help to choose between different Agile processes, relying on the needs of the company and not simply choosing the most popular approach [16]. Typical questions teams ask from Agile Coaches are e.g. how to do Agile requirements management, how to diminish documentation, how to keep the code quality high, how to track progress of an Agile project, how to get testing done within a short iteration [31].

In the study conducted by O'Connor and Duchonova [31] it was found that if the company is big and has many departments, the processes are complex, the industry is not common, the impact of the Agile adaption failure is critical to the company, the teams are geographically dispersed, there is little or no presence of continuous improvement and collaborative culture within the company, then it might be beneficial to use an Agile Coach and ask him or her to join the team or the company and help [31]. Some extra possible problems exist when the team is distributed in different locations, in this case problems like lack of face-to-face communication, problems regarding trusting each other and also differences in working hours raise [14].

In many cases using an Agile Coach is a "free service" financed by the company who does the development work. It is found that costs are mentioned as one of the most important decision factors, when deciding whether to hire an Agile Coach or not [31]. Coaching is a service, where the financial benefits are not so clearly measurable and are also difficult to estimate. Also, it is hard to divide the work done by the coach and work done by the team. Usually the work product of the coach is somewhat invisible and closely tied to the performance of the team. According to Lyssa Adkins, if the team did a good job, the coach must have done a good job as well [30].

In a study conducted by O'Connor and Duchonova it was concluded that hiring an Agile Coach can have numerous benefits to the company including financial and non-financial benefits because the value Agile Coaches brings to the company, notably reduces the risk of failure of Agile adoption and accelerate the implementation process [31]. There are also other benefits that coaches bring e.g. bringing out the dysfunctions and waste in processes [31].

In order to avoid typical problems according to Paarivaara and Lassenius [14] the takeaways are following: coaching is a long-term relationship and it should be taken one step at the time, not pushing the change too much, everybody should be involved from the very beginning, including the executives and the views and standpoints from different stakeholders should be unified. It is important to get the support from the managers from the very beginning. One must also find a person from the team who sees the need for a change and is capable of helping the team to change, but the team must understand, that it is their responsibility to make the change happening.

In summary, it is crucial to have the support from the upper management. If the initiative to change comes from a specific project, but the management doesn't see the need for an Agile transformation, it is very hard to implement the change, because Agile development is human centric approach and in order for that to work you need first of all to change people's mindset [40]. Coach has to involve all stakeholders and the entire team [14] and make sure they are on board with the idea. Typical problems that teams have prior contacting an Agile Coach are either very specific where the team is in trouble because it is hard for them to deliver on time and with the quality that is expected or higher level questions e.g. they see a need for a change but need help with deciding on which is the best way to go [14], [31], [16]. Coaches are more needed in companies which are working in complex industry, using multiple locations, the cost to pay when failing Agile adoption is high and continues improvement is not valued in the company [31].

Since it is hard to show the impact of Agile Coaching in the terms of money, it is quite often hard to sell the idea of paying for a Coach to the management. At the same time, there are case studies showing that when one already has positive experience with working with an Agile Coach, they see the value in it [14]. Still there are only few studies addressing the matter of the (financial) value of an Agile Coach to the company. It is sometimes hard for the company or team to understand how valuable the service to the team or company is, since there are no hard metrics (e.g. financial benefits) [31] and especially when one has no previous experience with working with coaches. On the other hand, it is shown in studies that when using the help of an Agile Coach, numerous things can get better in the organization [31].

3. Case study

In the following chapter the method used for the Case study will be explained and research questions will be stated. After that, the design of the case study will be described followed by the explanation of the execution of the study. In the execution part the procedures of finding the interviewees, creating the interview questions and encoding process will be explained. In the final part of the chapter, the results of the study will be presented.

3.1. Method and research questions

For the purpose of exploring the role of an Agile Coach, a case study method was chosen. Case study method gives an opportunity to explore a phenomenon in real life environment and possibly learn something new about it. In this case, about the quite new profession of an Agile Coach. Case study allows to gain a deeper and more plentiful understanding of the phenomena [42].

Analysis is based mostly on the guidelines written by Braun and Clarke and follows mostly the six phases of thematic analysis: familiarizing yourself with your data, generating initial codes, searching for themes, reviewing themes, defining and naming themes and producing the report [18]. Detailed design plan is found in case study protocol in Appendix I.

The purpose of the study is to explore the role of an Agile Coach working in various different working environments and investigate the role as a whole to find out the key things about this profession. The scope of the case study is to understand the purpose of this role, what do people in these roles do on a daily basis, what are their work goals, which tools or methods they use and how, which are their challenges, how do they cope with these and how do they perceive they are valued in the team and in the company they work for. For that purpose following research questions were created:

RQ1: What is required to be an Agile Coach?

RQ2: What challenges do Agile Coaches encounter in their work?

RQ3: How do they address challenges in their work?

RQ4: What value do Agile Coaches perceive themselves to have for companies they work with?

3.2. Design

For the case study, first semi-structured interview questions were designed that would help to answer the research questioned mentioned above. The goal was to explore the role of an Agile Coach via interviews. The Case study protocol, including interview questions, is presented in Appendix I.

According to Guest, Bunce and Johnson [43] the saturation of the data is established between 6 and 12 interviews. For the case study 8 interviews were conducted with people who conduct Agile Coaches' activities discussed in previous chapters. Interviewees could be found from regular Agile Meetups, organized in Tallinn, via LinkedIn network using the search word

“Agile Coach” and checking the profiles of the people listed in search results and contacting them by sending them an introduction e-mail about the interview request and short description of the case study goal. Some interviewees could also be found via personal network of the author.

Interviews were to be conducted either face-to-face or via Skype or through some similar application. If interviewee agrees, then interviews would be recorded. After conducting the interviews, the interviews would be transcribed and analyzed. The analysis will mostly be relying on phases described by Braun and Clarke: familiarizing yourself with your data, generating initial codes, searching for themes, reviewing themes, defining and naming themes and producing the report [18]. As proposed by Braun and Clarke, the final themes, are representing some important insight regarding the research questions and not necessarily the things mentioned most often [18]. The analysis could be described as a “theoretical” thematic analysis, since it is driven by the theoretical interests of the author and the themes will be identified on the semantic level, giving a chance to explore the data on primary level and find patterns and compare these with findings from previous studies [18].

During coding, the phrases from the interviews would be coded, potential codes would be gathered together to build candidate themes and subthemes in order to get a final list of themes and subthemes by the end of the analysis. Like proposed by Braun and Clarke [18] the initial coding starts already in the very beginning of analysis with the aim of gathering initial ideas for potential themes. After every iteration of coding, the themes might change and be refined. Finally, the themes and sub-themes are used to answer the research questions of current thesis. Initial timeline for the Case study is shown in Case study protocol Appendix I.

3.3. Execution

For the case study 8 interviews were conducted with Agile Coaches and other practitioners who conduct Agile Coaching activities as part of their daily work.

Interview questions that were prepared beforehand were taken as guidelines and not presented in the same order during the interviews. The order and exact questions depended on the interviewee’s answers to previous questions. If the interviewee answered the question while answering another question, it was not asked again, but was covered during the first time when interviewee started talking about that topic. Interviews were semi-structured in order to explore the topic more thoroughly and get more insight from the interviews and their experiences in this role.

Although the study is about the role of an Agile Coach, some of the interviewees had different work titles, but all of the interviewees conduct Agile Coaching as part of their daily activities. Interviewees were found via Agile Meetup, personal contacts of the author and also via LinkedIn. In latter case a search was conducted in LinkedIn premium search engine. The search listed people who had working experience as an Agile Coach, after that profiles of listed people were checked and in case the person indeed had listed working experience as an Agile Coach according to LinkedIn profile an introduction letter was sent to the person. In case there was a positive answer an interview was agreed where the author explained more thoroughly what the purpose of the interview is and who are accepted as potential interviewees.

The study focused on the personal experience and not on the specific experience in one company. While answering the questions about their experience as a practitioner, the

interviewees did not narrow their answers to the experience in current employment but generalized on their whole working experience in these roles. Timetable of the case study is presented in Table 3.

Table 3: actual timetable for Case study.

Procedure	Timeline	Comments
Finding the interviewees	1.03-10.04.2020	8 interviewees
Conducting interviews	16.03 – 19.04.2020	Interviews are conducted and transcribed
Coding	30.03. – 10.05.2020	Interviews are coded, themes and categories are established
Writing the Case study protocol	20.04 – 10.05.2020	

Interviews were conducted between 18.03 – 17.04.2020. All of the interviews were conducted during the Emergency Situation, which was declared by the Government of Estonia on 12.03.2020 because of the pandemic spread of Coronavirus in the World. Therefore, none of the interviews was conducted face-to-face. Since some of the interviewees spoke Estonian and others did not, interviews were carried out either in Estonian or English.

All but one interview was recorded, in this case it was initially recorded, but because of technical difficulties, it was not saved and the participant sent written answers after the interview. All the recordings were transcribed and coded with some exceptions according to the guidelines given by Braun and Clarke [18].

After transcribing the recordings, author read through few transcripts to further familiarize herself with the data and made notes to the transcripts on the right side of the transcript paper, like advised by Saldana [44] and started to build a physical mind map (see case study protocol in Appendix). After the first ideas about the potential themes were gathered, a Word document with all the transcripts was created. The entire transcript was 46 pages long. After that, all the transcripts were read through one more time, so that every phrase got an equal amount of attention in order to decide whether it could be a potential code or not, like suggested by Braun and Clarke, to do in phase 2 of the analysis [18]. As a next step, all phrases that could be interesting as potential proofs for codes, were added to the document under potential themes that came from the mind map mentioned earlier or were created during the re-reading the transcripts. After that, phrases were copied to an Excel sheet where author went through the codes and phrases again and either discarded the phrase or coded remaining items (phrases).

One phrase could be coded under different themes and sub-themes. At the same time already established themes were re-checked and the author created potential new sub-themes and themes. After the initial codes and themes in Excel sheet were created, author went through the codes and themes few times again and finalized them.

Overview of the encoding process is shown in Table 4, where actions are described according to by Braun and Clarke [18]. Not all the steps indicated by Braun and Clarke were followed explicitly, but were taken as guidelines.

Table 4: Encoding process inspired by Braun and Clark with input from the author.

	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6
Description of the phase according to Braun and Clarke [18]	Familiarizing yourself with your data	Generating initial codes	Searching for themes	Reviewing themes	Defining and naming themes	Producing the report
Actions in current case study	Interviews were manually transcribed by the author.	Initial ideas were gathered, and initial Mind map was created. A Word document was created with initial codes and phrases which was transformed to an Excel sheet.	The phrases on Excel sheet were read through again, potential themes and sub-themes were created.	The phrases on Excel sheet were read through again, potential themes and sub-themes were created.	Themes were finalized.	Results in the thesis.

The coding process is illustrated on coding tree on Figure 4. First phrases, which were coded were collected. After that, the codes were looked through again and upper level codes were created. After that, potential themes were found. After some iterations of analysis, a hierarchy of phrases, codes and themes was built.

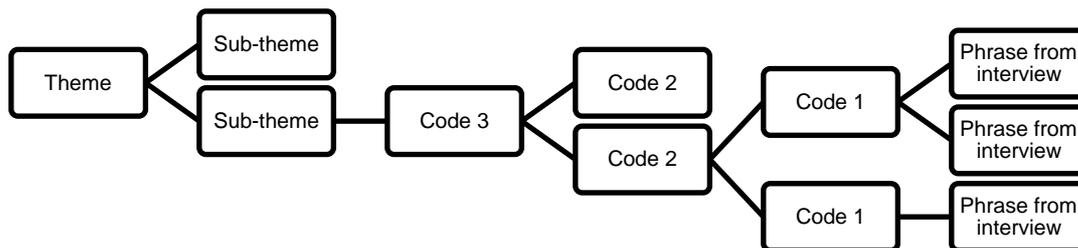


Figure 4: Coding tree design for the case study.

“Theme” level represents the finalized themes. Sub-themes are branches of themes and codes are branches of sub-themes. For some themes, the hierarchy was on 4 levels (e.g. theme, sub-theme, code, phrase), for some themes, there were 6 levels of codes presented and therefore the levels like code level 1, code level 2 and code level 3 were used. The goal was to distinguish different level of codes, sub-themes and themes. At the end, the coding tree had maximum of 6 levels (See Figure 4).

After every iteration of analysis, the number of themes, sub-themes and codes changed. Also, the number of phrases changed, because some of the phrases were discarded since they didn't fit to the themes or sub-themes. The demographic information about interviewees and about their teams was excluded in phase 2. The results of the analysis process in each step are shown below in Table 5.

Table 5: Results of encoding process.

	No of Themes	No of Sub-themes	No of Codes level 3	No of Codes level 2	No of Codes level 1	No of Phrases
Phase 2	9	34	-	-	-	-
Phase 3	10	8	23	126	330	330
Phase 4	9	8	23	129	326	326
Phase 5	5	11	81	60	273	273

In the analysis, there might be more than one answer from one participant coded under one sub-theme since there might be multiple codes coded under one sub-theme or theme. Also, one phrase could be coded under more than one theme, if it was appropriate.

The mind map was created according to the guidelines of Braun and Clarke [18], where it was stated that as part of the analysis, one should create a mind map in order to see the relationships between the themes. The mind map of finalized themes and sub-themes and their relationships is presented in Figure 5.

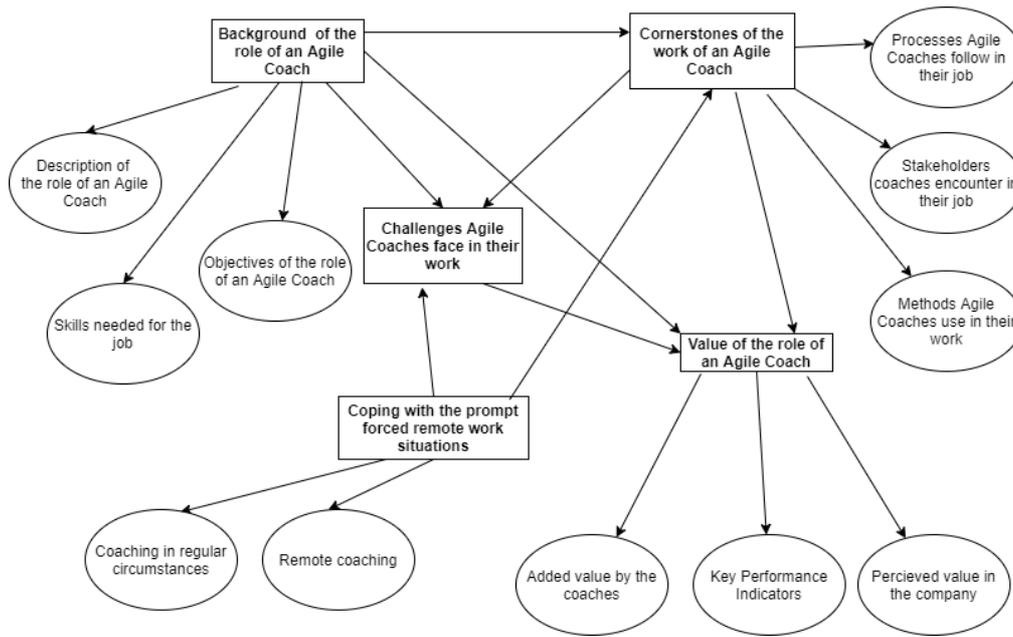


Figure 5: Mind map of the finalized themes.

In the next chapter the results of the analysis will be presented according to the finalized themes and sub-themes.

4. Results

Next, results of the case study will be presented according to the finalized themes and sub-themes presented in the mind map (see Figure 5). Themes and their sub-themes will be presented in a table format, where it is stated, how many times a specific theme or sub-theme was mentioned by the interviewees, followed by a little explanation with quotes from the transcripts. For overview, themes and sub-themes are listed in Table 6 below.

Table 6: Finalized themes and sub-themes of the analysis.

Theme	Sub-theme
Background of an Agile Coach	Description of the role of an Agile Coach
	Objectives of the role of an Agile Coach
	Skills needed for the job
Cornerstones of the work of an Agile Coach	Processes Agile Coaches follow in their job
	Stakeholders coaches encounter in their work
	Methods Agile Coaches use in their work
Challenges Agile Coaches face in their work	-
Value of the role of an Agile Coach	Added value by the coaches
	Perceived value in the company
	Key performance indicators
Coping with prompt forced remote work situation	Coaching in regular circumstances
	Remote coaching

4.1. Background of the role of an Agile Coach

Next results of the theme “Background of the role of an Agile Coach” will be presented. The theme consists of three sub-themes: description of the role, objectives of the role and skills needed for the job (see Table 6). The results will be presented in the order of the before mentioned sub-themes.

4.1.1. Description of the role of an Agile Coach

Under the sub-theme “Description of the role of an Agile Coach” different aspects of the role are gathered together, that people mentioned when they described the role of an Agile Coach. The results are presented in Table 7.

It was noted by the practitioners that the list of skills needed for this role is long and captures multiple roles inside of it, like mentioned by one of the participants: *“this is very big role”*. Agile Coaches are different and have different competencies that are their strengths. One practitioner put it like that: *“There might be different competencies, some people know more about products and are stronger in product management area. Every Agile Coach and Scrum Master, they have their own handwriting, so quite often we are different and work differently ...”*.

Table 7: results of the sub-theme “Description of the role of an Agile Coach”.

Sub-theme	Code	No of mentions
Description of the role	Agile Coaches can be different and have different competencies	3
	Agile Coach has multiple roles	2
	Umbrella	2
	Must know more than one Agile Framework	1
	Work with different clients on different levels	1
	Helps the coachees	1

It was also mentioned that the role of an Agile Coach is like an umbrella role, like mentioned by one of the interviewees: *“Agile Coach is more like this umbrella term”*. It was also noted that Agile Coach must know more than one Framework, like stated by another person: *“In my opinion, Agile Coach should cover multiple areas, not just Scrum”*. It was also noted, that Agile coach can work on different levels of the organization with different clients. It was also mentioned, that Agile coach is the person who helps the coachees. Like explained by another practitioner: *“...it’s a person, who helps the teams, Agile teams to take responsibility and accomplish their goals”*.

4.1.2. Objectives of the role of an Agile Coach

Next, the results regarding the objectives of an Agile Coach will be covered. These could be seen as goals of this role, meaning what is expected from this person in the company.

Educating the organization or specific departments or team-members about Agile ways of working was mentioned 7 times (see Table 8). One interviewee explained it like that: *“... a portfolio of trainings, which we do for the organization”*.

Table 8: results of the sub-theme “Goals”.

Sub-theme	Code	Number of mentions
Objectives of the role of an Agile Coach	Teaching different stakeholders about Agile and Scrum specifics	7
	Helping team to become and be a high performing team	6
	Creating a community	3
	Identifying things to improve in the ways of working	2
	Solving personal development related problems of the teammates	1
	Helping out with Agile ceremonies	1
	Change management	1

It was mentioned 6 times, that the goal of this role is to help teams to become great teams. Some participants explained, that the goal is to help the coachees to become better in perusing their goals. One practitioner commented it like that: “... and how to help the team to be together, to be in contact with each other, how to help them to continuously focus on the goals.”. Others mentioned that the goal of the role is to help teams cooperate better, like explained by another participant: “...but also, more like human topics, like cooperation and what are the agreements between team members and how things are done.”

Creating and holding up a community was mentioned three times. The benefits of these gatherings are e.g. knowledge sharing, discussions, like explained by this participant: “I have done these gatherings knowledge exchanges for Scrum Masters and for product owners. ... I will talk about their role, what are their challenges ...”.

It was mentioned, that one of the goals is to identify things to improve, like stated by one of the practitioners: “...or try to identify things that we can work together, me and that person, to improve their way of working and for that I use this one on one coaching.” Sometimes it is also important to focus on specific team members, like explained by this participant: “Solving personal development related problems”.

Once it was mentioned, that coach can also help out with facilitating ceremonies: “mostly they need help with right facilitation of Agile ceremonies”, but also with change management, like stated another participant: “changes in the organization, how to change the organization in a way, that the results would be better”.

4.1.3. Skills needed for the role

Next, the skills that practitioners mentioned to be important for this role, will be presented and explained. Overview of the results is presented in Table 9.

Table 9: results of the sub-theme “Skills”.

Sub-theme	Code	No of mentions
Skills	People skills	9
	Agile	8
	Coaching skills	4
	Software development skills	4
	Experience	4
	Teaching skills	3
	Facilitation skills	3
	Self-awareness	3
	Communication skills	3
	Presenting skills	2
	Mindset	2
	Extravert	2
	Analysing skills	2
	Seeing the bigger picture	2
	understanding the business	2
	At least a little knowledge about every competence	2
	Mentoring skills	2
	Curiosity	1
	Leadership	1
	Understanding how processes work	1
Change management	1	

Half of the interviewees had a non-IT related education. 5 of the interviewees had been working either as project managers or software engineers before taking this role. Half of the interviewees mentioned the importance of skills related to software development. One interviewee brought it out like this: *“it would also be good if you had some IT knowledge, you could understand developers better”*.

One set of skills that was mentioned the most (see table 9), is related to different people skills e.g. empathy, how to connect to people, patients, you have to be a good person and put other people first. Like one practitioner put it: *“they need to be able to understand people and work with people.”* Then, there was a mention of mentoring and coaching skills. For example, one interviewee said: *“... and others are like mentoring, so you mentor your colleagues in this area either these are Agile Coaches or Scrum Masters in your teams.”* And another practitioner mentioned: *“Aaa, coaching, obviously...”*. And it is important to be curious about things, like pointed out by another interviewee: *“for sure, one has to be kind of, how to say, curious, he has to be interested in things”*. Twice it was mentioned that coach, as a person, has to be more like an extravert, like mentioned by one of the practitioners: *“extravert”*. One participant also mentioned leadership, when listing the skills needed for the role.

Four interviewees mentioned, that you will learn the job via experience and that you need to have a previous experience in at least one domain, that you are coaching the teams about. One of the participants explained it like that: *“... you can also start working as a Scrum Master very young, sort to say after school and I have seen some very good young people, who work as Scrum Masters, but let’s say, for one to be good in their job, this is a thing, that comes with time ... it is not possible to learn to job of a Scrum Master so that I attend a course, read two books and start doing it ... yes, you have to know and understand the framework and have to have heard about the mindset, but addition to that comes the dimension of experience.”*

Many interviewees pointed out, that it is important to understand Agile development and know more than one Agile Frameworks. One interviewee expressed that thought like that: *“First, there has to be like a strong knowledge of Agile Frameworks, not just Scrum, but preferably others as well ...;”*, another practitioner emphasized the importance to believe in the values like that: *“...he ... needs to believe in Agile values ... he needs to understand why Agile is important and how to implement it in a Software company ...”*. And one also has to understand how the processes work, like mentioned by one interviewee: *“process management ... kind of like an engineer, but not software engineer, but process engineer ... who understands systems and how they work ...”*.

Three interviewees brought out the importance of facilitation skills. For example, one of the interviewees explained it like this: *“...workshop facilitation or this general facilitation skill.”* 3 people mentioned the importance of teaching skills, like explained by this practitioner: *“And this teaching, so conducting trainings. ... Usually Agile Coach is having this competence ...”* and two times it was mentioned the importance of presenting skills. One of the participants explained it like that: *“Skill wise presenting skills ... the way you are talking”*. Addition to these competencies, a need for good communication skill was mentioned twice, e.g. like pointed out by this participant: *“yeah, he needs to be good communicator”*.

From few answers it came out that while coaching the team or an organization, it is important to analyze the situation and see the bigger picture, so that when you propose something, it fits to this specific situation. Like one of the participants phrased it: “...*you have to make sure, what is suitable, fits for purpose*”. You also have to understand the business side. Like indicated by one of the participants: “...*you have to know the business side*”. Also change management was mentioned once by one participant: “... *change management to help the organization to make this Agile transformation*”.

Another thing mentioned was self-awareness. 3 interviewees pointed out that among other things, it is important to know what you don't know in order to become better in your work. One of the participants emphasized it like: “... *and if you don't know the topic, then you at least have to make sure, that you have the knowledge about, about what you have to learn and make the effort.*”.

Twice it was brought out, that one person can't know everything about everything, but it is important to know a little bit about every topic and master some domain of the role, like explained by one interviewee: “*You need to know something about all of these competencies, but yes, you cannot be an expert in all of those, so you select the ones that are the most important to you.*”.

4.2. Cornerstones of the work of an Agile Coach

The theme “Cornerstones of the work of an Agile Coach” combines the information about the processes people in this role follow, about the stakeholders or people they have to work together or include in their daily work and methods they use to pursue their goals.

4.2.1. Processes Agile Coaches follow in their job

Next, an overview about the processes or principles practitioners follow in their job, will be described. The overview is given in Table 10.

In some cases (see table 10), the process of coaching is described in-house, and every team has a coach. And one has to follow the same process always when starting to work with a new team like explained by one of the practitioners: “*First step is one-on-one or on-on-two meeting with team lead During this meeting it is agreed, how much help from coach is needed regarding building up the team and development work. After that, coach joins the team and organizes a kick-off meeting for the team ... we have an established process.*”.

Table 10: results of the sub-theme “Processes Agile Coaches follow in their job”.

Sub-theme	Code	Number of mentions
Processes Agile Coaches follow in their job	Established process how to start coaching process	5
	Every team has a coach and/or Scrum Master	4
	It depends on a team and project how involved will the coach be and when he or she will leave the team	4
	Coach will provide their services when asked by the team	2

In other case, the specific process and methods are chosen case by case, like explained by another participant: *“Usually, I will not go to the team and say “Hi, I think you need help”, if somebody from the team pulls me in, then I enter and help and in general it goes like this, that when we are doing one-on-one, then I want that this other person, who actually wants that, books the time ... I can prepare myself, but I will not go like “Hi, we could do this, or discuss those things”. So, the coaching usually ends, when the team feels, that this is now enough, and ends it.”*

4.2.2. Stakeholders Agile Coaches encounter in their work

Under the sub-theme “Stakeholders Agile Coaches encounter in their work” the results about different people, departments etc. Agile Coaches have to work with, are presented. Results are presented in Table 11.

In their daily work, people conducting Agile Coaching, are involved with many people, most often it was mentioned the organization, management and product owners. Sometimes coaches don’t have their own teams anymore, but they still see the need for that. One participant explained it like this: *“Right now it (coaching) is somewhat more general. At the moment we don’t coach specific teams, but I think that we need our own teams as well, because we need this hands-on work as well, because right now we still remember, but in the future, it might not be like that anymore.”* Twice the cooperation with Scrum Masters and coaches was mentioned. Like mentioned by this practitioner: *“I’m now helping new coaches, who are coming ...”*.

Table 11: results of the sub-theme “Stakeholders coaches encounter in their work”.

Sub-theme	Code	Number of mentions
Stakeholders coaches encounter in their work	Organization	5
	Middle management	5
	Product owners	4
	Teams	3
	C-level	3
	Different non development departments	3
	Business side	2
	Coaches/Scrum Masters	2
	Business analyst	1
	Customer	1

Product owners were mentioned 4 times among the interviewees as people they work with on a daily basis and closely together like explained by this practitioner: *“this constant communication with account managers and POs when you notice something ...”*. Practitioners who work directly with teams mentioned teams, like pointed out by this participant: *“In-house software development teams”*. Business analyst was mentioned once, by one interviewee: *“We are constantly dealing with business analyst ...”*.

Non-development departments were mentioned among the stakeholders 3 times. One of the interviewees explained it like following: *“...since I do trainings as well, I have conducted trainings about Agile ways of thinking and Agile practices to very different people.”*

Business side of the organization was mentioned twice. One practitioner elaborated the topic like that: *“One pretty big factor is also Key Account Manager”*. Customer as a stakeholder was mentioned once: *“mostly customer”*.

4.2.3. Methods Agile Coaches use in their work

Under the sub-theme “Methods Agile Coaches use in their work”, different methods are listed and described, that practitioners brought out when they thought about tools and methods they use in their everyday work. The results are presented in Table 12.

Most often mentioned method was observation (see Table 12). Many interviewees explained, that before jumping in and starting to fix things, you have to observe the team and understand what they are doing and why. Like shared by one participant: “...when I’m going to a new team, it starts with observation”. And also, during coaching, it is important to observe the team, their daily interactions, problem-solving methods etc. The findings from observations are shared with the team by giving feedback, like explained by another interviewee: “I will discuss my observations with the teams ... and see what we are gone do about that.”.

Coaching was mentioned three times. One participant explained it like that: “... I try coaching as a discussion between me and the team”. Addition to coaching mentoring and teaching were mentioned. Sometimes they discuss and share knowledge like one practitioner explained: “...we have meetings and we discuss their situations and I talk about what’s in the book and what other teams are doing and ... share the knowledge.” In other times, the practitioner teaches the team, like shared by another participant: “... and the third thing is this common teaching, e.g. how to write user stories.”. In addition to different guiding disciplines mentioned earlier, asking questions and one-on-one talks as tools were mentioned separately as well, like pointed out by those participants: “one-on-one talks”, “open questions”. Once it was mentioned as a method also to deliberately stay calm: “...breathe deeply and be calm...”.

Facilitating ceremonies was also brought out by 3 people, especially conducting Retrospectives was mentioned, like explained by this participant: “... the other thing is then retrospectives ...”. Conducting different workshops was mentioned twice. One participant explained it like that: “I facilitate and put together different kind of workshops that are needed in order to improve the teamwork or the process, because for example there are teams, were roles are quite mixed up”.

It was also mentioned, that the specific approach depends on a situation, like mentioned by this participant: “Choose an approach according to the situation” and that sometimes there is no specific method, like pointed out by this participant: “I don’t use those [methods] so consciously that I follow some kind of [specific] method.”.

Table 12: results of the sub-theme “Methods Agile Coaches use in their work”.

Sub-theme	Code	Number of mentions
Methods Agile Coaches use in their work	Observation	5
	One-on-one talks	4
	Giving feedback to make sure the team is moving towards their goals	4
	Mentoring	3
	Facilitating ceremonies	3
	Teaching	3
	Asking questions	3
	Coaching	3
	Conducting workshops and making agreements	2
	Depends of the situation	2
	Spreading the mindset	2
	Telling what to do	1
	Staying calm	1
	Only helping people/teams that want to be helped	1
No method	1	

It was mentioned twice that part of the role is spreading the mindset, like stated by this participant: *“We are a small team and have to leverage our impact ...to find some stronger people who could ... impact”*.

Once it was mentioned that sometimes the coach also has to say how to do things, like explained by one interviewee: *“Sometimes I tell them, where we are going. So, you untie yourself from the role of a Coach or even a mentor”*.

And also, here it was mentioned, that in order to get better results it is beneficial to help people who want to be helped, like explained by one interviewee: *“We ... try not to help people, who do not ask for our help. ... If we see that something doesn't work, we are not the unit who will come and say hello guys, you are wrong. This is not our approach. We are helping only those who are willing to get our help. Because only in this case, there will be some results.”*

4.3. Challenges Agile Coaches face in their work

Next the results of theme “Challenges” will be presented. Challenges are different problems, obstacles etc. that coaches face while doing their job.

Most often it was mentioned the challenge to preserve the authority (see Table 13), that was expressed by one participant like this: *“Preserving authority and being friend to the team at the same time.”*.

Table 13: Encoding results of the theme “Challenges Agile Coaches face in their work”.

Theme	Sub-theme	Number of mentions
Challenges Agile Coaches face in their work	Preserving authority	4
	Understanding what the real problem is	3
	Finding enough time for the team	2
	Changing the mindset	2
	Coaching	2
	Different people have different challenges	1
	Organizations only implement fragments of Agile	1
	Aligning the plan with everybody	1
	Unrealistic expectations to the coach	1
	Constant changes among team members	1

More than one interviewee mentioned, that it is hard to find out, what is the most important thing or problem to be solved. Different reasons were mentioned, e.g. it is a junior coach who is starting in this role and is still learning about the different dimensions of the role, in other cases coach has so many teams and responsibilities that it is hard to find time for everything: *“There is a lot of running around and talking to people. ... I can say that, when working with many teams simultaneously, the coaching quality or teaching quality as a Scrum Master drops, compared to the case when I would have the time to focus and physically be near to this one team, see their problems and understand how to help”*.

Another challenge mentioned was the mindset. One of the practitioners elaborated the topic like this: “... people have previous mentality of waterfall and they are not used to yet to this way of working that is maybe very dynamic for them or too dynamic in their opinion. They are used to think about the problem ... every detail of everything and then start to implement it...”. It was mentioned, that a challenge might be the mindset of managers, like shared by this interviewee: “The biggest challenge ... , it’s just not appropriate mindset of the managers...There is no ... sense on working anything else, if this is not done”.

It was also mentioned that sometimes companies only implement parts of Agile, like stated by this person: “Many problems that I see, come from that, that people kind of take the model of Scrum, implement it in their organization and then say, it didn’t work. ...it assumes, that you actually make structural changes in your company.”

Few times it was mentioned, that the hardest part is coaching itself. One participant explained it like this: “Coaching itself, well mentoring is easy, but those situations, where you are like ... you are doing it wrong, I would so much like to tell you that, I have done it for years, this will work. This is the most painful thing.”

Twice it was brought out that different coaches have different challenges, like expressed by this interviewee: “Again, I would say, it depends on the person. Here I see that different people have different challenges”.

It was also mentioned, that sometimes there could be many stakeholders with who one has to align the plans with, like stated by this participant: “But otherwise, as I mentioned aligning with everyone, meaning the team, the key account manager, also POs would actually be happy and it would fit to everyone’s plans. This is a challenge.”

Once it was expressed, that the expectations to the coach might be unrealistic: “Sometimes these expectations to the coach are that, he will come and fixes everything quickly and solves all the problems. But usually the problems are somewhere very deep in the organization, inside the culture of the organization ...”.

Also, once it was mentioned, that it’s challenging, when team members change, since it means, that the process starts from the beginning, like stated by this interviewee: “in my experience ... I have not had the luxury of having so stable teams ..., that I shouldn’t make any changes, or the team should not make any changes or that there are no new members joining or leaving the team”.

4.4. Coping with prompt forced remote work situation

All interviews were conducted during the National State of Emergency declared by the government of Estonia because of the worldwide COVID-19 pandemic and most of the companies in the country were promptly forced to work remotely. Until the State of Emergency Situation, all practitioners were mostly working face-to-face with only having some team-members or small percentage of teams in the company working from different locations. Like stated by one of the practitioners: “Most of the time face to face”.

This is why this obstacle of sudden remote work was specifically explored. Practitioners described, how they usually work, what is working well during the new situation, which are the challenges they face and what kind of solutions have they already found for the challenges. The reflections on the prompt forced remote work are shown in Table 14 and Table 15.

Table 14: Encoding results of the sub-theme “Remote coaching”.

Sub-theme	Code	Code	No of mentions
Remote coaching	What is going well?	Established teams are working well	3
	Challenges	Can't observe people	4
		Working habits are changing	1
		It's hard when you are used to work in face-to-face format	1
		It's harder for a starting team	1
		Transparency is not the same	1

Mature teams were doing relatively well. One of the interviewees explained it like that: *“Teams, that are already established ... not much has changed. They continue ... all of the team dynamics is in place, they have a stable team, of course it is a little bit uncomfortable, because you cannot immediately communicate or talk to people, but since everything is already built up, than we have reached the place, where they don't need a coach every day ... yes, and I would say, that nothing much has changed in that sense.”*

Challenges, that coaches faced, were most often related to the limitations regarding observations. They are used to observe the teams to gather non-verbal information, like one case study participant said: *“... if I'm used to observe peoples' body language, conversations, then this is lost [now], and of course, it makes it more difficult for me ...”*. Once it was also mentioned that the transparency is not the same: *“This transparency is not as good as when face-to-face. This is a very big challenge actually”*.

The working habits at home are different, than in the office, like explained by one interviewee: *“basically peoples' routines ... There is not that feeling, that now it's work time or now it's time to rest, everything is .. a challenge. For example, you sit from meeting to meeting and forget about your lunch and rest time and realize that it's six a clock in the evening and you haven't done anything, since there are so many side things you have to do. It's very challenging”*.

It's also more challenging for new teams, where you have to establish the team, set agreements and set up a plan, like explained by one practitioner: *“there is one new team, with them it's very hard, we have to create a vision and decide where we want to get with the team. Usually it's like this, that we come together with a team in one room ... and will not exit before we have a concept. Today it's very hard to do.”*

Practitioners also brought out some solutions that are already in use in order to cope with the challenges brought by prompt forced remote work (see Table 15).

Table 15: Encoding results of the sub-theme “Remote coaching”.

Sub-theme	Code	Code	No of mentions
Remote coaching	Solutions	Virtual whiteboards	1
		Finding possibilities in the tools we are already using	1
		"Bother" teams more often than usual.	1
		Virtual chatrooms for teamwork in trainings	1
		Using more written format for feedbacks	1

Although the period of remote work has only been there for a short while, there were already some steps taken in order to adopt to the new situation, e.g. using different virtual white boards, looking for possibilities in tools already in use, “bothering” teams more than usually. One practitioner explained this experience like this: *“Well I’m making sure that I’m present in all team meetings, well not in all, but as much as possible ... and well, I don’t want to use the word bother, but bother them over a certain period of time, so consistently. But ... I don’t really feel like they want to talk about just over Teams or something, but just to let them know, I’m there.”*. Also, using written feedback more consciously, like expressed by another practitioner: *“but if you want to give more feedback, then you have to choose more written outputs ...write more, since there are less possibilities to talk”*.

4.5. Value of Agile Coaches

The theme “Value of the role of an Agile Coach” is presented via three sub-themes. The sub-themes are “Added value”, “Key performance indicators” and “Perceived value in the company”. Exploring the actual financial value of the coaches’ contribution to the company was not in the scope of the thesis and the focus is on the value of contributions as perceived by the practitioners.

4.5.1. Added value by the coaches

Next the results about the added value will be presented. It contains information about what do practitioners themselves see is the added value, that comes from their daily contributions.

Common answer had the word “help” in it. Most often it was said, that the value is added by helping the coachees (depending on the coach, a coachee can be a team-member, representors of other roles, team, department or an organization, etc.) to become better in what they do (see

table 16). One participant explained it like that: “... *Agile Coach is the person who helps organization to become their best the same way like usual coach, like life coach helps coachee to decide what to do with their life and to get the most out of this. Agile Coach helps the organization but within some boundaries ... so Agile Coaches knows quite a lot about ... Agile ways of working, having expertise in this area, while there quite a lot of competencies for Agile Coaches, this is competence why Agile Coaches are hired and needed.*”

Second most mentioned argument (see Table 16) was that Agile Coaches help teams to work better together and be happier, one practitioner explained it like that: “*And also, Agile Coach keeps the mood up, by letting the people feel and understand, that they are always more important than the processes.*”. Twice it was mentioned, that the value is in helping teams to become independent teams, like elaborated by this participant: “*The main value of this role is supporting our teams to be aa autonomous*”.

Table 16: Encoding results of the sub-theme “Added value by the coaches”.

Sub-theme	Code	Number of mentions
Added value by the coaches	Helps coachees to become better and reach their goals	5
	Helps teams to become more satisfied and happier	5
	Helps teams to become independent	2
	Depends on the coach	2
	Customer is happier	2
	Lots of work behind the scenes	1
	Has knowhow that is beneficial for the team	1
	Helps to set the goals	1
	Financial impact	1

Couple of times, it was mentioned, that the value depends on the coach, how mature is the coach and how much value is he or she is able to provide to the company. One interviewee put it like this: “*In my opinion, it depends a lot on that, ... on what level you are ... with your maturity*”.

Twice it was mentioned that it might make customer happier since they get results faster, like explained by one practitioner: “*Customer for sure, he could get the value faster*”. And therefore, it also might have financial impact. One coach explained it like that: “*It has financial impact, things are done quicker, because one does the right thing ...*”.

Once it was mentioned that is hard to see the value, because it is a lot of work behind the scenes, like pointed out by one participant: “*...it’s a lot of work behind the scenes. So, no one will ever congratulate the Scrum Master or the Agile Coach for some big success in the project, but they are holding the team together, holding the process there, making sure that everyone is doing the right thing at the right time.*”

One time it was also marked, that sometimes the person in this role also provides important knowhow like explained by this coach: “*At the same time it is a role, where one is relaying on*

his or her experience, and because of that, can actually give practical advice on the matters of Agile software development“.

Also, coach can help to set the goals, like pointed out by this practitioner: “*how to set the goals, how to help to understand, which are the problems that should be solved, how to help with that ...*”.

4.5.2.Key performance indicators about the work of Agile Coaches

Next, the results about how to measure the performance of the coaches, will be presented. Describing what are the indicators, that could give information about how good, or on what level, is the coach performing his or her job. The overview of the results is shown in Table 17.

One of the most popular answer was, that it is very hard to measure (see Table 17), like expressed by one of the interviewees: “*I still haven’t figured out how to measure the KPI’s of a coach or of a Scrum Master.*”. Once it was mentioned that good coaches just have proven records of success, like explained by the coach: “*but usually these successful Agile Coaches they have some proven record, that I was part of the transition there, helped there ... to make the transformation.*” 4 times it was mentioned that the performance could be measured by the successfulness of the team. One participant said it like that: “*When the team is successful, then the coach is successful, I don’t see any other yardstick here*”.

Table 17: Encoding results of the sub-theme “Key performance indicators”.

Sub-theme	Code	No of mentions
Key performance indicators	It is hard to find a metric	4
	Successfulness of the team	4
	Feedback	3
	<i>Scrum</i> charts	3
	Team understands what and why they do it	2
	Satisfaction indicator	2
	Setting measurable goals already in the very beginning	2
	<i>Scrum</i> charts should not be considered as KPI’s	1
	Team is motivated	1
	Great coaches have proven record of great work	1
	It is mutual responsibility	1

Three times feedback from counter party was mentioned, either direct feedback from the team or through some feedback survey e.g. 360 degrees feedback. One of the practitioners explained it like this: *“Only KPI that I can say right now, is 360 feedback. In case you get positive feedback, it shows that you have been doing something right.”*. Also, the satisfaction indicator could be seen as an indicator for the success, like explained by one of the participants: *“one aspect could be, when we are receiving this customer satisfaction surveys, they are positive, they mention for example our efficacy, our value ..., or how things are going in general.”*

From the team perspective, it was also brought out, that one of the indicators could be that the team understands what and how they should do and the process is clear for them. A practitioner expressed it like this: *“...what they need to do every day is clear for them and why do they do the things they do every day, how they translate it in to the bigger plan or the bigger vision, see why is it important, you see people motivated at work.”*. Also, how motivated is the team, is one of the indicators, like pointed out by this interviewee: *“... want to do things by themselves and not waiting for someone to give them work to do, they are proactive, if ... yeah it's basically the measurements ... but the biggest indicator is the mood in the room and how people take work”*.

Regarding Scrum charts, 3 people said, that these could be used as indicators, like expressed by this interviewee: *“... and how to measure it ... well I guess the first option is all sort of charts, like measuring velocity, the burndown charts”*, another participant said that this not the way to go: *“... You can have all these Scrum graphs about it, ..., but the biggest indicator is the mood in the room and how people take work.”*.

When the task is very clear, one should agree already in the beginning what exactly is expected from the coach, like mentioned by another participant: *“I need to introduce a Framework, I need your knowledge, please be a Mentor, that you can measure very well”*.

One participant pointed out, that it is a mutual responsibility, since the coach alone, can do only that much, it is the team who has to commit. The practitioner explained it like this: *“But here we need to ... have this mutual responsibility. Because I cannot as an Agile Coach, we are not supposed to make the change, we are supposed to help the people to make change. And if we agree on something and counterparty is not doing this, then we cannot do anything with this.”*.

4.5.3. Perceived value in the company by Agile Coaches

Under here, results about how valued do coaches feel to be in their companies, is described. An overview about the perceived value is presented in Table 18.

Most of the answers regarding the value, indicated that it depends on quite many factors. Quite often it was said that they feel valued, but in it depends on the company and its mindset, like for example mentioned by this practitioner: *“In this company, it is very valued, but it is the first company, where I feel that way.”* and the maturity of the companies, like proposed by another interviewee: *“...on the other hand, where it is part of working processes and accepted in a way, that there is somebody who works with teams and processes, than in this case it is valued.”* It was also said, that it depends on managers, like explained by this interviewee: *“On the other hand, it depends on that, who are the managers.”*

Table 18: Encoding results of the sub-theme “Perceived value in the company”.

Sub-theme	Code	Code	No of mentions
Perceived value in the company	Valued	Valued	2
	It depends	On management	2
		If people have had contact with coaches	2
		On the maturity of the company	2
		On the role of the person	1
		On the coach	1

It was also mentioned that it depends on the role of the counter party, like explained by one participant: *“I’m mean overall people value your work, but more from upper position inside of the company than the developers”*. Once it was pointed out, that it depends on the coach *“Who you are as a person, do you actually create value, because it has also been like this, that they say ... to one coach, that you create a lot of value and to the coach next to him, that we don’t have much to do with you, so it depends a lot, how you as a coach can create value”*.

It was also said, that people, who had had personal contacts with the coach, valued the role. One participant explained it like this: *“All these people, with who we work together on daily basis, they value us a lot.”*

5. Discussion

The structure of the discussion will follow the research questions which will be answered using the input from the literature and results from current case study. After that, there is a sub-chapter about remote coaching followed by a sub-chapter of “Threats to validity”.

5.1. What is required to be an Agile Coach?

In order to answer to the research question about what is needed to be an Agile Coach, findings about skills needed for the job, methods used and objectives of the role from the case study will be compared with the findings from the literature on different roles and responsibilities regarding that role, that were presented earlier in Table 2. All these findings represent different aspects and skills that are needed to fulfill the role.

In both cases, in literature and in the case study, following competencies were mentioned: facilitation, coaching, teaching, mentoring, leadership, process anchoring, collaboration, change management, motivating and life-coaching. In both cases it was also found, that one must also be an Agile-Lean practitioner, in order to fulfill this role (see Table 19).

The roles and responsibilities that weren't mentioned in the case study results, but were present in literature findings were problem solver, sprint planner, integration anchor, conflict navigator, sprint reviewing, prioritization, estimation, travelling and project management. Most of these roles and responsibilities above, are more or less tied to software development delivery and/or to Scrum Framework and to project management activities. Indicating that according to current case study, the role is perceived somewhat more as general and neutral coaching role and less tied to specific delivery processes in specific teams and to project management responsibilities. Although most of the responsibilities mentioned in current study, were not related to technical competencies, it was mentioned by many participants, that it is important to have technical knowledge, in order to be successful on this role.

Table 19: Comparison of the roles and responsibilities from the literature with the findings from case study.

Role/responsibilities	Name and author or the article						
	Coaching Agile teams: a companion for ScrumMasters, Agile Coaches, and Project Managers in Transition by Adkins [30]	Scrum Guide by Schwaber and Sutherland [9]	Scrum Master Activities: Process Tailoring in Large Enterprise Projects by Bass [34]	A study of the Scrum Mater's Role by Noll, Bass, Beecham [33]	Qualitative interview-based research: An exploratory study on the role of the Agile Coach and how the coach influences the development of Agile teams by Althoff [36]	Developing Great Agile Coaches by Spayd and Adkins [37]	CURRENT CASE STUDY FINDINGS
Facilitator	X	X	X	X		X	X
Problem solver	X	X	X	X			
Coaching and reflecting	X	X			X	X	X
Teacher	X	X				X	X
Mentor	X		X			X	X
Leader		X	X			X	X
Process anchor			X	X	X		X
Collaboration conductor	X	X					X
Change management agent		X				X	X
Sprint planner			X	X			
Integration Anchor			X	X			
Conflict Navigator	X						
Sprint reviewing				X			
Prioritization				X			
Estimation				X			
Travelling				X			
Project management				X			
Planner					X		
Motivator					X		X
Life coaching	X						X
Agile-Lean practitioner	X					X	X

The case study results also showed that it is a helping profession, where the goal is to help the coachees to pursue their goals and for that, different people skills are important to master, like knowledge how to connect to people etc., but also coaching itself. Case study participants emphasized the importance of experience and self-awareness. Obviously, nobody would master all the needed skills all at once, so it is crucial to be aware of your own abilities and make sure you know from where to seek help and which domains you have to make the effort and learn. Although knowledge about Agile Frameworks is a must. It's not a profession that could be learned only from a book or from a course, one will mature via experience.

Practitioners themselves also noted, that the role captures multiple roles inside of it. That is coherent with Althoff 's findings where he noted, that coaches take more than one role while working as Agile Coaches [36]. And it's hard for one person to know everything about everything, which is why Agile Coaches are different and have often different strengths. This is something that was also mentioned in the case study made in Spotify, where coaches mentioned that every coach works a bit differently, depending on their personal background and interests [17].

In summary what is required from Agile Coaches, is that they know at least a little about every domain of the role, but since the list of potential responsibilities and skills needed for that is rather long, every coach specializes on something and masters the skills needed for that specific area of the role. It was found in the study, that the role is perceived as a helping profession, whereas it is important to acquire different people skills. Although it is accepted, that the person in this role has his or her strengths in some specific area, the knowledge and ability to implement Agile practices is a must for everybody in this role.

5.2. What challenges do Agile Coaches encounter in their work?

It was mentioned more than once, that since the role is big, coaches have different backgrounds and strengths, thus different people face different challenges. But there were some that were mentioned more than once. These will be discussed next and compared with the findings from literature.

The challenge, that was mentioned the most, was about preserving authority. There were several reasons for that e.g. it is a junior coach who is only starting to prove himself or herself in this role, or one wants to be a friend with the team at the same time, or just because the profession itself is young and is still evolving. Since the coach doesn't have a formal authority over the coachee, it is sometimes a challenge to stand by your ideas. In earlier studies, it was mentioned, that it might be a problem when practitioner do have a formal power and is in fact in charge of the team [33], then it could easily endanger the autonomy of the team and therefore also challenge the following of the Agile practices. In current study that was not the case, but it was shown that, when the coach doesn't have a formal power and has to do the job via influencing people and selling the ideas in other ways, it can be a challenge.

The second challenge mentioned, was the problem with understanding what is the most important thing to do at the moment. Understanding the real issues, that should be approached could be challenging, since it might be hidden in deeper layers under the surface. In other cases, it might be, because coach has too many responsibilities and can't focus on the team enough to understand their needs fully. The latter case was also found by Bäcklander, where she concluded that coaches feel that they are successful at their job, when they are spending time with the team and responding to their needs during the very moment it is happening [17].

Third challenge, what was mentioned more than once, was the difficulty of changing people's mindset. This is something that was also mentioned in previous studies e.g. by Parizi [40] where it was stated, that before Agile transformation, people were used to one type of processes for many years and because of that, they might be reluctant to change. Moving from traditional methodologies to Agile doesn't only mean that one will have a new process to follow while developing, but the team will have to be independent and for some people, who are used to command and control style, it is a very big change [40]. In current study, the importance of aligning the plans with management was mentioned separately. And also, this is something that is in line with previous studies, where it is stated, that most important factor to succeed, is to get the managers support from the very beginning [14], [4].

One of the things that was mentioned as a challenge, was the modest skills in conducting coaching as part of the role. It could be, that since it is a new profession and quite many practitioners have a background in IT and not in coaching or psychology, this is a new competence for them, so one will have to learn and practice it before they feel comfortable in using and applying it on daily basis.

In summary, since it is a big role, where every coach is a bit different, the challenges depend on particular coach and his personal background and expertise. Among the obstacles, coaches face in their daily life, different things were mentioned, e.g. preserving authority is sometimes a challenge. Understanding what is the real problem that should be solved, is sometimes hard. Also changing the mindset is challenging, understanding what is important while having many things to do and many teams to take care of at the same time, is difficult.

5.3. How do they address challenges in their work?

Under this research question, the solutions to above mentioned challenges will be discussed.

First challenge, that was discussed under previous research question, was a challenge with preserving authority. One thing, that was pointed out by interviewees was, that it is more beneficial to help teams, who ask for help and not approach the teams who don't look for help. In this case, the foundation for cooperation is already there and teams are more likely to cooperate. The approach, were teams approach coaches and not vice versa, was also mentioned in another study conducted by Paasivaara and Lassenius [14], where it was stated, that coaches were not advertised in the company, but the word about their services spread from one person to another and teams approached coaches when they needed help.

Second challenge discussed earlier, is the challenge about understanding, what is the most important or real problem, that should be addressed. Since there were different reasons for that issue to raise, there are different solutions proposed. Under methods, there were listed different tools that coaches use, one of the methods was asking questions, especially open questions, why-questions. These will help the coaches to understand, what is the real problem the coachee is tackling.

It was also mentioned that different coaches are fit for solving different problems and e.g. it is more beneficial for junior coach to start coaching one team and facilitate events in order to embrace the profession, since it was also mentioned more than once, that the profession of Agile Coach is not something that you can fully master by reading books and attending courses, but you need a real life experiences. This is also proposed by Adkins where she proposes different career paths how to become an Agile Coach and states that often Agile Coaches previous occupations were either Scrum Master, tech lead or project manager [30]. More experienced coaches can then work on organizational level and be partners to management and coach them on more difficult and critical questions.

Third challenge had to do with changing the mindset. It is a hard challenge and something, that is often mentioned in the literature e.g. by Parizi et al. [40]. There were few things, that were mentioned that could be helpful. One option, that was brought out by interviewees, was again one-on-one talks, where it is possible to discuss, ask questions and find out the issues, that could be addressed. On the organizational level, it was mentioned, that before starting to implement Agile, it is important to work with management and get their support. That is something, that is often mentioned in literature, that in order for the Agile transformation to be successful, it is extremely important to have the support from the management [14]. One solution, that was mentioned about different challenges, is that one should only help the ones who want to be helped and not force the change on people. In before mentioned study, it was also mentioned, that the process should not be forced on people and process of change should be taken slowly [14].

Regarding coaching competence there were no other solutions proposed, but just to practice, make mistakes and learn from them. It is already a win, when coach notices, what he or she has to learn to get better in this job. The role has to do a lot with self-reflections and it could be beneficial for the coach to also use it on himself or herself or among the team of coaches.

The solution often depends on the specific reason why this particular thing is a problem for this person. An approach that helped with more than one challenge, was to let the other side to be proactive and approach the coach, in this case the results were often better. With many challenges mentioned earlier, it is worth a while to ask open questions and “why” questions to understand the real problem, that should be addressed. In some cases, one just has to try and learn and gain experiences.

5.4. What value do Agile Coaches perceive themselves to have for companies they work with?

When asked, what is the value of this role, then common answer had the word “help” in it. It was mentioned that the goal of this role is to help teams to become independent, to help the coachees to become better in perusing their goals. Coachees can be different people, depending who is it, the practitioner is coaching. It can be a team, a team-member, a role (e.g. Scrum Master or Product Owner), a department, etc.. One practitioner elaborated the topic like this: *„... Agile Coach is the person who helps organization to become their best the same way like usual coach, like life coach helps coachee to decide what to do with their life and to get the most out of this. Agile Coach help the organization but within some boundaries so ... Agile Coaches know quite a lot about ... Agile ways of working, having expertise in this area, while there are quite a lot of competencies for Agile Coaches, this is competence why Agile Coaches are hired and needed.“* At the same time, the created value is a mutual responsibility, since the

coach alone, can do only that much and it is the team who has to commit to it. This is also partly why it is so hard to come up with the metrics for coaches, because they cannot force somebody to do something and therefore there might be different things and reasons, that influenced the team to change their behavior and different reasons why the potential productivity and effectiveness or mindset changed. That is something, that was also mentioned by Adkins, who mentioned, that coach has done a great job, when the team is doing great [30].

Created value depends on different parties, addition to above mentioned team, it depends on the company, their mindset and it also depends on the specific coach and his/her expertise and maturity. It depends, whether the other party is believing in this service, which has also a lot to do with their own previous personal experience with coaching. That finding was also found in previous study, where it was stated that when somebody already has positive experience with working with an Agile Coach, they value this experience [14].

In summary, the aspect of value is a big topic with the answer “it depends”. It depends on the company, on the coach, on the team etc. and what is more important, it is almost always a team effort, there is very little the coach can do on his/her own. It is somewhat clearer, what is expected from coach – to help the team to become independent, to help the organization to be more effective with the help of Agile principles and support the group dynamics in the teams and to help the coaches to pursue their goals.

5.5. Remote work

The worldwide pandemic of COVID-19 forced Agile Coaches to start working remotely.

As mentioned in results, remote coaching is more challenging in cases where teams were not yet established. It was also stated in the study made by Paasivaara and Lassenius, that in the active phase of coaching, where the processes are put in place, face-to-face communication is very important part of coaching [14].

The change was easier in cases, where the processes and everything else was already in place and running smoothly and the help from a coach was not that vital. If everybody knows what is expected from them and when and what to do, in case something goes wrong, then these sudden changes affect us less. This also shows how important it is, that those topics, processes and agreements are in place and how much a clear process can help a team in an unstable situation.

The situation of prompt remote work is somewhat challenging for coaches since, they have to figure out how to do coaching from now on, by doing it remotely and at the same time not losing the human touch from there. Also, because the methods they used in their work (e.g. observation, coaching, training) were mostly done face to face and it was somewhat hard to adopt to the new situation.

Some solutions were already proposed e.g. using more of virtual whiteboards, “bothering” team members more often to let them know, that they can talk to the coach if they need it, using more written feedback etc.

5.6. Threats to Validity

Next potential threats to validity will be described.

Regarding construct validity there is a potential risk, that since case study method was used, some of the phrases that were taken as proofs for specific codes, could have had indeed a different meaning behind them, than did the author interpreted them to be. In order to make the risk as small as possible, the phrases that were used for coding also included the broader idea of the phrase, so that after iterations of coding the meaning could be still be looked up from the original phrase.

Regarding internal validity, there is a potential risk, that while the conclusions are made based on dependencies between different themes, it could be that there are some relationships that were not considered. For example, while discussing possible solutions to possible challenges. In order to reduce this risk, different mind-maps were created from different themes in order to analyze their relations to each other.

Regarding external validity, there is a concern that, since it is a case study and it represents only the views and opinions of 8 people, the external validity could be low. The purpose of the study was to explore the topic, and future studies could be designed in a way that external validity would be higher and through these studies, the findings of this study could be controlled.

Regarding reliability, the process of coding is documented in Case study protocol, during the encoding process, many iterations were done in order to get the most accurate results. Since it is a qualitative study done by one person, there is a risk, that other people might have coded the data in different ways.

6. Conclusion

The aim of the thesis was to explore the role of an Agile Coach. The role is rather new and still evolving and has many faces. Peoples' journeys to this role are different and their strengths and their skills are different. What connects them, are the Agile ways of working and Agile mindset. It is impossible to master all parts of the role, some of the competencies needed for the role, are separate professions, but it is important to master few and knowledge about Agile is a must. Some practitioners mentioned that coaching is one of the hardest parts of the work. One important thing that was mentioned was self-awareness, one has to know what you know and also what you don't know.

In many cases, coaches are not forced on the teams, but the proactivity to involve the coach has to come from the other party. This profession has a lot to do with helping others and like with other helping professions, the results are better when the people want to be helped, because then there is already a foundation – a will.

And then it's about the personal match, is the coach competent in this area, where the potential coachee (a person, team or organization) needs his or her help with? In other words, is this coach fit to this problem? Does the coach have the resources e.g. time to focus enough on this client at this time? All those questions must get a positive answer in order for the coach-coachee relationship to work and provide an opportunity to create meaningful value as an Agile Coach.

In future studies it would be interesting to focus on the usage of the methods and challenges, that were mentioned in this study and find out which of the methods that coaches use on daily basis, are actually the ones that are used the most. And the same about the challenges, which are the ones that are actually occurring most often. It might be, that the ones mentioned in the thesis, were the ones that practitioners see to be the most important ones or are the most challenging ones for them, but it was not in the scope of the thesis to find out which of them are actually are the ones that occur most often. For that, some other method addition to interviews should be used, e.g. observation. In order to understand the value better, in the future also other roles should be included in the study (managers, team-member, etc.) and compare the answers to coaches' answers to build a more comprehensive picture of the value of this role.

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Appendix

I. Case study protocol

1. Preamble

1.1. Purpose

The purpose of the protocol is to give a structured overview of the case study, that is about the role of an Agile Coach working in various different working environments. The scope of the case study is to understand their work, their goals, tools they use in their daily work, what are their challenges, how do they solve them and how they perceive, they are valued in the team and in the company. Since it is quite a new role, one of the goals of the study is to understand the essence of the role, the responsibilities, their value and challenges that coaches encounter while working in this role.

1.2. Research questions:

RQ1: What is required to be an Agile Coach?

RQ2: What challenges do Agile Coaches encounter in their work?

RQ3: How do they address challenges in their work?

RQ4: What value do Agile Coaches perceive themselves to have for companies they work with?

Research questions evolved from the personal curiosity of the author and from the State of Art chapter on the matter of an Agile Coach. The aim of the thesis is also to give practical information to people who are interested in that role.

2. General Procedures

The aim of the case study is to identify what is needed to be an Agile Coach, how does she or he create value to the company, which are the common obstacles on the way and which methods do they use, while coaching their coachees. The data will be collected via interviews with practitioners, who have experience in conducting Agile Coaching as part of their job. These will be conducted via Skype or similar telecommunication application. If the interviewee agrees, then the interviews will be recorded, if not, notes are taken by the interviewer.

Recorded interviews will be transcribed. The audio files and transcriptions will stay confidential and will not be included with the thesis. The initial timetable for the case study is given in Table 1.

Table 1: Initial plan for the case study.

Procedure	Timeline	Comments
Finding the interviewees	1.03-15.03.2020	
Conducting interviews	16.03 – 29.03.2020	Interviewed should be conducted and transcribed
Coding	30.03. – 12.04.2020	Interviews are coded, themes and categories are established and illustrated with schemas
Writing the protocol	13.04 – 26.04.2020	

3. Research instrument

3.1. Interview questions

1. Meta data:
 - a. Current role / *Praegune roll*
 - b. Years of working in this role / *Kui pikalt olete selles rollis töötanud?*
 - c. Previous role / *Kellena töötasite enne sellesse rolli astumist?*
 - d. Education / *Milline haridus teil on?*
 - e. Years of working experience (any work) / *Kui pikk on teie üldine tööstaazh?*
 - f. Number of the teams / *Kui paljude tiimidega te regulaarselt töötate?*
 - g. Size of the team(s) / *Mitmeliikmelised tiimid on?*
2. Who are you clients (software development teams, organization management, other departments, etc)? *Kes on teie kliendid? Millega teie coachitavad meeskonnad tegelevad?*
3. Do you work with teams that are in between Agile transformation or with teams that are already implying Agile principles, but need help? If so, what are their problems? / *Kas need tiimid, kellega teie tegelete on hetkel agiilsele arendusele üle minemas või juba praktiseerivad agiilseid praktikad, kuid vajavad mingit abi?*
4. Are you working with your teams in face-to-face interactions or are you coaching them remotely? What are the biggest differences when working with both types of teams? *Kas te töötate oma tiimidega füüsiliselt koos (samas asukohas, majas või kaugtööna?) Millised on peamised erinevused, kui kasutate mõlemal juhul coachimist?*
5. How does the team find you? / *Kuidas tiim coachi leiab?*
6. Do you also use coaching? / *Kas kasutate oma töös ka coachingut?*
 - a. How does Agile Coaching take place, is there a framework, phases that you follow, when starting with a new team? / *Kuidas alustate, kui saate endale uue meeskonna coachimiseks, kas kasutate välja töötatud raamistikku/protsessi?*
 - b. Which methods do you use when coaching? / *Milliseid meetodeid coachingul kasutate?*
 - c. How long does the coaching take place? (The period of coaching for one team) / *Kui pikalt ühte tiimi coachite?*
 - d. What are the challenges that you are facing while coaching? / *Mis on coaching juures kõige raskem?*
 - e. How have you solved the challenges? / *Kuidas neid keerukusi/raskusi lahendate?*

7. How has your role developed/changed? / *Kuidas on teie roll arenenud /muutunud?*
8. Who are the people that you work the most with, stakeholders? / *Milliste osapooltega teete kõige enam koostööd?*
9. Who is an Agile Coach in your mind? / *Kes on teie meelest Agile Coach? Kuidas te seda rolli defineeriksite?*
10. What kind of competencies do you have to have, in order to be a successful Agile Coach? / *Millised kompetentsid on vajalikud selleks, et olla edukas oma töös edukas (Agile Coachina)?*
11. What is the impact of the Agile Coach? / *Milline on Agile Coachi mõju?*
12. How does the team/organization know that you have been successful? / *Kuidas meeskond ja organisatsioon saab aru, et oled olnud oma töös edukas?*
13. How is that role valued in the company? / *Kuivõrd tunnete, et see roll on ettevõttes/asutuses väärtustatud?*
14. What do you enjoy the most about the role? / *Mis Teile selle rolli juures kõige rohkem meeldib?*

4. Data analysis guidelines

4.1. Design

4.1.1. Method

The goal of the Case study was to explore the role of an Agile Coach, so the unit of analysis is the role of an Agile Coach perceived by practitioners. For that purpose, semi-structured interview questions were designed which helped to explore the role of an Agile Coach. The design and flow of the case study is shown on the Figure 1.

Most of the interviews were conducted via Skype and recorded. One interview was recorded via voice recorder. In one instance the Skype call was not recorded because of technical difficulties, and the interviewee answered the questions after the interview one more time in a written format. The interviews were between 32 min and 1h 2 min long.

The qualitative analysis is mostly based on the guidelines given by Braun and Clarke, who stated six phases that should be included in thematic analysis: familiarizing yourself with your data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, producing the report [18].

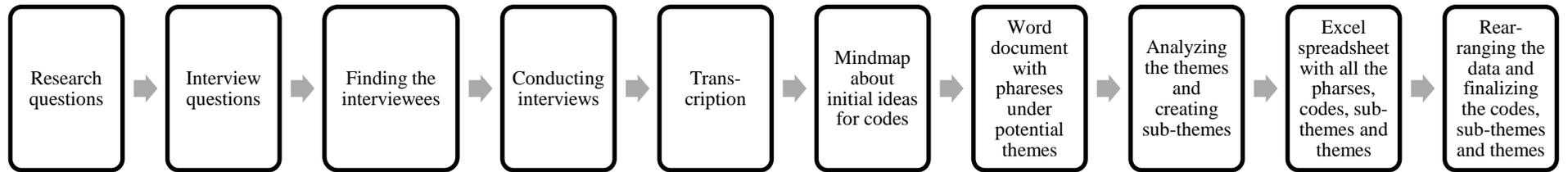


Figure 1: Case study design.

According to Guest, Bunce and Johnson [43] the saturation of the data is established between 6 and 12 interviews. Interviewees will be found via networks created for people whose work is involved with Agile coaching (e.g. Agile Meet-ups), via personal networks of the author or via LinkedIn search using the search word “Agile Coach” among people and limiting the search with people working in Estonia. In latter case a search was conducted in LinkedIn premium search engine. The search listed people who had working experience as an Agile Coach, after that profiles of listed people were checked and in case the person indeed had listed working experience as an Agile Coach according to LinkedIn profile an introduction letter was sent to the person. In case, there was a positive answer an interview was agreed where the author explained more thoroughly what the purpose of the interview is and who are accepted as potential interviewees.

Interviews are semi-structured in order to explore the topic more thoroughly and get more insight from the interviews and their experiences as coaches. Since some of the interviewees spoke Estonian and others did not, interviews were carried out either in Estonian or in English.

The actual timetable for the Case study is presented in Table 2.

Table 2: actual timetable for case study.

Procedure	Timeline	Comments
Finding the interviewees	1.03-10.04.2020	8 interviewees
Conducting interviews	16.03 – 19.04.2020	Interviews are conducted and transcribed
Coding	30.03. – 10.05.2020	Interviews are coded, themes and categories are established
Writing the Case study protocol	20.04 – 10.05.2020	

4.1.2. Background of the interviewees

Selection criteria for interviewees: practitioners, who according to their own words practice Agile Coaching in their work.

Although the study is about the role of an Agile Coach, practitioners with the title Scrum Master are also included among the interviewees, since they also conduct Agile Coaching as part of their daily activities. At the same time Agile Coaches are sometimes also fulfilling responsibilities which are commonly known to be Scrum Master responsibilities. The other reason is, that the same role may have different names in different companies. So, the distinction between the roles is not that clear and since it is an explorative study about the role of an Agile Coach, the criteria for choosing the participants is that if they feel that they practice Agile Coaching in their role, they can participate in the study. One of the interviewees was no longer working in this role, but had an experience as working one in the past and reflected on the experience from the past. Overview of the interviewees is found in Table 3.

Table 3: Descriptive information about the participants.

Participant	Years of experience working as an Agile Coach and/or a Scrum Master and/or with a similar title	Number of teams the coach is working with at the same time	Coaching the organization (different roles/departments /management of the company)
P1	More than 5	0-2	yes
P2	More than 5	0-2	yes
P3	2-5	More than 5	yes
P4	0-2	2-5	no
P5	0-2	2-5	no
P6	More than 5	0-2	yes
P7	More than 5	2-5	no
P8	2-5	2-5	yes

The study focused on the personal experience in that role and not on the specific experience in one company. While answering the questions about their experience as a practitioner, they did not narrow their answers to the experience only in current employment, but generalized on their whole experience in these roles.

4.1.3. Construction of interview questions, conducting interviews

Interview questions were created with the aim to find answers to research questions and that the interview would not take more than an hour. Since some of the interviewees preferred to do the interview in English and some preferred Estonian, the questions were translated to both languages. The complete list of prepared questions is provided under section 3.1.

During the interviews the questions were taken as guidelines and not presented in the same order, the order and exact questions depended on the interviewee's answers to previous questions.

Interviewees were found via personal contacts of the author and also via LinkedIn search. Interviews were conducted between 18.03 – 17.04.2020. All of the interviews were conducted during the Emergency Situation which was declared by the Government of Estonia on 12.03.2020 because of the pandemic spread of Coronavirus COVID-19 in the World. Therefore, none of the interviews was conducted face-to-face.

4.2. Data analysis

All of the recordings were transcribed manually, except for one interview, where the recording didn't work, and the interviewee wrote down the answers after the interview and send them to the author.

After transcribing the recordings, the author read through few transcripts to further familiarize herself with the data and made notes to the transcripts on the right side of the transcript paper, like advised by Johnny Saldana [44] and started to build a mind map (see Figure 2).



Figure 2: Mind map in process about initial ideas about the themes.

Although the themes were not exactly addressing the research questions, they were still quite well aligned with them. According to Braun and Clarke the chosen analysis methodology is more theoretical thematic analysis than inductive, since it is more driven by the interests of an author than by the raw data [18].

After the first ideas about the potential themes were gathered, a Word document with all the transcripts together was created. The entire transcript was 46 pages long. After that all the transcripts were read through one more time, so that every phrase got an equal amount of attention in order to decide whether it could be a potential code or not, like suggested by Braun and Clarke to do in phase 2 of the analysis [18].

As a next step, all phrases that could be interesting as potential proofs for codes were added to the document under potential themes that came from the mind map mentioned earlier or were created during the re-reading the transcripts. After that the information in Word document with phrases were copied to an Excel sheet, where author went through the codes and phrases again and either discarded the phrase or coded remaining item (phrase). At the same time already established themes were re-checked and the author created potential new sub-themes and themes (see example in Figure 3 and 4).

Code 1	Code 2	Code 3	Code 4	Code 5
AGILE COACHING	Who is an agile coach according to Agile Coaches and Scrum Masters?		Agile Coach has multiple roles inside it	big role
				somebody who has multiple roles inside of one role.
				some of the competencies are separate profession
				There is more to this role then just coaching and mentoring.
			Must know more then one Agile Framework	Has to cover multiple areas, not just Scrum
				Agile Coach must know more then one Framework
				must have other competencies addition to knowledge about Frameworks
			Agile Coaches can be different and have different competencies	Agile Coaches can be different
				Coaches can have different competcies , but they share the same values.
				two types of coaches - solving technical or psychological/social problems.
			work with different clients on different levels.	enterprise level coach provides service to the hole organisation
				Local coach work with specific teams
			umbrella	umbrella
				must look at the whole organisation
			helps the coachees	helps to take responsibility and meet goals

Figure 3: Example of analysis process.

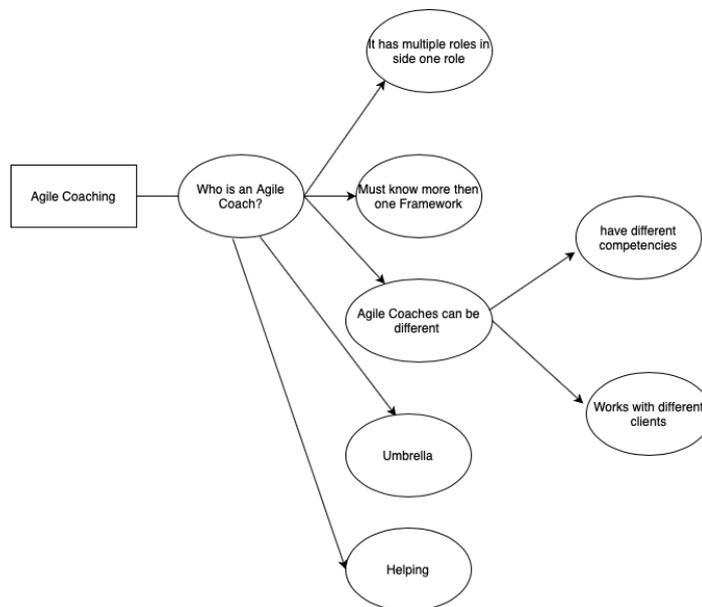


Figure 4: searching for themes.

Overview of the encoding process is given in Table 4, where actions are described according to by Braun and Clarke [18]. Not all the steps indicated by Braun and Clarke were followed explicitly, but were taken as guidelines.

Table 4: Encoding process inspired by Braun and Clark with input from the author.

	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6
Description of the phase according to Braun and Clarke [18]	Familiarizing yourself with your data	Generating initial codes	Searching for themes	Reviewing themes	Defining and naming themes	Producing the report
Results in current case study	Interviews were manually transcribed by the author.	Initial ideas were gathered, and initial Mind map was created. A Word document was created with initial codes and phrases which was transformed to an Excel sheet.	The phrases on Excel sheet were read through again, potential themes and sub-themes were created.	The phrases on Excel sheet were read through again, potential themes and sub-themes were created.	Themes were finalized.	Results in the thesis.

The coding process is illustrated on coding tree on Figure 5. First phrases, which were coded were collected. After that, the codes were looked through again and upper level codes were created. After that, potential themes were found. After some iterations of analysis, a hierarchy of phrases, codes and themes was built.

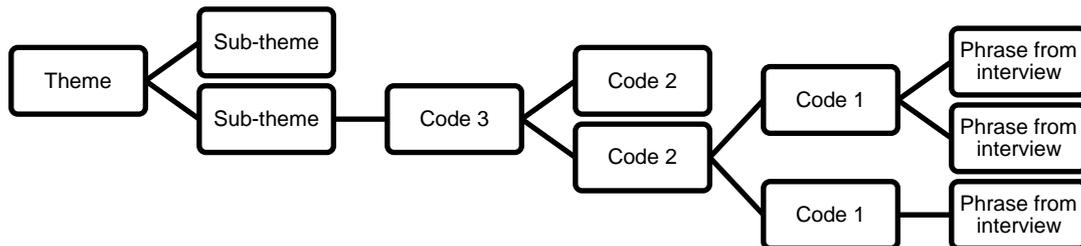


Figure 5: Coding tree design for the case study.

“Theme” level represents the finalized themes. Sub-themes are branches of themes and codes are branches of sub-themes. For some themes, the hierarchy was on 4 levels (e.g. theme, sub-theme, code, phrase), for some themes there were 6 levels of codes presented and therefore the levels like code level 1, code level 2 and code level 3 were used. The goal was to distinguish different level of codes, sub-themes and themes. At the end, the coding tree had maximum of 6 levels (See Figure 4). The results of the analysis process on each step are shown below in Table 5.

Altogether there were 330 rows of phrases that were coded, excluding the phrases that were about the meta data of the interviewees. The coding process is illustrated on Table 4.

Table 5: Encoding process.

	No of Themes	No of Sub-themes	No of Codes level 3	No of Codes level 2	No of Codes level 1	No of Phrases
Phase 2	9	34	-	-	-	-
Phase 3	10	8	23	126	330	330
Phase 4	9	8	23	129	326	326
Phase 5	5	11	81	60	273	273

After the initial codes and themes in Excel sheet were created, author went through the codes and themes again and finalized them. The final mind-map is shown on Figure 6.

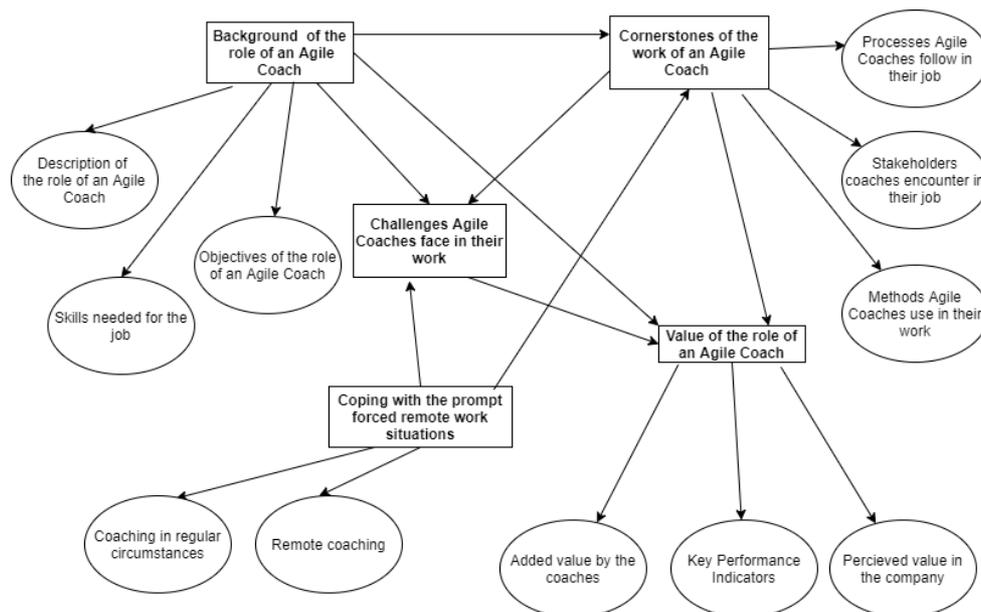


Figure 6: Mind-map with finalized themes.

II. Litsents

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Mina, Kadri Daljajev,

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15.05.2020